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CLINICAL EVIDENCE

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THE REAL PRACTICAL USE OF
AMERICANBERRY EXTRACT

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DEITERS, of this edition.

Dr. Lluís Gausa and the collaborating specialists, from their corresponding collaborations.

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CLINICAL EVIDENCE

THE REAL PRACTICAL USE
OF AMERICANBERRY EXTRACT

- ✦ 25 clinical cases documented by 13 specialists
- ✦ Address: Dr. Lluís Gausa

PREsENTATIoN

Gunter Haesaerts
Francesc Picas

scientific in terms of its expression (research support).

The best proof of this is the book you have in your hands, which clearly reflects the practical dimension that Urell® can achieve in daily clinical practice, as a dietary complement to pharmacological treatments.

By sponsoring this very interesting compilation of experiences, PHARMATOKA* and DEITERE** would like to express their heartfelt thanks.

We would like to thank Dr. Gausa and the 13 specialists who have collaborated in the study for their valuable contributions, which stimulate us to continue advancing and offering more and better arguments to health professionals.

With a common goal for the benefit of the patient: to improve the health of the urinary tract by keeping it free of Escherichia coli.

AMERICAN CRANBERRY: PAST,
PRESENT AND FUTURE

American cranberry juice has long been popularly considered to be the most popular fruit juice in the world: American cranberry) helps to maintain a healthy urinary tract.

Probably the most widespread medicinal use of American cranberry juice has been the treatment of urinary tract infections (urethra, bladder, kidneys and prostate) caused by pathogenic bacteria, mainly Escherichia coli.

The first documented research on this effect dates back to 1923, when scientists hypothesised that the low pH, due to the high acid content of American red cranberry juice, fought infection by acidifying urine. More recent research points to another mechanism.

In 1991, researchers showed that cranberry juice prevented Escherichia coli from adhering to uroepithelial cells in the urinary tract wall.

In 1994, a 6-month, randomised, double-blind, placebo-controlled, placebo-controlled clinical study involving 153 elderly women who were given 300 ml/day of cranberry juice concentrate showed a significant reduction in bacteriuria and number of leukocytes.

urine cytes, both of which are markers of urinary tract infection.

In 1998, a group of researchers identified, by bio-directed fractionation, proanthocyanidins (PAC), or condensed tannins, as the constituents responsible for the anti-adhesive activity in the American cranberry.

In the 21st century and up to the present day, clinical and pharmacological trials have multiplied at all levels, which is a clear indicator of the scientific interest that American cranberry extract has aroused around the world.

In this respect, Urell® is the product that has become the international benchmark. The reason for this is undoubtedly Pharmatoka's guarantee of the actual content of type A proanthocyanidins in its Urell® product.

Unfortunately, most of the products that have appeared recently to take advantage of the situation are either substitutes based on grapes or other fruits, or cannot pass a content analysis.

In any case, Urell® has from the outset opted for a rigorous approach to manufacturing (content guarantee), and

* Laboratory creator and owner of Urell®.

** Urell® distributor laboratory in Spain and Portugal

foreword

Dr. Lluís Gausa Gascón

*Urologist
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INTRODUCTION

Ll. Gausa Gascón

*Urologist
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I have the honour of directing the writing of this collective work, which is the result of the personal experiences of various specialists. It presents real cases of practice in the field.

clinical work in the areas of Urology, Nephrology and Andrology.

Written in the format of a clinical case, the reader will find an introduction, a presentation of the specific case (easy and pleasant to read, supported by numerous iconographies), a discussion and a conclusion by the specialist.

Urinary tract infections, in particular uncomplicated infections or cystitis, are the second most important group of infections in the population after respiratory diseases.

It is essential to know the predisposing causes, causative pathogens and antibiotic resistance in order to establish a rational antibiotic treatment that avoids resistance. The choice of antibiotic should be the result of health policies.

Equally important elements in the treatment of these conditions are the hygienic-dietary rules. Recent studies support the clinical use of cranberry herbal medicine as a prophylactic for urinary tract infections. Cranberry contains proanthocyanidins which reduce bacterial adherence to the urinary epithelium. The French Food Safety Agency estimates that 36 mg of cranberry is safe for the treatment of urinary tract infections.

per day (DMAC method) the daily dose necessary to achieve this effect.

Furthermore, in June 2008, the French Agency for the Safety of Health Products (AFSSAPS) confirmed the importance of the 36 mg PAC dose per day in its "recommendations on cystitis for physicians".

However, we must not forget that, although there are already publications presenting statistics that endorse the therapeutic power of the American cranberry, we are still in an initial phase of study, which makes it necessary, and I invite those practitioners interested in the subject to do so, to broaden knowledge of its use and results.

First of all, I would like to thank each of the specialists who contributed the cases for their meritorious work. I would also like to thank Dr. H. Villavicencio for his personal support and constant scientific encouragement. I would also like to thank the companies Pharmatoka and Deiters for their technical-scientific support and sponsorship of the work.

Finally, I hope that reading this book will provide you with useful clinical information for the use of the American Cranberry in the treatment of patients with lower urinary tract infections and for the benefit of their quality of life.

Urinary tract infections have a high incidence worldwide and are responsible for a substantial share of public health budget expenditure.

Lower urinary tract infections are clinically a potential health risk and cause great discomfort to sufferers. They affect both sexes, women more frequently due to anatomical reasons (length of the urethra, presence of prostatic secretions, etc.). One woman in two has a urinary tract infection at least once in her life and up to 25 % of elderly women have recurrent urinary tract infections.

E. Coli is the aetiological pathogen in 90% of cases of cystitis in women and also the most frequent in men. Its virulence is closely related to the presence of fimbriae, bacterial structures responsible for tissue adherence¹.

There are different types of bacterial fimbriae. The type I or mannose sensitive ones, typical of E. coli, inhibit their growth by attaching carbohydrates to the cultures. Another type of fimbriae, the P fimbriae, are possessed by more aggressive E. coli. P designates pyelonephritis. Attachment of these P fimbriae to the membrane glucosyl-sphingolipids of renal cells precedes parenchymal invasion. These P fimbriae are not inhibited by fructose or other carbohydrates, and are also called

mannose resistant fimbriae².

Antibiotics are the basis for the treatment of urinary tract infections and also for prophylactic regimens, where they are usually administered in low doses, but in both cases they can cause alterations in the vaginal or intestinal flora. The rational use of antibiotics involves knowing the most frequent aetiological agent according to the population to be treated, the sensitivity and resistance to them, and even the concomitant therapies that may exist in patients.

The American Cranberry (*Vaccinium Macrocarpon* Aitor) is an acidic and astringent tasting berry, obtained from a low growing perennial shrub that grows in marshy areas of sandy soils in America, from Canada to southern Chile. It was historically used by indigenous people as food for direct consumption, to make juices, jellies and jams, and as herbal medicine for medicinal purposes. The recommended daily dose is 36 mg/day (DMAC method) according to the French Food Safety and Health Product Agencies.

There is also the European Cranberry (*Vaccinium oxycoccus*), a variety closely related to the American variety which produces smaller berries and which has not shown, unlike the American variety, that it can be used in the production of the European Cranberry.

The first is not a therapeutic action at all.

Several in-vitro and in-vivo trials have shown that cranberry has pharmacological activity as an adjuvant to antibiotic therapy in urinary tract infections.

Its action was initially thought to be the result of urinary acidification caused by its organic acid content. Its effect is now recognised for its proanthocyanidin content.

Proanthocyanidins have an inhibitory effect on type I and P fimbriae, leading to reduced adherence of bacteria to mucous membranes. This has been observed when added to culture media and in less than 3 hours of incubation^{3,4,5}.

Proanthocyanidins are actually oligomers and polymers of catechin and epicatechin, molecules classified as tannins, due to their ability to denature proteins. Those of the American Cranberry are of type A and B. Type A has adhesive activity, while type B (found in green tea, grapes and chocolate) lacks it⁶.

The anti-adhesive capacity (bioactivity) of type A proanthocyanidins present in the American cranberry has been detected in studies in the urine of patients after ingestion in juice and extract capsule form after 4-6 hours and up to 12 hours later^{7,8}.

To date, there is no description in the literature of interactions with other drugs, nor genotoxic or teratogenic effects of American cranberry, with only one exception: possible interference with warfarin, although there is a lack of clinical evidence in this regard. The Spanish Society of Gynecology

necology and Phytotherapy SEGIF set out to reach a consensus on aspects of the use of phytotherapy in the gynaecological field. The conclusions of the public meeting of the III Consensus held in Puente Riesgo (Cantabria) from 15 to 17 June 2007 were⁹:

- Type A evidence regarding the efficacy of American Cranberry in the adjuvant and preventive treatment of E coli urinary tract infections.
- The recommended adjuvant regimen: 36 mg PAC (DMPAC/PAC003 method) for 30 days per quarter for 1 year.

Evidence-based medicine demonstrates, in trials of American Cranberry versus placebo, the efficacy of American Cranberry in the treatment and prophylaxis of uncomplicated lower urinary tract infections caused by E. coli^{10,11}.

Cochrane Foundation meta-analyses (of greater value than a single clinical trial by aggregating weighted data from several of them) carried out on randomised studies of the American cranberry conclude its usefulness in preventing recurrence of urinary tract infections in women, although it is unclear in other population groups¹².

New clinical studies are underway that aim to demonstrate with scientific rigour the usefulness and efficacy of the American Cranberry in improving the treatment of urinary tract infections. While awaiting these, we present a series of clinical cases based on the personal experience of various specialists, which I hope will be useful and of interest to the reader.

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URINARY TRACT INFECTION AND CORRELATION WITH GENETIC AND BEHAVIOURAL FACTORS IN PRE-MENOPAUSAL PATIENTS

Introduction

Recurrent urinary tract infections are defined in the literature as 3 episodes of urinary tract infection in the last 3 years.

12 months, or 2 episodes in the last 6 months. In premenopausal women with no history of pathology and no anatomical or functional alterations, the risk factors for recurrent infections are of two types: genetic and behavioural. In 20-30% of women with a urinary tract infection, recurrent infection will occur.

Clinical case

We present the case of a 22-year-old female patient who was referred to the outpatient urology department for recurrent urinary tract infections for 3 years, with an increase in frequency in the last 3 months. The patient reported 8-9 episodes per year of symptoms compatible with cystitis since the age of 19, coinciding with the onset of sexual relations. In the last 3 months the frequency had increased, with 1 episode of urinary tract infection every 15-20 days. Cultures were positive for multi-sensitive *Escherichia coli*. She had never presented episodes of febrile urinary tract infection and the episodes occurred both post-coital and post-coital.

as intercoital.

His only history was an allergy to penicillins and sulfa drugs, and he was of ABO group. She did not report nocturnal enuresis in infancy. She had had two episodes of cystitis in the first and second year of life, and two more episodes of cystitis at 14 and 15 years of age. Both the mother and grandmother had had urinary tract infections in childhood and were currently under urological follow-up for recurrent urinary tract infections.

The ultrasound scan provided by the outpatient clinic was normal and showed no anatomical alterations or lithiasis. Voiding and bowel habits were correct. There was no obstructive or irritative voiding syndrome, no episodes of urgency or incontinence and she voided every 2-3 hours with no sensation of incomplete emptying. He had one bowel movement per day and genital hygiene was correct.

After assessing the family and personal history, and its association with sexual relations, post-coital antibiotic prophylaxis with fosfomycin-trometamol 3 g was prescribed, with a good response, and the patient remained free of new urinary tract infections at the 2-month follow-up. The control urine culture was negative.

In the subsequent follow-up 4 and 6 months after starting treatment, the patient presented recurrence of urinary tract infection on 3 occasions, occurring during the intercoital period. Phytotherapeutic treatment with American cranberry extract (Urell®) was added continuously to her post-coital prophylactic antibiotic treatment, with no new recurrences at the 8, 10 and 12 month follow-ups.

At 12 months follow-up, post-coital prophylactic treatment was discontinued and treatment with phytotherapy was maintained. At subsequent follow-ups, the patient presented a recurrence of post-coital urinary tract infections at a rate of 1 episode every 3-4 months, reducing the frequency of urinary tract infections to 2 episodes/year. At present the patient has not presented an exacerbation of her episodes, maintaining the frequency of 2 urinary tract infections/year with a good response to a single dose of fosfomycin-trometamol 3g.

Discussion

There is clear evidence of a special receptivity to the pathogens.

The urinary genitalia of urothelial epithelial cells in patients with urinary tract infections.

patients with recurrent urinary tract infections. Thirty-four percent of patients with recurrent infections have HLA A3 compared to 8% of the general population¹. Women with ABO or non-secretory blood group have an increased risk of recurrent infections². In addition, women with re-petition urinary tract infections have an increased incidence of first-degree relatives with recurrent urinary tract infections.

Behavioural factors include poor voiding and/or bowel habits, as well as sexual activity. Risk factors for recurrent urinary tract infections in sexually active women include the frequency of sexual intercourse and the use of spermicides or barrier methods^{4,5}.

In premenopausal women without anatomical or functional alterations, treatment options include basic measures such as proper genital hygiene education, a good urination habit and regulation of stool habits. The use of short courses of antibiotic treatment postcoital or at the onset of symptomatology allows for aborting and controlling new infectious episodes. Postcoital voiding with a flushing effect or the use of phytotherapy with cranberry extract (Urell®) can add to better control of these episodes.

Conclusion

In pre-menopausal women without anatomical or functional alterations, efforts should be directed at avoiding those behavioural factors that predispose to the development of urinary tract infections. However, genetic predisposition to these infections requires a constant therapeutic attitude over time through the use of antibiotics and/or phytotherapy, given that we cannot act on this genetic factor, at least at present.

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URINARY TRACT INFECTION ASSOCIATED WITH ACONTRACTILE DETRUSOR AND URINARY INCONTINENCE DUE TO SPHINCTERIC DISTURBANCE

Introduction

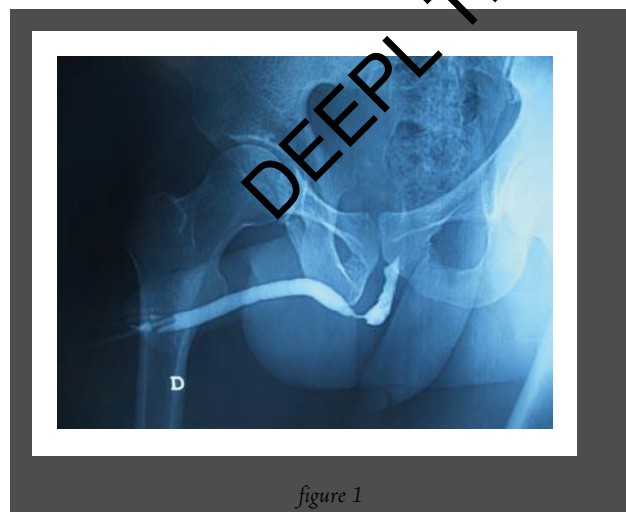
Neurogenic dysfunction of the lower urinary tract can be caused by various entities and events affecting the nervous system responsible for its control. The priorities for treatment are protection of the upper urinary tract, improvement of urinary incontinence, improvement of quality of life and restoration of all or part of the function of the lower urinary tract.

Clinical case

We present the case of a 26-year-old male patient who attended his first urology visits referred from the emergency department for partially obstructive radiopaque right lumbar lumbar ureteral lithiasis, diagnosed during an episode of right renal colic the previous week. The patient's only previous history was an episode of expulsive right renal colic at the age of 19 and an operation on cavernous haemangiomas of the right forearm at the age of 12.

Extracorporeal lithotripsy was performed with subsequent expulsion of the lithiasis, with no ureteral lithiasis remnants being seen on the control X-ray. At the visit 6 months after treatment, the patient reported dysuria, daytime pollakiuria and

need for a voiding press of 2 months' duration. A voiding urethrography was performed, which revealed a possible bulbar urethral stricture, partially trabeculated bladder and voiding bladder descent with no visible residue, with a normal bony framework (Figure 1). Subsequent urethroscopy confirmed stenosis at the level of the bulbar urethra, and an extended thermal urethroplasty was performed.



At the follow-up visit 6 months after surgery, the patient reported persistence of voiding symptoms, with the need for a urinary press. Urethrography showed no signs of restenosis, so a urodynamic study was requested (Figure 2).

The urodynamic study reported a normal filling phase and bladder sensitivity with a failed micturition attempt by an acontractile detrusor with absence of infravesical obstruction and serrated morphology of the pressure-flow curve. Given the possibility of a neurological condition, a lumbar nuclear magnetic resonance imaging scan and assessment by the neurology department were requested. The patient was diagnosed with conus medullaris ependymoma and underwent surgery without subsequent complications.

The patient attended our follow-up visit and a new urodynamic study was requested to assess his situation after neurological surgery (Figure 3). The patient performed valsalva micturition and presented with voiding on exertion and post-ejaculation of small amounts (with normal sexual function). In the interval between surgery and our follow-up, the patient had two episodes of non-febrile urinary tract infection with positive cultures for multisensitive *Escherichia coli*, which had been limited with antibiotic treatment. The opinion of the study

The urodynamic study reported the persistence of an acontractile detrusor with a normal filling phase. There was also a moderate postvoid residual. The control urine culture was positive for multisensitive *Escherichia coli* except phosphomycin and quinolones.

The patient started a self-catheterisation programme with recurrent non-febrile urinary tract infections (2-3 episodes/month), despite suppressive antibiotic treatment with different antibiotics. Due to persistent infectious symptoms, phytotherapeutic treatment with cranberry extract (Urell®) was started, with a decrease in the number of episodes (1 episode/3-4 months).

Two years after the start of self-catheterisation, the patient reported no clinical changes in voiding quality, except for an increase in incontinence without urodynamic changes. The frequency of urinary tract infections was maintained at 1 episode / 4 months after maintaining phytotherapeutic treatment plus episodic antibiotic treatment. On only 1 occasion was the infectious process febrile, but did not require admission.

The urodynamic study, reno-vesical ultrasound and urethrography were carried out to assess the worsening of his incontinence and a proposal was made for the placement of an

showed no change, so an AMS 800 artificial sphincter was placed in the neck (cuff 10 cm, balloon 71-80 cm H₂O).

At the follow-up visit after surgery, the patient had no sputum, but required pressurised micturition. The post-micturition residual was 80 ml and the abdominal X-ray showed normal device placement. The patient had spaced self-catheterisation and only performed a morning catheterisation with a residual of 70-90 ml. Self-catheterisation was stopped and phytotherapy was discontinued.

The follow-up urodynamics performed after the operation showed no urodynamic changes with respect to previous studies, and at the last follow-up visit the patient only had minimal leakage on heavy straining without the need for absorbents or self-catheterisation, with a normal renal bladder ultrasound and no postvoid residual urine. The patient had no new episodes of urinary tract infection and control urine cultures remained negative.

Discussion

The diagnosis of an acontractile detrusor requires ruling out by

artificial sphincter after urological evaluation.

The examination and anamnesis, inhibition during the examination and psychogenic causes. Once these have been ruled out, it is mandatory to carry out an exhaustive general and specific study involving the detection of neurological pathology, as well as the sequelae responsible for the condition.

In neurological dysfunctions of the lower urinary tract, preservation of renal function is paramount. Urinary incontinence therapy will be important for the rehabilitation of the patient, contributing substantially to the improvement of the patient's quality of life.

Exercises or electrostimulation of the pelvic floor muscles and bio-feedback therapies can help in the treatment of urinary incontinence^{1,2}. ^{1,2} However, the use of urethral slings or the placement of an artificial sphincter allows more effective control of urinary incontinence, with the artificial sphincter being the first choice in men.

Non-invasive manoeuvres for bladder emptying in patients with acontractile-hypocontractile detrusor include Credé manoeuvres or the use of alpha-blockers to reduce resistance to bladder emptying^{1,4}. ^{1,4} However, intermittent catheterisation is still the gold standard for the treatment of this type of patient⁵.

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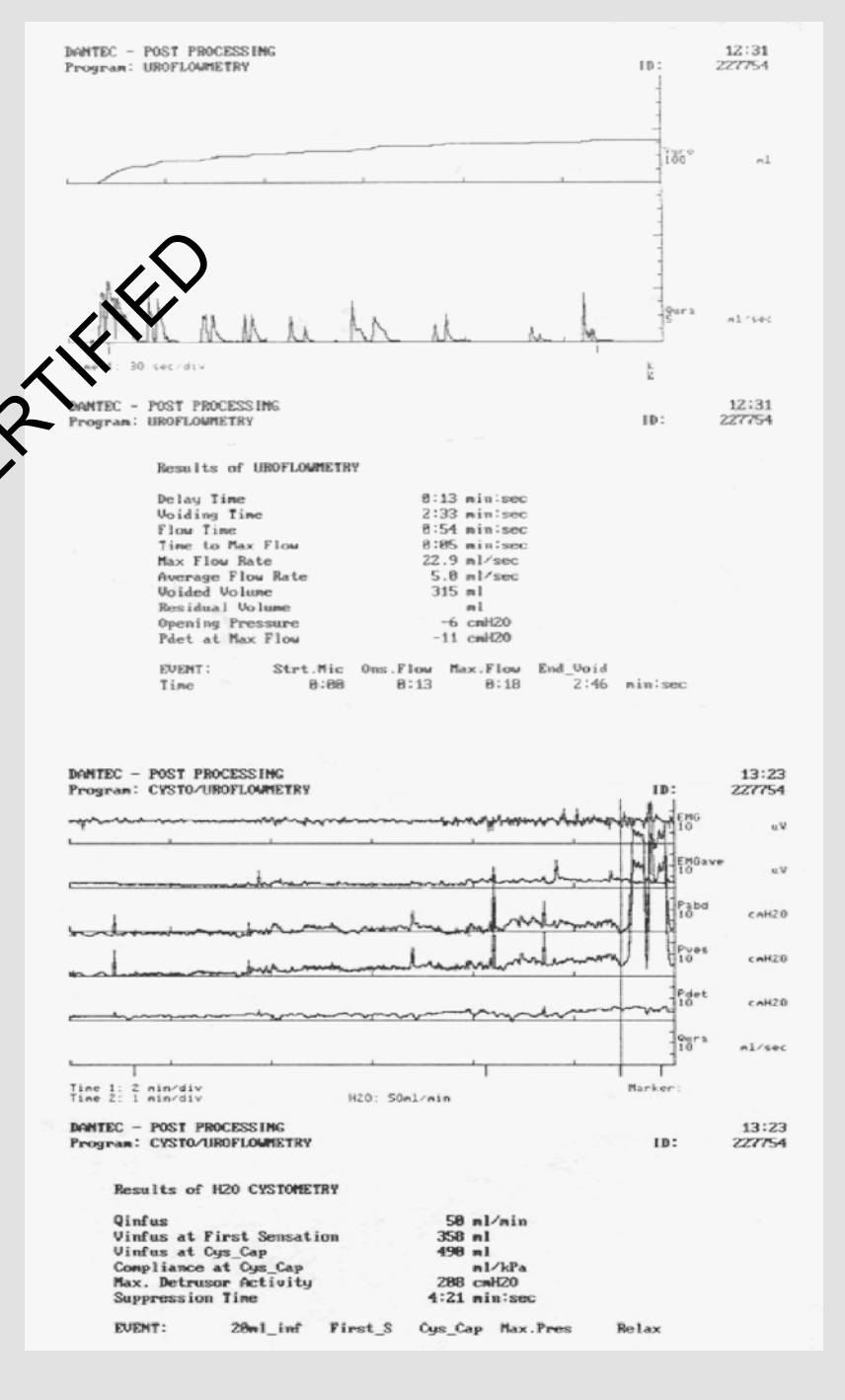
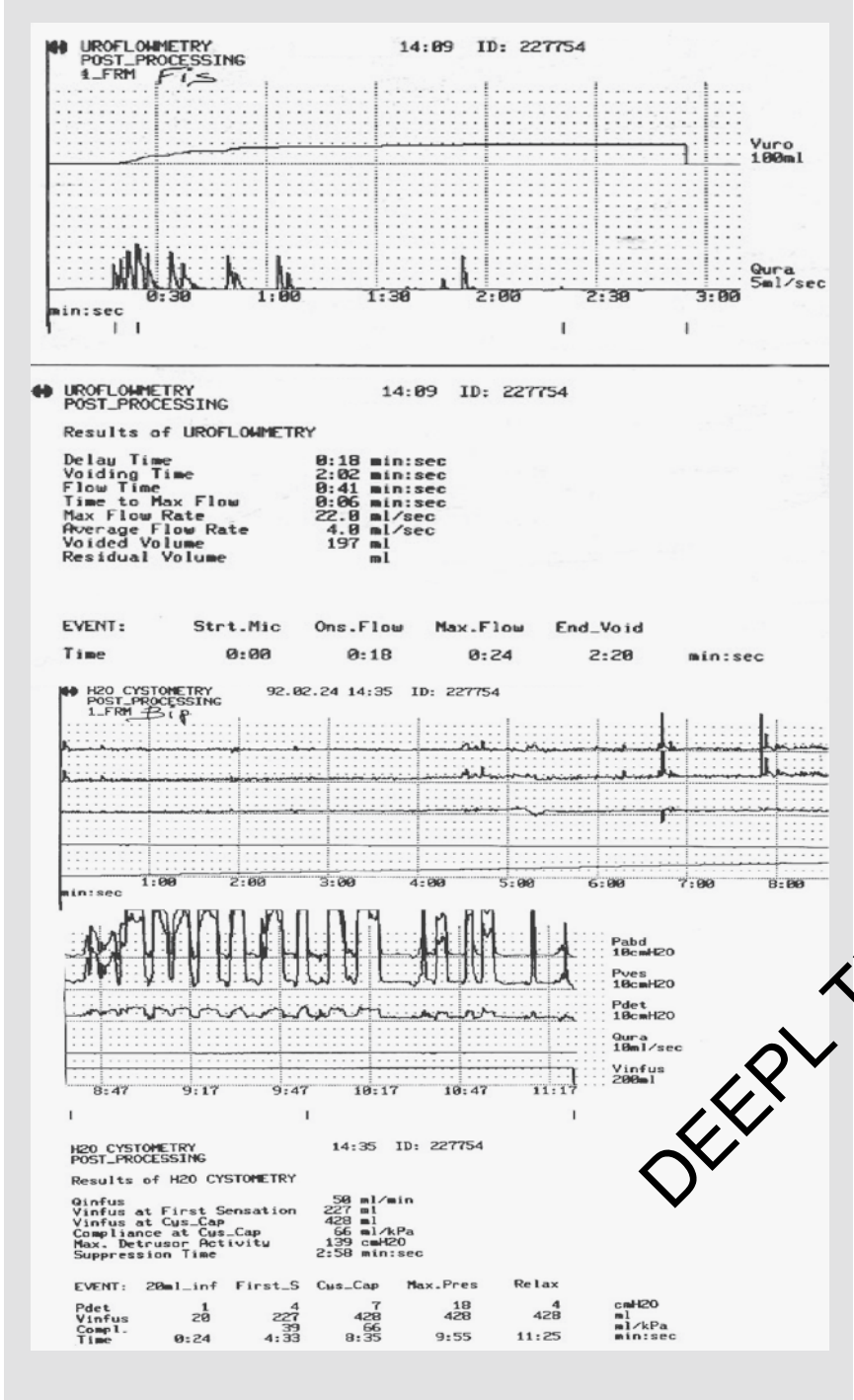


figure 2figure 3

Even if self-catheterisation is performed aseptically, there is a risk of urinary tract infection that is increased by insufficient patient education or too few or too many self-catheterisations. The use of antibiotherapy and phytotherapy is not intended to sterilise the urine, since the presence of bacteriuria in these patients is universal after 3 weeks⁶ in patients who perform self-catheterisation. The aim will therefore be to control episodes of symptomatic urinary tract infections and avoid their complications and their impact on renal function.

Conclusion

The diagnosis of acontractile detrusor makes it necessary to screen for the neurological pathology responsible for the condition. Treatment with autocateterisms is the treatment of choice in this type of patient, achieving bladder emptying. The use of antibiotics and phytotherapy (Urell®) is sometimes necessary for correct control of symptomatic urinary tract infections in order to avoid complications.

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RECURRENT URINARY TRACT INFECTION AND FOLLICULAR CYSTITIS

introduction

Follicular cystitis is a chronic non-specific cystopathy, which is characterised by a proliferation of large numbers of lymphocytes in the submucosal connective tissue, forming lymphoid follicles with germination centres. Although its aetiology is not entirely clear, it is thought to be the result of chronic exposure to irritants.

Clinical case

We present the case of a 79-year-old female patient who presented to the emergency department with macroscopic haematuria with clots that had been present for hours. The patient reported no dysuria, fever or previous lumbar pain.

The patient, who lived in an old people's home, was particularly dependent for activities of daily living and had the following medical history: obesity, arterial hypertension under medical treatment, diabetes mellitus under treatment with oral antidiabetics, chronic renal insufficiency, depressive syndrome under pharmacological treatment, appendectomy at the age of 19, and fracture of the left humerus secondary to a casual fall in November 2006.

As urological history, she presented with recurrent cystitis with 6-7 episodes/year for the last 5 years. The patient was admitted to the

The patient was admitted to the surgery department in November 2006 for abdominal pain and febrile urinary tract infection with polymicrobial urine cultures. Abdominal CT scan and cystography ruled out the presence of an enterovesical fistula. In April 2007 she was admitted to the internal medicine department for a febrile urinary tract infection and diabetic decompensation with a positive urine culture for multidrug-resistant *Providencia Stuartii*.

The patient reported a voiding habit with a daytime frequency of one micturition every 1-1.5 hours, nocturia on 5 occasions and urinary incontinence due to long-standing urinary urgency requiring 3 compresses/day.

On physical examination the abdomen was globular, painful in the hypogastrium with no signs of peritonism and no masses. Bilateral lumbar fist percussion was negative. Genital examination revealed vulvar acraurosis with an atrophic vagina without lesions or prolapse.

Urine culture was negative, and bladder washings were performed with extraction of abundant clots. After continuous bladder lavage and control of the haematuria, it was decided to

admission to the urology department. The renal-vesical ultrasound performed showed kidneys of normal size and morphology, with moderate bilateral uretero-hydronephrosis with no obstructive cause and the bladder could not be assessed due to the patient's intolerance to bladder repletion. An abdominal CT scan without contrast was requested, which confirmed the presence of ureterohydronephrosis without obstructive lithiasis (figures 1 and 2). The bladder showed diffuse thickening of the bladder walls, and endovesical lesions could not be ruled out due to poor bladder repletion. Laboratory tests on admission showed haemoglobin 110 mg/dl, leukocytes and leukocyte formula normal, creatinine 142 mol/l, urea 14 mmol/l, ionogram and coagulation within normal limits.

Given the suspicion of neoformative bladder pathology, armed cystoscopy was performed under intradural anaesthesia, visualising an area with an inflammatory, bullous and friable appearance that occupied the entire upper hemithelium with a predominance of the bladder dome (figure 3). Transurethral resection of the lesion described was performed and the muscular layer was found to be free of infiltration. After a good postoperative course, the patient was discharged with no further incidents.

The anatomopathological study of the specimen showed the presence of a transitional epithelium with no signs of neoplastic proliferation, plus an infiltrate of lymphocytic cells at the level of the lamina propria that was organised into follicles with germinal centres, findings compatible with the diagnosis of follicular cystitis.

Once the patient and her family had been informed of the anatomical-pathological findings at the outpatient clinic, suppressive antibiotic treatment was started with fosfomycin 500 mg at night for 2 months. Anticholinergics and oestrogen cream were prescribed for the genital area.

At the follow-up 2 months after discharge, the patient reported having had 2 episodes of dysuria lasting 2-3 days, which had self-limited without treatment, had improved her quality of urination, spacing her daytime frequency to 1.5-2 hours, together with a decrease in the number of urinary leakages, requiring only 1 pad per day. Genital trophism had improved, as well as tract ectasia, on control ultrasonography. The control urine culture was positive for multiresistant *Enterococcus faecalis*. It was decided to discontinue nocturnal treatment with fosfomycin, and treatment was started with American cranberry extract (Urell®) and continued anticholinergic and genital oestrogenic treatment.

In subsequent controls, the patient has maintained her voiding

quality with improvement in genital trophism. Cultures of con-

The results of the control tests were persistently positive for *Escherichia Coli*, *Enterococcus Faecalis*, *Pseudomonas Aeruginosa* and *Providencia Stuartii* with no recurrence of dysuria. At one year follow-up, the patient remains asymptomatic with no new episodes of haematuria.

Discussion

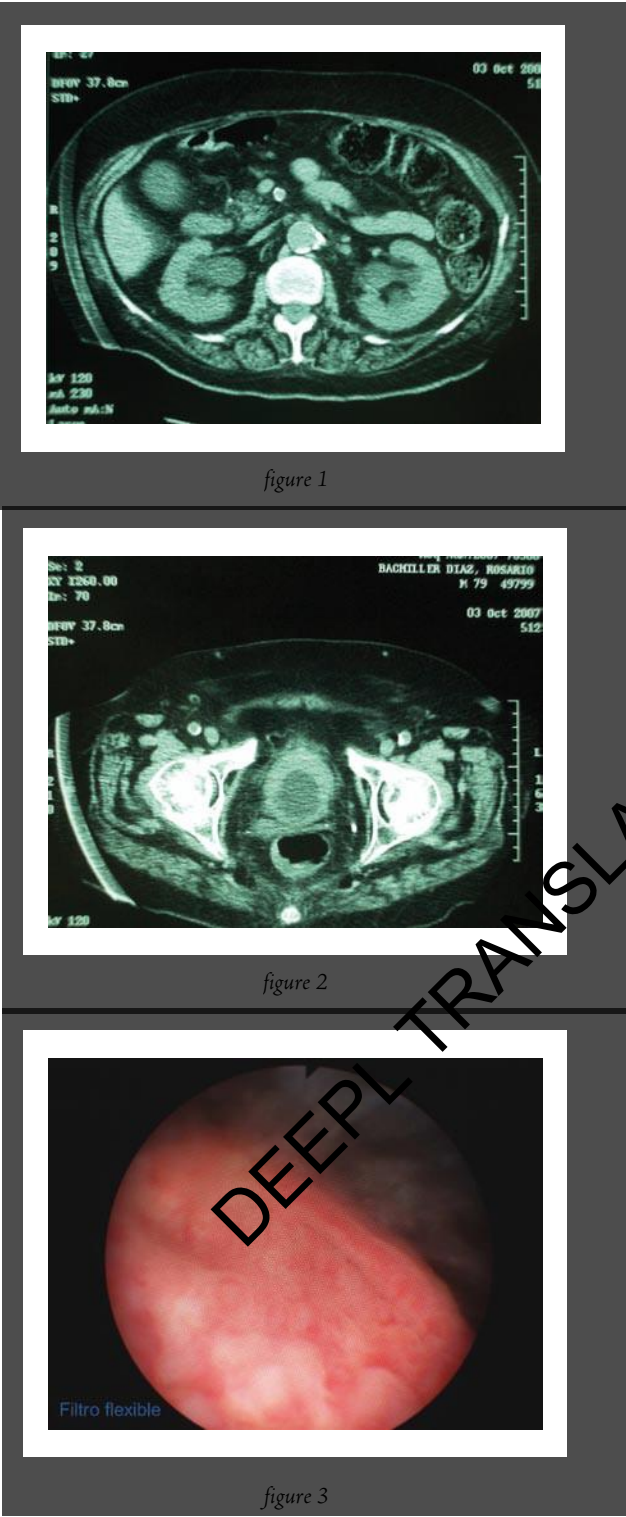
Chronic inflammation of the bladder wall as a result of a chronic irritant agent causes an increase in the number of lymphocytes and other mononuclear inflammatory cells in the lamina propria of the bladder wall. The presence of anatomic or functional factors such as infravesical obstruction or voiding dysfunction may contribute to the development and chronicity of this inflammatory process, with the formation of reactive lymphoid follicles.

Follicular cystitis is a type of chronic inflammatory cystitis, which is included within the limits of the so-called MALT or mucosa-associated lymphoid tissue¹, and is characterised by the presence of lymphoid follicles with true germinal centres in the bladder submucosa², differentiating it from those non-specific inflammatory processes that present perivascular lymphocytic infiltrations that are difficult to delimit without a germinal centre³.

The clinical manifestations of follicular cystitis are unspecific, usually consisting of an irritative voiding syndrome, although it can sometimes present with macroscopic haematuria⁴. Endoscopically, follicular cystitis has been described as small nodular lesions with a nodular appearance, slightly erythematous and apparently solid, covered by normal-appearing mucosa, which are located in the trigone area and lower half of the lateral walls with easily identifiable margins with respect to the normal bladder mucosa². Rarely, they may present as masses or pseudo-tumoural lesions⁴⁻⁵.

The differential diagnosis should be established with all specific and non-specific chronic cystopathies (glandular cystopathy, cystic cystopathy, interstitial cystitis, allergic cystitis, eosinophilic cystitis, emphysematous cystitis, gangrenous cystitis, tubercular cystitis, mycoplasma or chlamydial cystitis, viral cystitis, bladder mycosis, bladder bilharziasis, bladder amyloidosis, bladder endometriosis, radicular cystitis, cyclophosphamide cystitis) as well as any neoplastic lesion (urothelial carcinoma, lymphoma, mesenchymal tumour).

When follicular cystitis manifests itself with the presence of a pseudo-tumoural lesion as in our case, the first step of treatment consists of its complete resection for the subsequent



DEEPL TRANSLATION NOT CERTIFIED

anatomopathological analysis and differential diagnosis with other pathologies with worse prognosis.

Treatment is mainly based on the eradication of the irritant agent and the anatomical or functional factors responsible for its development and chronification.

In our case, the anatomical and functional factors that permitted the irritant were the change in trophism and vaginal flora of a post-menopausal patient, plus bladder voiding dysfunction, which were controlled with oestrogen cream and anticholinergics.

The irritant agent responsible for the symptoms was recurrent cystitis, which required treatment with antibiotics and phytotherapy. Although both treatments did not eradicate the irritant agent, phytotherapy treatment with American cranberry extract (Urell®) achieved better control of the symptomatic symptoms even with persistent asymptomatic bacteriuria.

Therefore, we have different therapeutic weapons that, acting from different fields, allow for greater control of urinary tract infections, preventing their chronification and the complications derived from them.

Conclusion

The treatment of recurrent urinary tract infections requires an aggressive, multi-pronged approach, which consists of treating not only the infectious agent but also the anatomical and functional factors that perpetuate it. The use of phytotherapy with cranberry extract is a further therapeutic weapon in the treatment of urinary tract infections.

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URINARY TRACT INFECTION IN PATIENTS WITH CHRONIC KIDNEY DISEASE DUE TO CHRONIC PYELONEPHRITIS

introduction

Chronic kidney disease (CKD) is currently defined as the presence of a glomerular filtration rate of less than 60 ml/min/1.73 m² and/or the presence of kidney damage for at least three months or more^{1,2}. 1,2 *Renal impairment*, in turn, is defined by the presence of structural or functional abnormalities of the kidney, with or without decreased glomerular filtration rate, that may lead to impaired renal function, e.g. a pathological sediment, microalbuminuria or proteinuria, or alterations in imaging tests^{1,2}. Glomerular filtration rate is reported in current analyticals in an indirect way (plasma creatinine) or estimated by means of formulas (such as the MDRD study -Modification of Diet Renal Disease) that are currently calculated with every routine renal function test request².

Clinical Case

25-year-old male patient, monitored in our outpatient clinic for deterioration of renal function, with plasma creatinine of 160 mol/L corresponding to a glomerular filtration rate estimated by the MDRD equation of 49 ml/min/1.73 m². Her medical history included the presence of micturition symptoms that had been present for at least two years,

with several episodes of *Escherichia coli* urinary tract infection for which he received different antibiotic regimens, having had only recently been diagnosed with urethral stricture and undergone urethroplasty. It seems that he had also presented some febrile episodes without a clear diagnosis during his paediatric years. In a blood test carried out a year earlier, he had already shown a slight deterioration of renal function, with creatinine of 155 mol/L (MDRD = 51 ml/min/1.73 m²) to which no further value was given. In his medical history there are no episodes of urinary lithiasis, hyperuricemia or gout, nor arterial hypertension or other systemic symptoms. Ultrasonographically, there were bilateral cortical scars. The patient was currently asymptomatic. Analytically, apart from renal function, only the presence of isomorphic microscopic haematuria with leukocyturia and bacteriuria due to *E. coli* stood out. Proteinuria of 250 mg/24 hours. Cystourethrography ruled out the presence of significant vesicoureteral reflux. It was decided to restart antibiotic treatment according to the antibiogram and to start treatment with concentrated cranberry extract (Urell®) on a daily basis, in addition to ensuring a minimum water intake of 1.5-2 litres per day. The patient also receives treatment with low doses of enalapril (2.5 mg) as a renal function protective drug and calcitriol 0.25 mg /48 hours to control a discrete hyper-

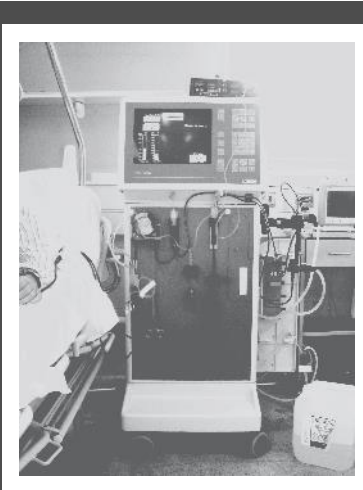
parathyroidism secondary to his CKD. In subsequent controls, the patient was asymptomatic and renal function was stable compared to previous controls.

Discussion

This patient was diagnosed with CKD (stage 3) simply due to renal function deterioration of less than 60ml/min/1.73m² for more than three months. He also presented criteria for *renal damage* (cortical scarring) although the presence of renal damage does not modify the staging of CKD in this case. From a nephrological point of view, we do not give greater value to the discrete proteinuria presented by the patient, given the presence of active urinary tract infection. It is well known that urinary tract infections are one of the potential risk factors that may be susceptible to initiate CKD¹. In addition, repeated urinary tract infections may be a factor in the more rapid progression of renal function towards end-stage CKD and the need for haemodialysis (see image).

Many patients with urethral strictures and vesicoureteral reflux present in the paediatric age group with symptoms and iconography of urinary tract obstruction, in addition to impaired renal function (obstructive renal failure), but urinary tract malformations can also be

The cause of chronic kidney disease secondary to urinary tract infections that repeatedly reach the renal parenchyma. In this case the patient has characteristic cortical scarring secondary to parenchymal urinary tract infection (chronic foot lonephritis). In addition to trying to solve the anatomical problems, it is common practice in the nephrology field to detect and treat urinary tract infections early, although there is no formal evidence from prospective studies. On the other hand, there are several randomised clinical trials with cranberry versus placebo that demonstrate its efficacy in the treatment and prophylaxis of urinary tract infections in different clinical settings^{3,4}. Although no studies have been conducted using cranberry in patients with renal failure and prospective studies are needed in this population as well, no undesirable effects have been reported in this setting. As always in nephrological patients, it is necessary to consider the potential toxicity of chronic use of some of these compounds, as well as to be cautious about potential interactions with the multiple concomitant medications used by these patients. However, to date, no interactions have been described, such as those known with the use of grapefruit juice and the metabolism of



Haemodialysis machine and extracorporeal circuit

some drugs such as calcineurin inhibitors in kidney transplantation. It is worth noting that some studies, although only experimental, have even described the potential protective effect of cranberry - through the anti-inflammatory effects derived from its antioxidant properties - against oxidative kidney damage induced by urinary tract infections⁵. Its use in urinary tract infections has also been analysed in the context of urinary tract re-infection (UTIs).

currents in children attending paediatric nephrology clinics and the use of the compound was perceived as helpful by parents, with only rarely described mild side effects⁶.

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1

RECURRENT URINARY TRACT INFECTION IN A PATIENT WITH POLYCYSTIC KIDNEY DISEASE AUTOSOMAL DOMINANT

Introduction

Among the many causes of chronic kidney disease (CKD), autosomal dominant polycystic kidney disease (ADPKD) is the most common.

is a frequent cause of progressive chronic kidney disease in our environment, affecting one in 500-1000 individuals, eventually leading patients to need renal replacement therapy¹. It is inherited as an autosomal dominant gene with complete penetrance, so that each child of an affected parent has a 50% chance of inheriting the abnormal gene. Even so, there is often no family history, so it is believed that there is a high rate of spontaneous mutations. In addition to factors inherent to the disease itself, there are multiple other factors, common to other forms of CKD and therefore non-specific, such as the presence of high blood pressure and repeated urinary tract infections, which have been classically associated with a more rapid deterioration of kidney function.

Clinical Case

45 year old female patient, monitored in the nephrology department due to deterioration of renal function, with

plasma creatinine of 130 mol/L corresponding to a glomerular filtration rate estimated by the MDRD equation of 41 ml/min/1.73 m². Her history includes the presence of autosomal dominant polycystic kidney disease in several family members, some of whom required dialysis and renal transplantation. In the case of our patient, she has presented several cystic complications over the last two years, such as recurrent bilateral lumbar pain, sometimes secondary to intracystic haemorrhage and sometimes to renal infection. She presented two episodes of fever > 38°C with chills, in both cases associated with cystic infection and which required hospital admission for the administration of intravenous ciprofloxacin to cover the germ isolated in urine culture and two blood cultures (Escherichia Coli), covered according to the antibiogram. On other occasions she had had episodes of asymptomatic bacteriuria that were also treated with different antibiotics. In the blood tests performed during the current acute episode, the patient presented acute deterioration of renal function with plasma creatinine levels of 320 mol/L, highlighting leukocytosis (18000 x 10⁹ leukocytes/L) with left deviation in the haemogram. Ultrasonography showed the presence of polycystic kidneys, larger in the right kidney than in the left, with images compatible with intracystic space occupation in the right kidney.

recho. With antibiotic treatment, the patient showed significant clinical improvement, with disappearance of fever, negative urine culture and blood cultures, as well as progressive improvement in renal function to levels slightly higher than baseline. Following this admission, it was decided to start treatment with cranberry extract (Urell®) on a daily basis, in addition to ensuring a minimum water intake of 1.5-2 litres per day. The patient was also receiving treatment with enalapril (20 mg/day) and low doses of hydrochlorothiazide (12.5 mg/day) to control her hypertension and calcitriol 0.25 mg /48 hours to control hyperparathyroidism secondary to her CKD. In subsequent controls, the patient was asymptomatic and renal function remained stable with respect to previous controls.

Discussion

This patient was diagnosed with CKD (stage 3) when renal function deteriorated to less than 60ml/min/1.73m² for more than three months, regardless of the presence of ultrasound findings². It presents criteria for renal damage (polycystic kidney disease), a frequent cause of CKD in our setting (figure 1). Simple cysts are not considered criteria

of renal damage as they do not produce secondary alterations of renal function, but the progression and progressive growth of autosomal dominant polycystic cysts are capable of progressively decreasing the amount of renal parenchyma available for proper renal excretory and endocrine function.

As with other causes of CKD, the presence of arterial hypertension but also repeated infections of the urinary tract appear to be a factor not only in acute deterioration (acute pyelonephritis in scarce remaining renal parenchyma) but also in more rapid progression of renal function towards end-stage CKD. It is also important to mention that urinary lithiasis is another common complication in patients with renal polithiasis and that eradication of infections in kidneys with intrapelvic lithiasis may be impossible without removal of the stones. Urinary tract infection is a potentially serious complication in patients with polycystic kidney disease, because if one or more of the cysts becomes infected, it may behave like an abscess that is difficult to treat medically. As mentioned above, it is standard practice in nephrology to detect and treat urinary tract infections early. As there are several randomised clinical trials with American cranberry that demonstrate the efficacy of the

In the treatment and prophylaxis of urinary tract infections in different clinical contexts^{3,4} it was decided to include its use in the therapeutic regimen of this patient. Although there are no studies on the use of cranberry in patients with impaired renal function and prospective studies in this population would be desirable, no undesirable effects have been reported in this context, although it is advisable to maintain an observant attitude. As always in nephrological patients, it is necessary to consider the potential toxicity of chronic use of some of these compounds and the potential interactions with multiple concomitant medication. However, it is also worth noting that some experimental studies have described the potential protective effect of cranberry against kidney damage induced by urinary tract infections⁵. Urinary tract infections



figure 1

in these patients are also more frequent in women, as in our case, and it is important to remember that it is recommended to avoid urinary tract instrumentation unless strictly necessary¹. As mentioned above, the use of cranberry in recurrent urinary tract infections in children attending paediatric nephrology clinics has also been analysed and the use of the compound was perceived as useful by parents⁶. Urinary tract infection may be associated with vesicoureteral reflux and thus contribute to a higher incidence of urinary tract infections in this population⁷.

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PERSISTENT BACTERIURIA IN RENAL TRANSPLANT PATIENTS

Introduction

From the moment of the kidney transplant and in order to avoid graft rejection, the patient has to undergo immunosuppressive treatment indefinitely, thus facilitating the appearance of infectious complications, which are nowadays the second leading cause of death in kidney transplant recipients.

Urinary tract infection is the most common infection after kidney transplantation. The presence of recurrent urinary tract infections and/or persistent bacteriuria is also a common occurrence after renal transplantation¹, whether related to pre-existing or de novo urological pathology, urological manipulation and/or the immunosuppression inherent to renal transplantation. Its importance lies in the risk of developing acute graft pyelonephritis and sepsis of urinary origin that may reduce graft survival and cause morbidity and mortality in the renal transplant patient^{2,3}.

Clinical case

49-year-old patient with chronic renal insufficiency secondary to chronic pyelonephritis associated with recurrent lithiasis of the kidneys.

calcium oxalate. He required the start of renal replacement therapy in haemodialysis in March 2004.

During the haemodialysis period, the patient had multiple difficulties in maintaining vascular access, and a permanent haemodialysis catheter was finally placed.

In April 2007, a living donor kidney transplant was performed, highlighting the presence of a very high anti-HLA antibody count with multiple antigens that were not permitted and significant difficulties in finding a compatible graft. History of a positive historical cross-match with the donor which, after the kidney transplant, forced the patient to maintain a high level of immunosuppression, increasing the risk of post-transplant infectious complications.

Renal function of the graft has been maintained at optimal levels throughout.

Since the renal transplant, immunosuppressive treatment was started with antilymphocyte serum (induction), corticoids, Tacrolimus and mycophenolate mofetil. Given the risk of acute rejection in this patient, it has been necessary to maintain immunosuppressant levels always in the high range and to maintain triple therapy.

Following the kidney transplant, the patient reported persistent voiding syndrome and recurrent urinary tract infections with constant identification of Eschericia coli bacteriuria in urine, which did not respond to the courses of conventional antibiotic therapy indicated according to the antibiogram, so it was decided to maintain suppressive antibiotic treatment indefinitely in order to avoid symptomatic infections and especially episodes of pyelonephritis of the graft.

To the antibiotic suppressive treatment (amoxicillin + clavulanic acid 500 mg/day) that was started 3 months after the transplant, phytotherapy was added, 2 capsules of cranberry extract (Urell®) daily, in January 2008, and immunosuppressant levels were monitored to rule out any changes in these levels.

After 4 months of phytotherapy, the patient showed good tolerance to this preparation, with no alteration in the plasma levels of immunosuppressive drugs or in the levels of the immunosuppressive drugs.

therefore requiring readjustment of his doses. From the functional point of view of his graft, he maintains excellent renal function.

In terms of the efficacy of the preparation, the patient reports an improvement in her micturition symptoms, although in the last two urine tests (3 and 4 months respectively since the introduction of the herbal medicine) there was persistent leucocyturia, although the culture was negative.

Conclusion

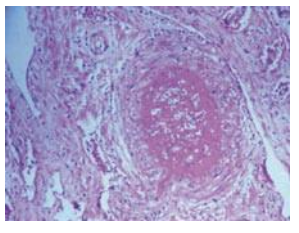
The good tolerance of the product together with the absence of side effects and/or interactions with immunosuppressive drugs, in addition to the clinical improvement of voiding syndrome, make this preparation an option to consider in the adjuvant treatment of urinary tract infections in immunocompromised patients.

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Violaceous nodular lesion with glossy surface



Acute rejection

NON-NEUROGENIC MEGACYSTIS AS A CAUSE OF RECURRENT UTIS

Introduction

Megacystis in non-neurogenic patients can have multiple clinical manifestations, presenting as menu- as a cause of recurrent urinary tract infections. In general, its management and diagnosis is simple and minimally invasive in most cases, with a good therapeutic response.

Clinical case

Anamnesis: A 56-year-old woman consulted for recurrent urinary infections accompanied by lumbar pain and haematuria.

Pathological history:

- 4 euthocic deliveries.
- 3/85: Hysterectomy plus right oophorectomy .
- Megacolon
- Bulimia and depressive disorder

Clinical features: The patient presented with recurrent urinary tract infections since childhood, accompanied by bilateral lumbar pain and haematuria. She also reported pain at the end of urination.

No voiding difficulty, normal stream. Daytime voiding frequency: 3 times. Nocturnal frequency of micturition: 0-1 time. No in-continence.

Complementary examinations:

- Urine sediment: multisensitive E. coli.
- A/S: Glucose: 4.4 mmol/L. Creatinine: 78 ml/min. Ionograma: Normal.
- RV ultrasound: Kidneys of preserved size and parenchyma, no duct ectasia or lithiasis. Bladder with great distension and significant post-micturition residue.
- Urodynamic study:
 - Daily voiding frequency/volume 09h 500cc
 - 15h.....800cc
 - 23h.....980cc

Diagnostic Guidance: Non-neurogenic megacystis.

Treatment: Regulated urination. Control of water intake. Chemoprophylaxis + Urell®. Treatment of UTIs with complete ATB when they appear.

Evolution: The patient micturates on a regular basis every 3 hours (no desire to void). After starting treatment

with QPQ + Urell®, the patient has not repeated any infection after six months of follow-up, so chemoprophylaxis is withdrawn. Two years after withdrawal of the chemoprophylaxis, the patient presented a single symptomatic UTI, so she continued to receive prescribed micturition and maintenance Urell®.

Discussion

This is a high-capacity bladder with a delayed onset of voiding desire in a patient with no neurological history. We define non-neurogenic megacystole as a cystometric capacity greater than 700 cc in patients with compatible clinical and neurological health.

Initially it may be secondary to infrequent (or delayed) micturition due to poor voiding habits and a tendency to delay micturition. Initially it is an alteration of the bladder filling phase (sensory impairment), but in the long term it may lead to detrusor impairment due to sustained over- tension, producing detrusor hypocontractility and the appearance of postvoid residue. The clinical manifestations of these patients are usually due to difficulty in emptying the bladder or to the postvoid residue: presenting with voiding urgency, voiding elongated, repeated UTIs, nocturia, hypogastric pain...

The differential diagnosis should be established mainly with neurogenic patients and hypo/contractile detrusor. In patients in whom it is difficult to rule out CNS involvement, MRI is mandatory in order to demonstrate a neurogenic or neurogenic

vertebro-medullary pathology.

The treatment of these patients (most of whom are women) consists initially of voiding re-education using a voiding diary (frequency-volume graph). We do not recommend the routine use of an abdominal press, although it is necessary in some cases to re-establish the habit. If there is detrusor involvement and the postvoid residue is clinically significant, we will indicate autoca- teterisms. The patient may not urinate at shorter intervals at the start of treatment, but the condition usually subsides and complications are rare in these patients.

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1. VESICO-SPHINCTER DYSSYNERGIA AS A FACTOR ASSOCIATED WITH URINARY INFECTIONS

Introduction

Dysfunctional micturition is a voiding dysfunction in patients without neurological disorders that leads to an interruption of voiding flow and postvoid residue in some patients. It is a little known entity that generally responds well to less aggressive treatment.

Clinical case

Anamnesis: 30 year old female patient consulted for repeated UTIs in the last 2 years, and shortness of flow.

Pathological history: Tonsillectomy

Clinical features: The patient has had recurrent urinary tract infections since childhood, which have increased in frequency over the last 2 years. She also reports some micturition difficulty with shortness of urination and occasional sensation of incomplete voiding. There is no urgency or incontinence. Daytime micturition frequency: 5-6 times. No lumbar pain or haematuria.

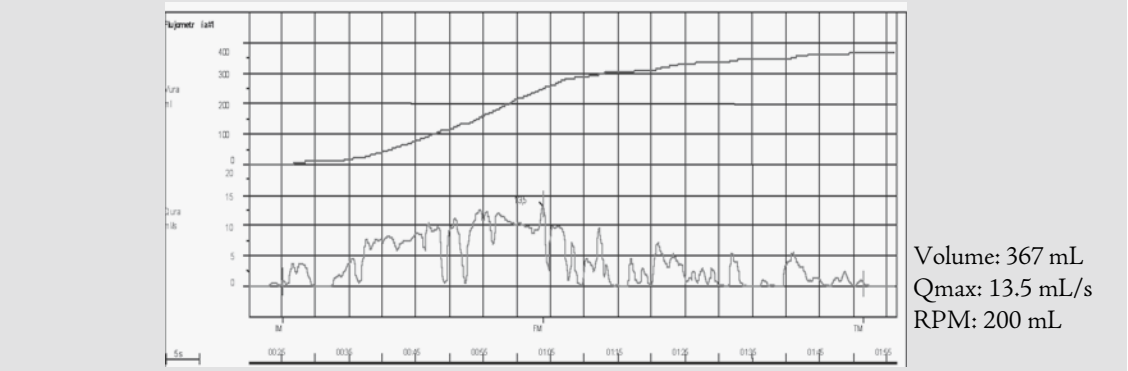
Examination: Abdomen soft, depressible. No cystocele or rectocele, orthotopic urethral meatus with slight ectropion of the urethral mucosa.

Complementary examinations:

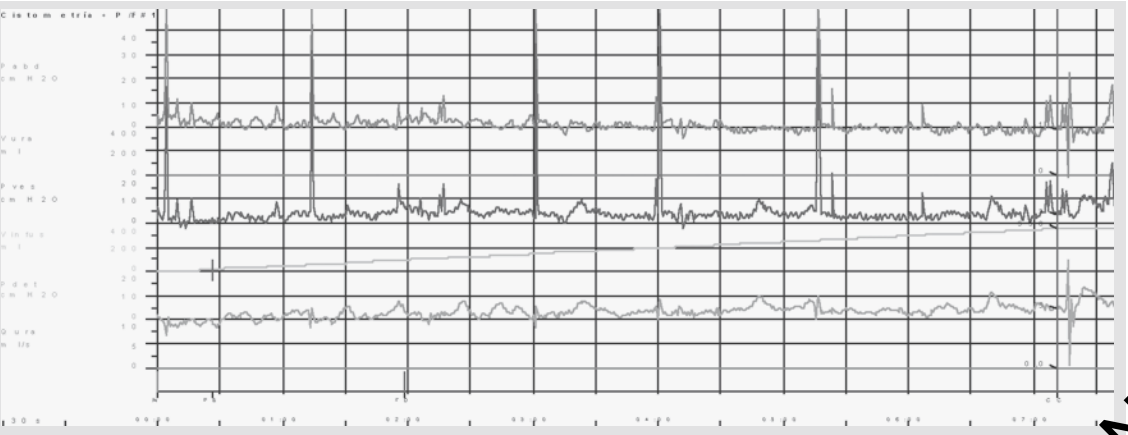
- Reno-vesical ultrasound: Kidneys with preserved parenchyma, without lithiasis. Post-mycotic residue not assessed.
- Intravenous urography: Within normal range.
- Abdominal CT scan: enlargement of the left ovarian plexus, bicornuate uterus. Kidneys with preserved parenchyma without lithiasis or ectasia.
- Serial voiding cystography: No vesico-ureteral reflux, bladder of regular contour and good capacity. Urethral canal with no appreciable findings.
- Urodynamic study: Physiological flowmetry: stacca- tto flow (graph 1).
- Filling cystometry: Normal filling phase. Small involuntary con- tractions in the filling phase of Pdet < 15 cm H₂ O of doubtful pathological value (graph 2).
- Pressure/Flux: rapid and sustained contractions of the striated sphincter during micturition. **Dysfunctional micturition.** Elevated post-micturition residual (graph 3).

Treatment:

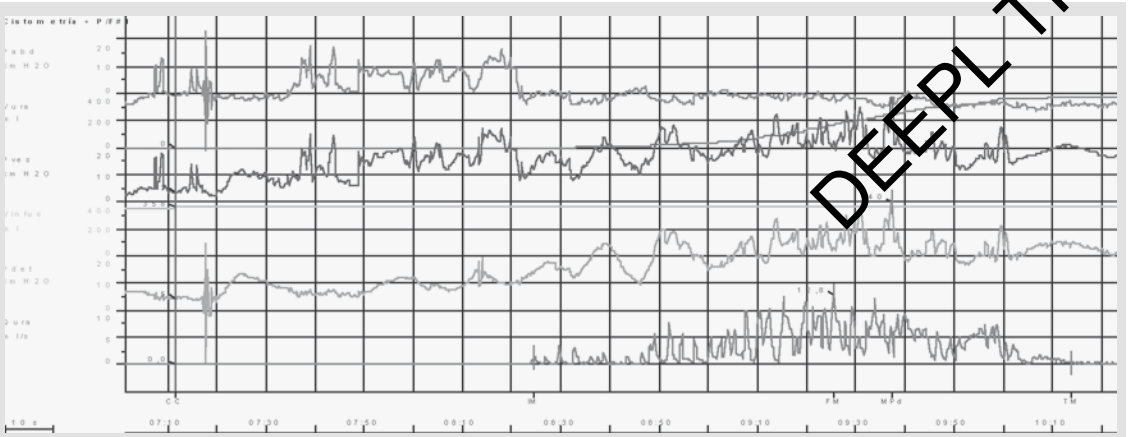
Several sessions of voiding bio-feedback were carried out with the patient learning correctly, voiding without an abdominal press and with disappearance of the residues. Suppressive antibiotic chemoprophylaxis and Urell® were added.



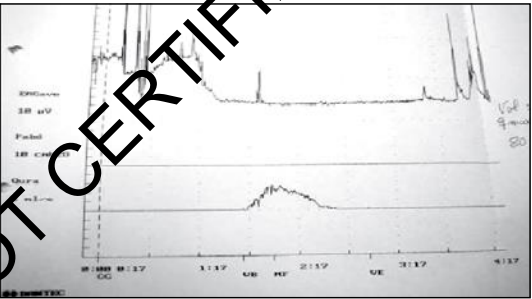
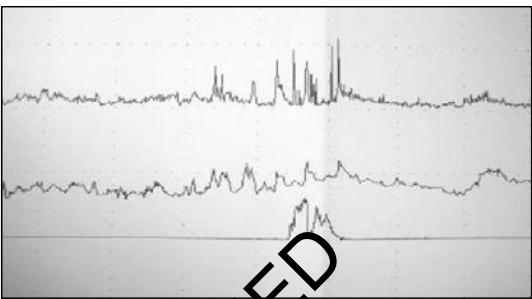
graph 1



graph 2



graph 3



The flow+Pabdominal+EMG graphs are shown in which the nicked pre-micturition bio-feedback flow is evidenced by contraction of the perineal (sphincteric) musculature, which appears after the re-education sessions, achieving a Gaussian curve micturition with a decrease in post-micturition residue and relaxation of the perineum during micturition.

Discussion

We define dysfunctional micturition as the presence of intermittent and/or fluctuating flow due to intermittent and involuntary contractions of the peri-urethral striated musculature during micturition in neurologically normal individuals. Although dysfunctional micturition is not a very specific term, it is well established and preferred to terms such as "non-neurogenic neurogenic bladder" or "idiopathic detrusor-sphincter dyssynergia".

Clinically, it is characterised by the presence of a nicked or staccato discharge, urinary urgency and incontinence, repeated infections and post-micturition residue. It occurs more frequently in children as they do not lose the high-pressure voiding pattern that physiologically occurs during the first year of life.

The aetiology is thought to be pelvic floor contractions, although it is possible that intraurethral striated muscle may also play a role.

The treatment of this entity incorporates, in addition to behavioural measures, the patient's learning of the correct relaxation of the striated sphincter by means of voiding bio-feedback. Bio-feedback allows the patient to recognise physiological processes (such as the abdominal press or perineal relaxation, etc.) by recording abdominal pressures and electromyography of the pelvic floor. Once the patient is able to recognise these processes, he or she is instructed to modify them. This micturition re-education involves a significant involvement of both the patient and the professionals (instructors) involved, obtaining good results in the majority of patients and without being a totally non-invasive therapy.

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URINARY TRACT INFECTION ASSOCIATED WITH INCONTINENCE DUE TO DETRUSOR OVERACTIVITY

Introduction

Urinary incontinence in women globally affects 9% of the total population, and this percentage is increasing. up to 37% in elderly women. It has a great impact on the quality of life of patients and is associated with significant morbidity (nocturnal falls in the elderly, urinary tract infections, nappy rashes, etc.), which also generates high healthcare costs. We will differentiate between those patients in whom urine leakage is due to a sphincteric factor (stress urinary incontinence) or to detrusor involvement (incontinence due to detrusor overactivity).

Clinical case

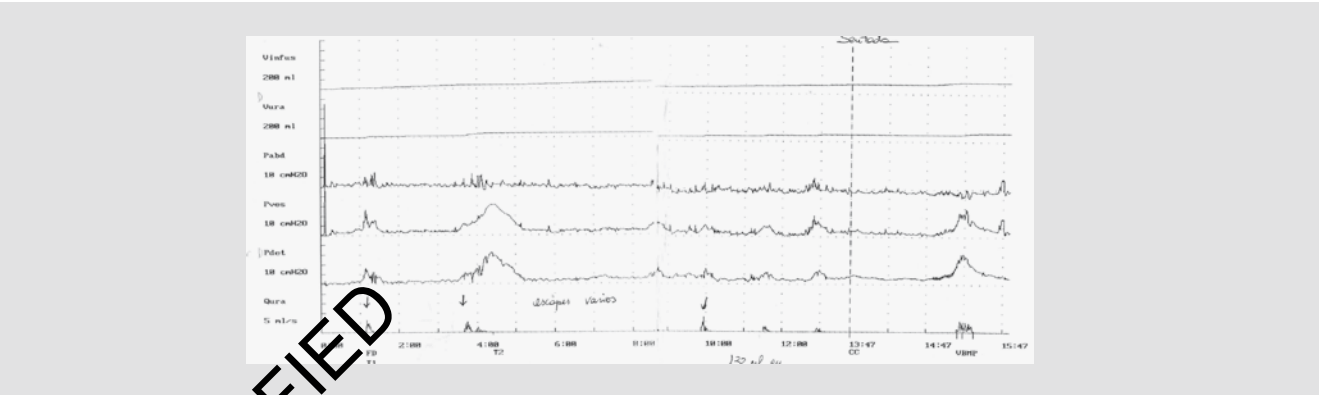
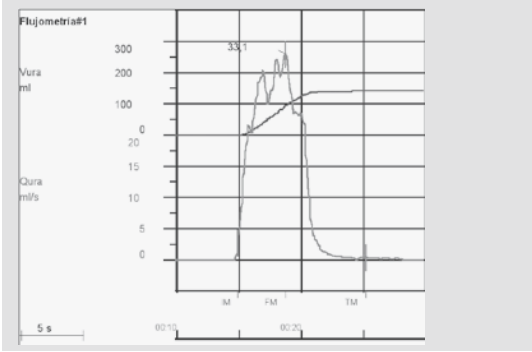
Anamnesis: 70-year-old female patient who consulted for urgency, due to increased frequency of urination and leakage due to impu-

Background: Diabetes mellitus type 2, of 5 years of evolution in treatment with oral antidiabetics. Hypothyroidism dg 17 years ago with substitutive treatment. PARA: G3E3P3A0. IQ: Abdominal hysterectomy for myomatosis at 54 years of age.

Clinical manifestations: She reports urine leakage for years, accompanied by The patient has a high degree of urinary incontinence, which is often caused by sudden urges and urgency, and requires the use of absorbent pads at all times. There is also a certain degree of stress urinary incontinence, with heavy straining. She also has recurrent urinary tract infections that worsen her irritable urinary tract symptoms.

Complementary examinations:

- Sediment and urine culture: multi-resistant E. coli.
- Renovesical ultrasound: Kidneys with preserved parenchyma without echogenic pathways. Simple cortical cyst in the right kidney. Medium retracted urinary bladder with no images inside.
- Urodynamic study:



EUD:

- Physiological flowmetry: Voiding volume: 150 cc. Qmax: 33 mL/s. RPM: 20 cc.
- Cystometry: Presence of involuntary contractions during the filling phase leading to leakage.
- Pressure/Flow: Poorly assessable due to continuous losses during filling.
- Diagnostic orientation: **Neurogenic overactive detrusor. Incontinence due to detrusor overactivity.**

Evolution: Anticholinergic treatment and hygienic-dietary norms were started, improving the frequency-urgency symptoms, as well as the leaks until they disappeared. Antibiotic treatment was started for the treatment of UTIs and Urell®, leading to a reduction in the number of cystitis episodes to 2 per year, with a reduction in leaks and the use of absorbents.

Discussion

Detrusor overactivity is defined as the presence of involuntary contractions during the filling phase of more than 15 cm H₂O pressure. The term neurogenic overactive detrusor is applied when the dysfunction is secondary to a neurological process or when there is a neurological disorder that could be the cause, although it is not certain. Clinically, it is characterised by irritative voiding symptoms, characterised by urgency-frequency and sudden desire, which may be accompanied by leakage (wet overactive detrusor). Diagnosis is made by urodynamic study and consists of the appearance of involuntary contractions during cystometry. Coexistence of hyperactivity and infravesical obstruction is possible, so it is always mandatory to explore the urodynamic study.

The initial treatment of these patients is based on the use of anticholinergics, with doses modified according to tolerance. The initial treatment of these patients is based on the use of anticholinergics, modifying the doses according to tolerance. Modification of hygienic-dietary habits and bladder re-education will also be important. Patients with overactive detrusor that cannot be treated (either due to intolerance or lack of response) with anticholinergics will require specialised management. Several options exist, but the management of these patients is problematic and not yet fully solved.

Among the different options, the ones with the highest success rates are: sacral root neuromodulation, bladder enlargement and transvaginal denervation. Recently, intravesical injection of Botulinum Toxin has opened new horizons in this difficult to manage pathology.

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BEHAVIOURAL THERAPY: AN ESSENTIAL RESOURCE FOR SEXUALLY-ASSOCIATED RECURRENT URINARY TRACT INFECTIONS

Clinical Association

A 33-year-old female patient presented with pollakiuria with dysuria and associated tenesmus of 24 hours' duration. She did not report febrile syndrome or lumbar pain. Examination revealed mild suprapubic pain on deep palpation. During the anamnesis, the patient reported similar episodes in the past, predominantly after sexual intercourse, for which she had undergone various antibiotic treatments. The urine reagent test was positive for leucocyturia and nitrites, with evidence of red blood cells. A urine sample was sent to the laboratory for culture. Under the clinical diagnosis of uncomplicated urinary tract infection, treatment with fosfomycin at a single dose of 3 g is indicated.

Gram-negative bacilli were isolated in the urine sediment, subsequently identified as *Escherichia coli* resistant only to ampicillin. The patient progressed favourably after antibiotic treatment, and behavioural therapy was started, consisting of frequent and postcoital urination, and pharmacological treatment with cranberry extract (Urell®) at a dose of 1 capsule/day for 3 months. At the 3-month follow-up, the patient remained asymptomatic and reported no new episodes of UTI.

Discussion

Urinary tract infections (UTIs) are the second most common of all out-of-hospital infections (after lung infections). Their high prevalence has an important socio-health impact. They predominantly affect women between the ages of 20 and 50. It is estimated that up to 70% of women will experience an episode of uncomplicated urinary tract infection in their lifetime. Of these, 30% will have repeat urinary tract infections, defined as more than three episodes in a year, or more than two in the last 6 months. In this situation, different therapeutic options have been proposed. Once the presumptive diagnosis of UTI has been established by means of compatible clinical symptoms and basic urine reagent tests (positivity for leukocytes and/or nitrites and/or red blood cells), empirical antibiotic treatment is started while awaiting the results of the antibiogram of the urine culture. When infections recur, temporary antibiotic prophylaxis is considered.

Given the progressive increase in the number of anti-biotic resistances of the most frequent pathogens¹, the current trend is to

seek other options to avoid this prolonged antibiotic administration.

In recent years, work has been carried out on the development of autovaccines² and patient immunity stimulators³. In addition to enhancing infection-fighting mechanisms, efforts are being made to find an effective method to hinder urinary colonisation. *Escherichia coli* is the most frequent causative agent of UTIs. *E. Coli* is able to secrete substances (adhesins) and membrane extensions (fimbriae) through which it attaches itself to the urothelium, making it difficult to eliminate. The urothelial mucosa is coated with a layer of glycopolysaccharides which act as a barrier to these pathogens. Repeated infections and other urological diseases progressively damage this coating, facilitating new infections. Recovery of this membrane by endovesical instillations of hyaluronic acid has been successfully employed⁴.

Behavioural therapy advocated the use of natural substances that inhibit this adhesiveness by acting against p-fimbriae. In this respect, *Vaccinium macrocarpon* (cranberry) has proved effective. To obtain a minimum effective concentration in urine, 300 ml of sweetened drink containing 25% pure cranberry juice should be ingested. 1 capsule of Urell® provides the same amount of cranberry juice as the urine. amount of PAC than 300 ml of cranberry drink, making it easier to administer. Daily use makes it more difficult for the most common urinary pathogens to adhere, reducing the number of UTI episodes. Although these drugs have a wide safety margin, interactions with warfarin have been reported⁵. On the other hand, the available literature suggests that cranberry extract can be used during pregnancy⁷.

Conclusion

Given the high prevalence of urinary tract infections in our country, their socio-occupational impact, and the increase in antimicrobial resistance of the main uropathogens, it is important to have new therapeutic arms. Obtaining active principles from natural extracts is an old pharmaceutical practice. Extraction technology makes it possible to obtain therapeutic concentrations that make their use effective. Cranberry extract (Urell®) prevents the recurrence of urinary tract infections. Its use, however, must be indicated and monitored by a medical professional to avoid interactions and unwanted side effects.

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CHRONIC BACTERIAL PROSTATITIS IN BULBAR URETHRAL STRICTURE. PERSISTENT BACTERIURIA DESPITE RESOLUTIVE URETHROPLASTY

Introduction

Acute prostatitis may have urethral stricture¹ as a predisposing factor. Resolution of urethral obstructive pathology may improve the prognosis of prostatitis. We present the case of a patient with acute epi-sodium prostatitis of 10 years of evolution, with bulbar urethral stricture resolved by term-terminal urethroplasty, who presents with persistent bacteriuria after surgery.

Clinical Case

A 37-year-old man came from another centre, where he had been diagnosed with bulbar urethral stricture two years earlier, and had undergone endoscopic internal urethrotomy for this stricture. At the first visit, the patient reported obstructive micturition symptoms of 6 months' duration, with a progressive decrease in the micturition flow, and a retrograde and voiding urethrogram showed a bulbar urethral stricture of about 2 centimetres in length at about 2 centimetres from the external sphincter. The patient's main problem consisted of febrile episodes accompanied by dysuria and irritative micturition symptoms, peri-neal and hypogastric pain, typically suggestive of acute prostatitis,

2 times a year for the last ten years. In addition, following positive urine and semen cultures for gram-negative bacilli, mainly *Escherichia coli*, in periods without symptoms, except for the presence of foul-smelling urine, he is labelled as having chronic prostatitis with exacerbations.

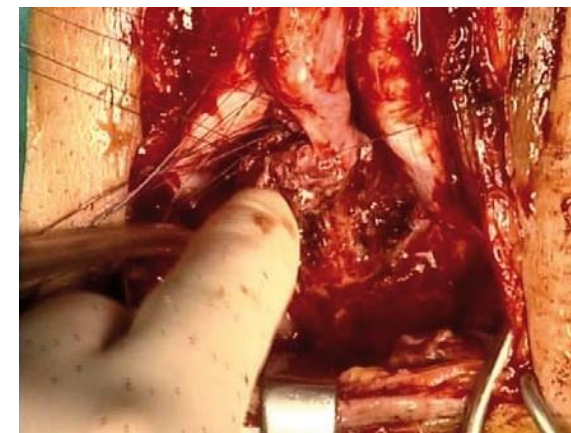
Surgical intervention was performed, consisting of an end-to-end urethroplasty, with removal of the catheter 20 days after the intervention, and at the time of catheter removal a voiding urethrogram was performed, where a good calibre of the surgical anastomosis area was observed without contrast leakage.

Seventy days after the operation, the patient had a recurrence of foul-smelling urine, with a urinalysis showing leucocyturia 8-10 per field and bacteriuria, with culture showing growth of *Escherichia coli* resistant to cotrimoxazole, quinoxazole and aminoglycosides. Given the usual persistent bacteriuria, with no accompanying symptoms other than the unpleasant odour, antibiotic treatment was not started, but instead, treatment with American cranberry extract (Urell®) was started daily, as well as a minimum water intake of 1.5 litres per day.

On follow-up, the patient reported an absence of febrile episodes and of micturition symptoms, with disappearance of the



Surgical imaging of end-to-end urethroplasty



of odorous urine, despite the persistence of bacteriuria due to the same strain of *Escherichia coli* in the urinary analytical controls at 3 and 6 months.

Discussion

The presence of urinary tract infection has been correlated in 48% and chronic prostatitis in 13% of patients with urethral stricture in a review of a Spanish group of 175 patients¹. Once the infravesical obstruction secondary to urethral stricture has been resolved, essentially by reconstructive surgery, it is possible to improve the prognosis of urinary tract infections, since the retrograde hyperpressure that existed during micturition prior to resolution is completely relieved.

Since there is clear Type A scientific evidence for the efficacy of cranberry in the adjuvant treatment of *Escherichia coli* infections², it can be considered as an alternative to antibiotic treatment in asymptomatic infections.

It can therefore be deduced that if the American cranberry is effective in inhibiting the adherence of *Escherichia coli* fimbriae by means of a substance eliminated in the urine, proanthocyanidins type A^{3,4,5}, it is effective in both men and women, and may therefore also be effective in preventing recurrences in men.

There are a number of randomised clinical trials with cranberry

The results of two studies, one in women with recurrent urinary tract infections⁶ and another in elderly hospitalised patients⁷, demonstrate its efficacy in the treatment and prophylaxis of urinary tract infections. Also in 2007, a review⁸ shows that there is good quality scientific evidence for the efficacy of cranberry in reducing symptomatic UTIs, especially in women who experience repeated UTIs, with no conclusive data for other risk groups. Furthermore, the Cochrane Foundation in 2008 conducted a meta-analysis of randomised studies of cranberry in the prophylaxis of urinary tract infections and concluded that it may be useful in the prevention of urinary tract infections in women with recurrences, although its efficacy is not as clear for other population groups⁹.

It is clear that more prospective studies are needed, and those currently underway on proanthocyanidins in the prophylaxis of recurrent urinary tract infections will provide us with the definitive reliability of this phytotherapeutic treatment in this field.

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RECURRENT URINARY TRACT INFECTION IN
CASE OF THE NEED FOR SELF-CATHETERISATION
DUE TO PERSISTENT OBSTRUCTIVE VOIDING
SYMPTOMS AFTER PROSTATE RTU BY
HYPOCONTRACTILE DETRUSOR.

Introduction

The persistence of obstructive voiding symptomatology after transurethral resection of the prostate is not a should raise the possibility of a misdiagnosis of infravesical obstruction. Similar symptomatology and non-specific examinations can be confusing. The pressure-flow study is the gold standard for the diagnosis of hypocontractile detrusor.

Phytotherapy is a therapeutic alternative received with expectation by patients believing that being derived from natural products they would have no side effects. Many plant derivatives have shown their efficacy in medicine, such as digitalis, curare, etc., but others are still waiting to demonstrate their chemical qualities before being adopted in daily clinical practice. Proanthocyanidins from vaccinium macrocarpon, through their bioabsorbable dimers and trimers and their active metabolites, have been introduced in the treatment of recurrent urinary tract infections.

Clinical Case

A 73-year-old male patient with no known drug allergies, with a medical history of arterial hypertension, dyslipidemia, and a

mia undergoing medical treatment and appendectomy at the age of 23.

She consulted for micturition symptoms with mixed characteristics, with a short, short stream of urine, a short stream, added pressure, and a sensation of incomplete emptying. She also presented with pollakiuria with a daytime frequency of micturition every 90 minutes and a night-time frequency of micturition of 4 times. Prior to his visit to our centre, he reported two episodes of acute prostatitis which he treated on an outpatient basis with ciprofloxacin. In both cases, the cultures taken at his primary care centre were positive for E. coli.

He was referred to our centre with blood tests showing a haemoglobin of 15.4 g/dl, haematocrit of 48%, creatinine 1.0 mg/dl, potassium 4.2 mEq/l, sodium 139 mEq/l, PSA: 2.5 nmol/l.

Urine sediment, normal.

Rectal examination revealed a grade II prostate, fibroelastic, bilobed, without nodules, well-defined, non-painful.

Treatment was started with Alfusozine 5 mg every 12 hours orally. Ultrasound, flowmetry and IPSS are requested.

Renovesical ultrasound showed kidneys of preserved size and structure without dilatation of the ducts or lithiasis. Bladder of

pare-

DEEPL TRANSLATION NOT CERTIFIED

smooth with moderate post-micturition residue. 35 g. prostate with microcalcifications inside.

The IPSS (validated international questionnaire of urinary symptomatology) is 18 and a QL of 4.

Physiological flowmetry gives the following data: volume 223 ml and a Q. max. 7 ml/sec (figure 1).

When he returned to the clinic, the patient reported no clinical improvement with the treatment, so a surgical deobstructive manoeuvre of the prostate by means of a transurethral resection was considered.

Transurethral resection (TUR) of the prostate was performed with pathological anatomy, which was reported as benign prostatic hyperplasia, 29 grams.

Postoperative course without incident, being admitted to the ward for 3 days.

When the bladder catheter was removed, the patient reported some micturition difficulty and a strong irritative component during the first few micturitions. A urine culture was taken, which was negative, and empirical antibiotic treatment with ciprofloxacin was started, and the patient was discharged pending improvement.

She came to the emergency department 3 weeks later for acute urinary retention, so a bladder catheter was placed, which was tried to be removed without spontaneously restarting urethral diuresis. She was left with a permanent bladder catheter.

Urethrocystoscopy was performed and showed a normal anterior urethra, without stenotic areas with a wide prostatic cell, without residual spheroids. Normal bladder.

A urodynamic study was carried out which showed a normal bladder with normoaccommodation and a detrusor that was hypoactive in time and magnitude during the study; micturition was ineffective, as it generated significant postvoid residue (figure 2).

The patient is instructed to learn to self-catheterise, performing 4 per day with a residual of 400-500 ml. Absence of spontaneous urination between catheterisations. The patient learns quickly, performing self-catheterisation with skill using a pre-lubricated low-friction Tiemann 12 F catheter (Easycath®).

A neurourological physical examination was carried out with perianal sensitivity, anal tone, voluntary control of the anal sphincter and normal bulbocavernosus reflex. Magnetic resonance imaging of the lumbosacral spine was requested and reported as normal.

During the first six months, the patient visited the emergency department three times with fever, chills, headache, general malaise, etc. The urine was also foul-smelling and cloudy. The symptoms were classified as UTI and treated on an outpatient basis with antibiotics (amoxicillin-clavulanic acid and ciprofloxacin) satisfactorily, with symptoms disappearing; cultures were positive for E. coli on two occasions and for Proteus Mirabilis on another. In all of them more than 10x10⁶ C.F.U. were found.

Treatment was started with cranberry extract (Urell®) 1 capsule, equivalent to 36 mg of proanthocyanidins (PAC) every 24 hours, with good clinical evolution, with symptomatic infections disappearing in the last six months.

At the last outpatient check-up, urine sediment showed 30-40 leucocytes per field, with a positive culture for Proteus with 1x10⁵ U.F.C., and the patient was asymptomatic, so antibiotic treatment was not prescribed.

Discussion

The Pressure-Flow study is the part of the Urodynamic Study that evaluates the voiding phase. It studies the relationship between voiding pressure and voiding flow during micturition. It is the only test used to confirm the diagnosis of obstruction in front of obstructive voiding symptomatology. Detrusor hypocontractility is defined in the pressure-flow study as a maximum detrusor pressure of less than 40 cm H₂O with a maximum flow rate (Q. max.) of less than 15 ml/sec. The ratio between the two is referred to as urethral resistance in which case it will be less than 0.8 cm H₂O/ml/sec². In our case a Q. max. of 9 ml/sec and a P. Det. at peak flow of 15 cm H₂O is established (figure 2). There are several computer models that help us to study the correlation between detrusor pressure and peak flow in the form of nomograms such as Schäfer, Chess, ICS, etc. (figure 3).

There are no specific radiological studies for hypocontractile detrusor, although there are data that help in the diagnosis, such as a large capacity bladder, with large diverticula and which may be accompanied by postvoid residue; in evolved cases we will find bilateral duct dilatation. Catheter-associated urinary tract infections represent the most frequent in-hospital infection. One month after catheter use, all patients are expected to have bacteriuria; bacteriuria may be complicated by the effects of symptomatic infection (acute pyelonephritis, sepsis, etc.).

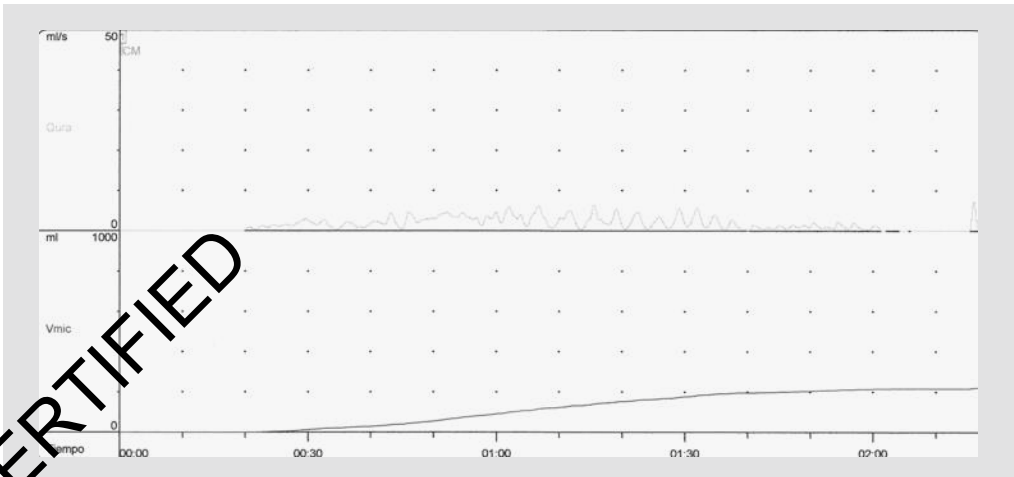


Figure 1. Physiological flowmetry. Volume 223 ml and Q. max. 7 ml/sec.

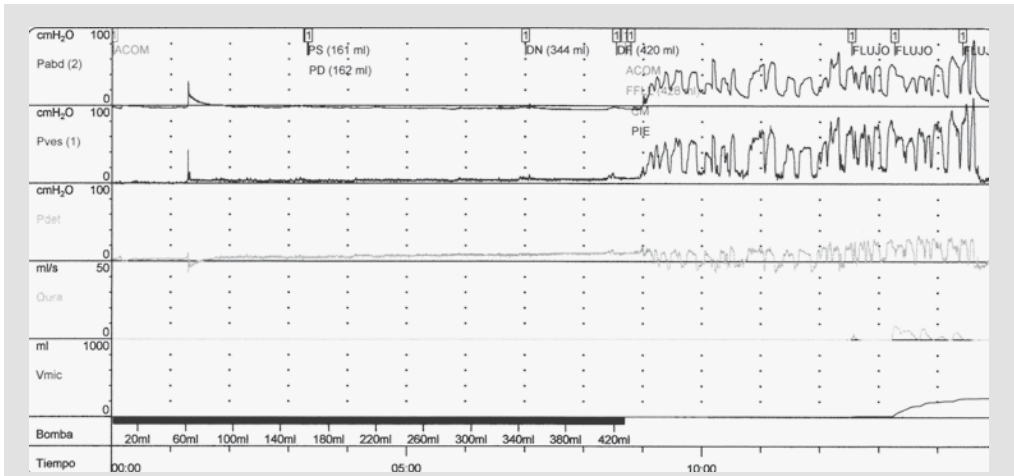


Figure 2. Cystometry-Pressure-flow study. Maximum bladder capacity: 429 ml. Bladder accommodation: 96.9 ml/cm H₂O. Voiding volume: 245 ml. Postvoid residual: 184 ml. Max Q.: 9 ml/sec. P. det at peak flow: 15 cm H₂O. Urethral resistance (Pdet in Q. max / (Q. max)²): 0.18 cm. of H₂O/ (ml/sec)²

Bacteria enter the bladder by direct inoculation at the time of catheterisation via the extraluminal route at the interface between the catheter and the urethra, or via the intraluminal route through the lumen of the catheter. Biofilm formation and encrustation on the catheter surface in combination with a high prevalence of bacterial ingress trigger a dynamic polymicrobial bacteriuria. Therefore, we must avoid unnecessary use of indwelling bladder catheterisation, either with cystostomy catheterisation or intermittent self-catheterisation. With intermittent catheterisation, it is unlikely that microorganisms can enter the bladder by ascending from the outside, as the catheter is not indwelling.

Since the middle of the 19th century, it has been proven that the fruits of the cranberry, known in England as cranberry, were able to relieve urinary symptoms.

Bilberry acts on bacterial virulence, reducing the adhesiveness of E. coli to the urothelium and limiting its ability to adhere to and penetrate the chorion.

In order for infection to occur, the presence of a germ and the breakdown of the urothelial layer must coexist. Cellular integrity and intercellular junctions are the main barriers to germ penetration, in addition to the production of natural glycoproteins that act as cements. These structures can deteriorate due to known causes such as interstitial cystitis, hyper-refléxic neurogenic bladders, infections, etc.

The action of cranberry is based exclusively on the double-bonded A-type proanthocyanidins contained in this fruit. One of the most common glycosaminoglycans is Tamms-Horsfall protein. In patients with recurrent urinary tract infections, the concentration of Tamms-Horsfall protein is decreased. Proanthocyanidin reduces the adhesiveness (both in vitro and in vivo) of E. coli to urothelial cells by blocking the adhesins these bacteria possess.

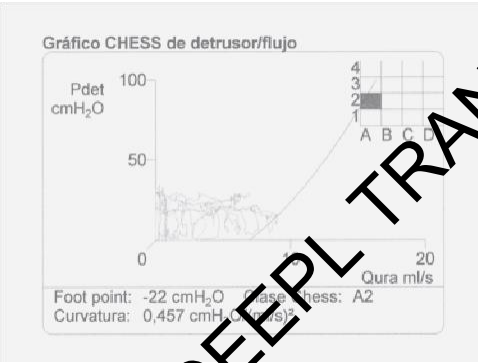
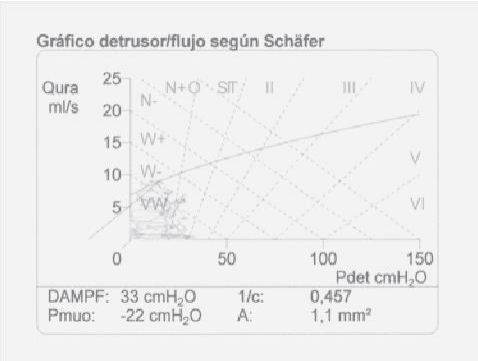
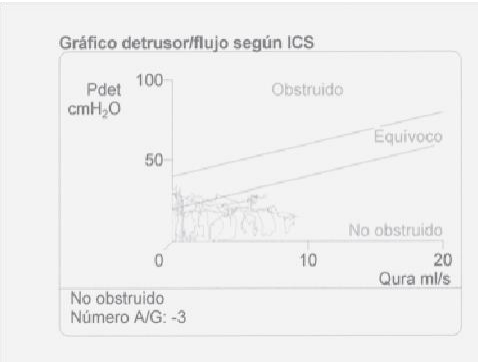


Figure 3. Typical nomograms. Nomograms correlating detrusor pressure and flow rule out infravesical obstruction.

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FACTORS TO TAKE INTO ACCOUNT IN RECURRENT URINARY TRACT INFECTIONS IN PATIENTS SEXUALLY ACTIVE YOUTH, AND ASSESSMENT OF THERAPEUTIC BEHAVIOURS

Introduction

Urinary tract infections are responsible for millions of consultations in both primary and secondary care. In specialised consultations, leading to absenteeism from work and even hospitalisation. Thirty per cent of all women will have a urinary tract infection in their lifetime, and of these, 20 per cent will suffer recurrences.

A better understanding of the pathophysiological mechanisms that cause this pathology can help us to prevent it. Among these, the recent contribution of pharmaceuticals such as proanthocyanidins from cranberry extract stands out. Phytotherapy has established itself as a therapeutic alternative, well accepted among 21st century patients due to its good results.

Clinical Case

20-year-old female patient with allergy to mites and history of tonsillectomy in childhood. She consulted for recurrent urinary tract infections for the last three years. The symptoms began with low micturition symptoms in the form of a polysquamous urinary tract infection.

pain, pain in the hypogastric region, urinary burning and, on occasion, terminal haematuria. There is no fever or back pain. Episodes are between 8-10 per year, mostly related to sexual intercourse.

The patient often self-treated with different antibiotics: amoxicillin plus clavulanic acid, ciprofloxacin, norfloxacin, fosfomycin and trimethoprim plus cotrimoxazole. On other occasions he went to the Primary Care Centre, where his family doctor prescribed the antibiotic according to the test strip. She provided multiple sediments with positive cultures for different germs, the most frequent being E.coli; Proteus Mirabilis and Enterococcus faecalis were also collected.

Renovesical ultrasound was requested: the size and morphology of the kidneys were consistent, with no lithiasis or dilatation of the ducts inside. The bladder has smooth walls with no exophytic lesions in its wall, absence of postvoid residue.

Urine sediment performed after antibiotic treatment for a urinary tract infection (UTI): 1-3 red blood cells per field, 1-2 white blood cells per field.

The patient is instructed with basic rules (regular urination, drinking a minimum amount of fluids, general hygiene, etc.).

) and treatment is started with cranberry extract (Urell®) 36 mg of proanthocyanidins, every 24 hours for 4 months.

At the next visit six months later, the patient explained the absence of UTI during this period; she provided two normal sediments every three months.

Given the absence of UTIs in the last six months, postcoital prophylactic antibiotic treatment was not started. An outpatient sedimentation will be performed every three months and a subsequent consultation in 6 months.

Discussion

Urinary tract infections predominate in the female sex, with a sharp increase in bacteriuria coinciding with the onset of sexual activity. Recurrent urinary tract infection is defined as occurring more than three times in a year. About 30% of women who present with their first infection suffer a recurrence (persistence of the same germ in a subsequent urine culture) within six months. This must be differentiated from reinfection, which is when the infection recurs.

The first one is a germ.

Infections occurring during the first week suggest a relapse and should be tested by urine culture. It is not thought necessary to study for anatomical abnormalities that would explicate reinfections. Ultrasonography may be requested to rule out a renal stone or anatomical alterations such as hydronephrosis.

Despite this, there is a not insignificant percentage of women who do not suffer UTIs in their entire lives, so there are factors specific to the patient, micro-organism factors and causal factors related above all to the incorrect intake of antibiotics that are involved in the generation of UTIs.

Patient-related factors

1. pH: the normal vaginal epithelium is colonised by lactobacillus that maintain an acid pH. Hygienic, dietary or hormonal changes can raise the pH of the vagina, favouring colonisation by germs and increasing the likelihood of urinary tract infection.

2. Adherence: Vaginal and urothelial epithelial cells have an individual adhesive capacity for pathogenic bacteria.

3. Antibodies: In both vaginal mucosa and urothelium we have IgA and IgG that facilitate agglutination and reduce bacterial adherence.

4. Sexual activity: the onset of sexual activity marks the onset of UTIs due to mechanical factors during sexual intercourse, which favour the ascent of the germ from the vagina to the bladder. Some contraceptives such as IUDs promote the development of UTIs.

5. Urinary tract disorders: reflux, lithiasis, pyelonephritis, functional anomalies, etc...

Factors related to the micro-organism

1. Bacterial adhesion: this takes place via the fimbriae or pili.
2. Bacterial resistance to antibiotics, either due to the germ's own natural resistance or resistance transferred by plasmids.
3. Increased virulence: production of haemolysin, urease, etc...

Treatment-related factors

Inadequate adherence to treatment due to forgetfulness, inadequate duration, etc., may favour the development of antibiotic resistance.

It is important to recommend "lifestyle" guidelines to avoid recurrences:

1. Genital hygiene with cleansing of the vaginal and rectal area in the direction of the vagina and rectum.

from the front to the back. Doing it the other way round encourages the passage of germs from the anal area to the vaginal area.

2. Genital hygiene should be just right, neither too much nor too little. Douching is not recommended.
3. Urinate frequently and in a relaxed manner. Do not delay urination for more than three to four hours.
4. Drink plenty of fluids. We should drink between 1 and 1.5 litres of water a day.
5. Take showers rather than baths.
6. Urinating before and after sexual intercourse. During intercourse, the male introduces germs from the vaginal introitus by microtraumas into the bladder, which is sterile territory, favouring the development of UTIs.
7. Reconsider diaphragm use, which has been correlated with increased frequency of UTIs.
8. Avoid using tampons if UTIs are associated with the perimenstrual period.

The treatment of recurrent UTIs should be aimed at treating the primary causes such as lithiasis, reflux, tumours, etc. Subsequently, symptomatic bacteriuria should be treated with a single-dose regimen or 3 or 5-day treatments depending on the antibiotic prescribed.

In case of recurrent UTI we will perform a pro-lactic treatment in one of the following ways.

1. *Nocturnal suppressive therapy*, which is carried out by administering an antibiotic at 1/2 or 1/3 of the full daily dose, to be administered at night for at least six months. The aim is to eliminate the proliferation of germs in the period of time when urination is spaced out.
2. *Post-coital therapy*. Clearly oriented to patients who relate their UTIs to sexual intercourse.
3. *Treatment on demand*. Very useful in patients with a good cultural level, who know the prodromes and first symptoms of UTIs and are able to treat themselves correctly.
4. *Supportive treatment*. Drugs that help to prevent the recurrence of urinary tract infections, including, in recent years, cranberry extract. The urothelium binds its cells together by means of glycoproteins such as glycosaminoglycans, which act as a protective film. One of the most important urothelial glycosaminoglycans is Tamm-Horsfall protein. In recurrent UTIs, the concentration of Tamm-Horsfall protein is decreased. A substance polyphenolic compounds of the cranberry vaccinium macrocarpon in particular

A double-bonded proanthocyanidin A behaves as a glycosaminoglycan, decreasing the adhesiveness of E. coli by blocking adhesins and preventing the bacteria from binding to the urothelial cell. Prospective clinical studies have shown differences in the use of the product.

The study by Avorn, J.M., Monane, M., Gurwitz, J., H., Glynn, R., J., Choodnovsky I., Lipsitz, L., A. (Reduction of bacteriuria and pyuria after ingestion of cranberry juice: J. of Am. Med Ass., March 9, 271, 10: 751-754, 1994): Reduction of bacteriuria by 50% in patients taking cranberry extract compared to the placebo group.

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RECURRENT URINARY TRACT INFECTIONS IN WOMEN WITH MIXED URINARY INCONTINENCE: MANAGEMENT OF THE THERAPEUTIC LINK

Introduction

Classically, urinary incontinence is classified according to clinical features into stress urinary incontinence, urge urinary incontinence and mixed urinary incontinence. Overall, stress incontinence predominates in young people, with the incidence of the other two increasing over the years. The prevalence may vary depending on whether subjective or objective parameters are used. If we look exclusively at the clinical picture, we see that the incidence is 33% for each of the three types of incontinence. If we perform a urodynamic study, we see that stress incontinence has an incidence of 50%, urge incontinence 30% and stress incontinence 30%. mixed incontinence is 20%.

The treatment modality in mixed urinary incontinence depends on the predominant clinical presentation, and treatment should be initiated according to the predominant component, which is usually urge urinary incontinence; the clinical response should be assessed in conjunction with a urodynamic study and great caution should be exercised in the application of surgical techniques.

It has been shown that inflammation of the bladder mucosa can lead to detrusor overactivity. Given the high prevalence of lower urinary tract infection in women, it has been shown that inflammation of the bladder mucosa can lead to detrusor overactivity.

It is of particular interest in the diagnosis and accurate treatment of these infections, especially if they are associated with urinary incontinence. In the presence of irritative urinary symptoms, it is essential to perform a urine sediment prior to performing a urodynamic study; if a urine infection is found, antibiotic treatment should be administered beforehand, delaying the examination.

Clinical Case

53-year-old patient with no drug allergies, on treatment with Gemfibrozil, arterial hypertension on treatment with olmersartan mesoxomil 10 mg every 24 hours. She had an appendectomy at the age of 27 and two full-term pregnancies, the second of which was induced by forceps.

Consultation for mixed urinary incontinence, predominantly urinary incontinence in the last two years, accompanied by repeated urinary tract infections for the last 4 years.

Stress incontinence starts with the second birth, with heavy straining. It has progressed since then; currently it is triggered by efforts such as coughing, picking up moderate weights, walking. In the last 2 years, urinary urgency, polyuria, daytime frequency of urination every 2 hours and frequency of urination every 2 hours.

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night-time urination 3 times; leakage due to urgency requiring 3-4 pads per day. No voiding symptoms.

Physical examination revealed a wide vaginal introitus, correct vaginal tropism, hypermobile urethra (Q. tip-test 50°). Minimal cystocele. Normal neck. No rectocele. Escape is demonstrated by coughing during examination.

On the first visit, he reported three positive urine cultures, two at the first visit, and two at the second visit.

E. Coli and another to Klebsiella Pneumoniae; she had received outpatient antibiotic treatment from primary care with good clinical evolution, although the symptoms recurred later. Renovesical ultrasound had also been performed, which showed kidneys of preserved size and echostructure, without lithiasis, cystic images or dilatation of the urinary tract. The bladder had moderate smooth-walled repletion, with no postvoid residue.

We started treatment with cranberry extract (Urell®) 1 capsule every 24 hours (1 capsule contains 36 mg of proanthocyanidins); a voiding diary, urinalysis and urodynamic study were requested.

The voiding diary shows a voiding frequency of approximately every two hours and an average voiding volume of 193 ml. and occasional leakage due to imperiousness, also showing a nocturnal voiding frequency of 3 times with an average voiding volume of 234 ml. The urine sediment was negative and he reported that he had not had any urine infections in three months. The urodynamic study showed mixed incontinence, both due to detrusor overactivity and sphincter dysfunction (see figures 1-3).

Medical treatment with anticholinergics (Tolterodine 4 mg, 1 tablet every 24 hours) is started and Urell® (1 capsule every 24 hours) is maintained.

She has had no urinary tract infections since starting prophylactic treatment with cranberry extract, the urgency and urinary leakage have disappeared since taking the anticholinergic drug, which has been well tolerated at the doses indicated above, with few side effects.

A new urodynamic study was requested, taking both pharmacos, which confirmed the disappearance of the detrusor hyperactivity, maintaining the leakage due to sphincteric causes, showing leakage with coughing during cystometry (see figure 4).

Surgery is proposed for the correction of the sphincteric component with the risk of needing anticholinergic drugs in the postoperative period; the patient accepts. Surgical

treatment is programmed.

The patient is then placed in a suburethral tension-free polypropylene mesh via the transobturator.

At the first postoperative visit one month after surgery, the patient reported no urine leakage, with satisfactory urination. She did not report perineal pain. Urinalysis showed no urinary tract infection. The last certified urinary tract infection dates back 7 months.

It is proposed to discontinue the treatment with the extract of blueberries.

Discussion

The ICS (International Continence Society) defined "overactive bladder syndrome" in 2002 as the occurrence of urgency with or without urge incontinence, usually accompanied by frequency and nocturia. The combination of these symptoms is suggestive of detrusor overactivity defined as the urodynamic demonstration of involuntary bladder contractions greater than 15 cm H₂ O during cystometry. The presence of an overactive detrusor can be demonstrated in only 50% of patients with overactive bladder. Overactive bladder can be classified into overactive bladder of neurogenic cause and overactive bladder of idiopathic cause when no clear aetiology can be identified.

The term overactive bladder is descriptive and not diagnostic. It does not identify specific diseases, it does not distinguish patients with mixed, urge or non-urgency incontinence. One of the conveniences of this term is that it allows non-specialists to consider different types of incontinence and voiding dysfunctions in a uniform way.

Management of overactive bladder includes a wide spectrum of treatments ranging from behavioural therapy to pharmacological treatment or even surgery.

Behavioural therapy is often the first therapeutic link; some treatments offer satisfactory results without side effects. This therapy includes comprehensive information on the functioning of the micturition cycle, which, together with a micturition diary, makes it possible to adjust fluid intake to the number of micturitions. Perineal electrostimulation can also help. If it is also enhanced with biofeedback exercises, we can achieve up to 55% good results.

The next therapeutic link is anticholinergic drugs, which is

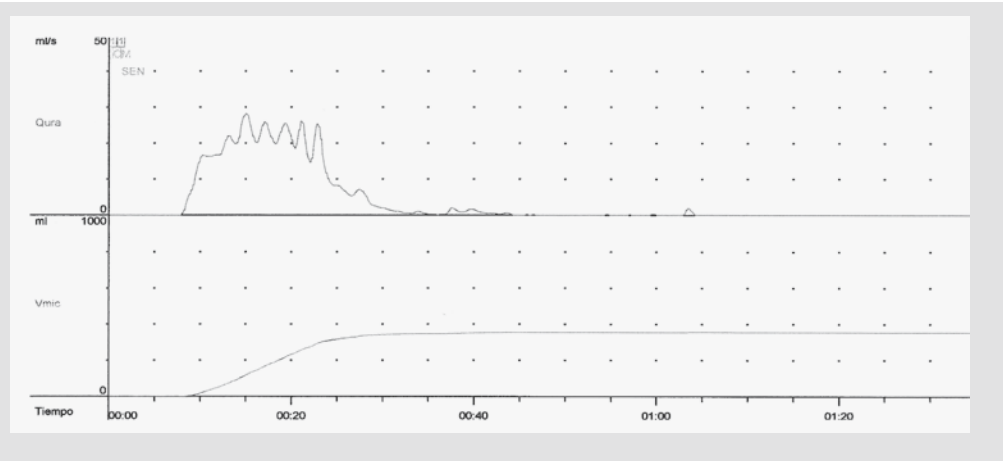


Figure 1

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Physiological

Flowmetry

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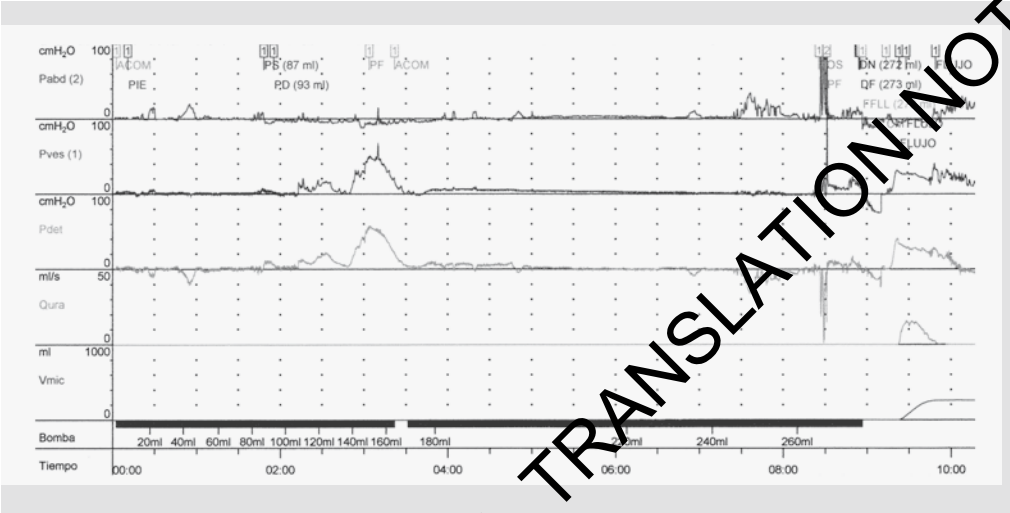


Figure 2. Pressure/flow cystometry
Maximum capacity 275 ml.
Accommodation 137 ml/ cm H₂O
Involuntary contraction to 149 ml with
a maximum detrusor pressure of 138 cm
H₂O. Leakage occurs due to involuntary
contraction
Escape with cough at 265 ml with
normal accommodation.

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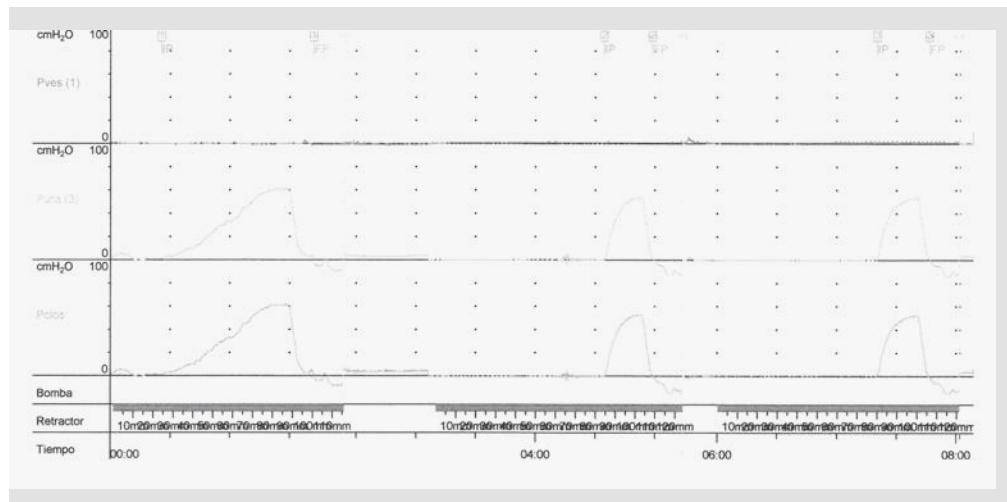


Figure 3. Urethral profile
Functional length of the urethra: 24 mm
Maximum urethral closure pressure: 54 cm H2O

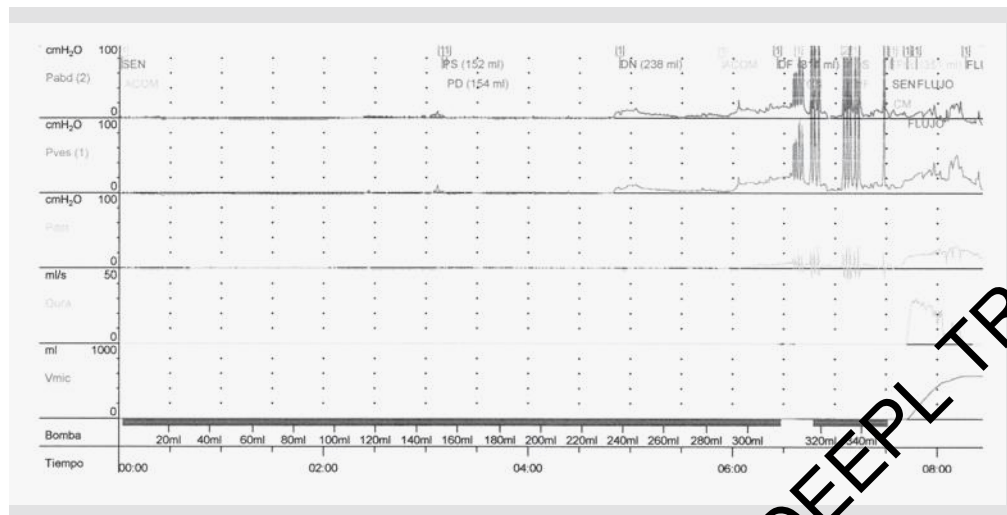


Figure 4. Pressure-Flow-Cystometry
Maximum bladder capacity 352 ml. Accommodation: 49.3 ml/cm
H2O Escape with cough at the end of the filling phase.
Absence of involuntary detrusor contraction.

the only treatment that has demonstrated real efficacy in the treatment of overactive bladder. Its main drawback has been its lack of bladder selectivity, and hence its frequent adverse effects which limit its therapeutic use, such as dry mouth, constipation, blurred vision, tachycardia, drowsiness. Antimuscarinics increase the volume of urine until the first involuntary contraction, decrease the amplitude of the contraction and increase total bladder capacity. In the clinical case in question, the patient tolerated the antimuscarinic drug, tolterodine, correctly, with clinical and in this case, urodynamic improvement.

Other treatments include capsaicin or resiniferatoxin instillations, botulinum toxin injection, sacral neurostimulator implantation of sacral roots or small bowel bladder enlargement.

Overall, urinary incontinence has been clinically divided into stress urinary incontinence when leakage is preceded by an elevation of abdominal pressure, urge urinary incontinence when leakage is preceded by a compelling desire to urinate, and mixed urinary incontinence which is a combination of the two. This latter definition leaves open the possibility of both types of leakage occurring simultaneously. On the other hand, from a urodynamic point of view, it refers to the demonstration of leakage related to increased intra-abdominal pressure and detrusor overactivity. To complicate matters further, coughing often triggers an involuntary contraction and is associated with leakage, which is very difficult to correlate with any specific cause.

In our case, the patient presented clinically and urodynamically with urine leakage, which was corroborated by the urodynamic study. From the clinical point of view, there is a predominant impact on quality of life due to the leakage triggered by the involuntary contractions.

Overall, the therapeutic approach is not well defined. According to the recommendations of clinical guidelines, treatment of mixed incontinence should start with the predominant partner. However, this is not always easy, since although criteria such as impact on quality of life, degree of leakage or degree of detrusor overactivity are used, they are not clearly defined either clinically or urodynamically. According to the existing evidence, mixed incontinence seems to improve equally after anticholinergic treatment targeting the urge component.

as well as after surgery aimed at the exertional component. In our patient, given that the predominant clinical condition was urgency, treatment was started with anticholinergics, improving above all the urgency component and, slightly, the stress component. Once the involuntary contractions and urine infections had resolved, the second urodynamic study only showed stress incontinence, so it was decided to act on the sphincter problem, and following the recommendations of the Urological Societies, given the clinical, anatomical and morphological characteristics, a tension-free suburethral polypropylene monofilament mesh was placed via transobturator, the results of which, as reported in the literature, exceed 95%.

Among postmenopausal women, the causes that can lead to infections are oestrogen deficiency, which causes changes in the vaginal flora, a decrease in the number of lactobacilli and favours colonisation by E. coli. They can also be attributed to the presence of postvoid residue (these patients often have pelvic organ prolapse, which favours the presence of postvoid urine), as urinary stasis favours the colonisation of germs.

It is recognised that among the causes that can trigger involuntary contractions are infections as well as tumours, lithiasis, pelvic pain, interstitial cystitis and many other urethra-vesical affections. It should be noted that in the case of irritative micturition symptoms, it is recommended that a urine sediment be collected prior to the urodynamic study, and if this is positive, antibiotic treatment should be given and the study postponed.

It has been known for more than 100 years that the fruits of the Arándano are capable of relieving urinary irritative symptoms.

The proanthocyanidins in cranberry vaccinium macrocarpon act on bacterial aggressiveness, decreasing the aggressiveness of E. coli to the urothelium and limiting the ability of E. coli to penetrate the chorion.

In order for infection to occur, the presence of a germ and the breakdown of the urothelial layer must coexist. Cellular integrity and intercellular junctions are the main barriers to germ penetration, in addition to the production of natural glycoproteins that act as a cementation. These structures can deteriorate due to known causes such as interstitial cystitis, hyper-reflexic neurogenic bladders, infections, etc.

The action of cranberry is based on proanthocyanidins. The most common glycosaminoglycans include Tamms-Horsfall protein. In patients with recurrent urinary tract infections, the concentration of Tamms-Horsfall protein is reduced. Proanthocyanidin decreases the in vi- tro and in vivo adhesiveness of E. Coli to urothelial cells in vi- tro and in vivo by blocking adhesins, which these bacteria possess.

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RECURRENT URINARY TRACT INFECTIONS AND HORMONAL CHANGES IN WOMEN

Introduction

The prevalence of bacteriuria increases with age, being higher in women than in men. It is more marked in older adults who are institutionalised (15-35% in men and 25-50% in women). A high proportion of people in this population are considered to have bacteriuria at some point in time.

Because of the high frequency of asymptomatic bacteriuria in older adults, especially institutionalised, it is difficult to conclude that a UTI is the cause of a febrile condition in the absence of urinary tract symptoms and signs.

Several factors favour bacteriuria in older adults: physiological changes in the urinary tract; hormonal changes in women; prostatic hypertrophy; bladder and vesicoureteral dysfunction related to chronic diseases common in this population, diabetes, use of antidepressants and sedatives; bladder and/or bowel in- continence; use of urosan, etc.

Clinical case

A 58-year-old woman, who consulted for a long-standing

po, daytime and nocturnal frequency of urinary frequency, FMD: 1-3 hours, FMN: 2 times, and repeated urinary tract infections (1 per month). No OI or obstructive micturition symptoms.

Evidence:
Negative urine sediment. Normal renovesical ultrasound.

Urodynamic study. Cystometry:
First wish = 422 ml.
Maximum cystometric capacity = 659 ml.
Accommodation = 659/5 = 131 (considered normal).
No involuntary contractions are observed during filling (graph 1).

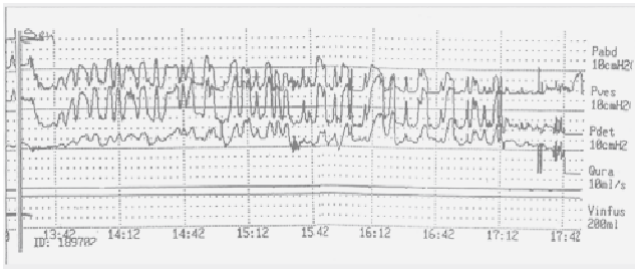
Pressure Flow:
Failed micturition attempt. Absence of detrusor contraction (graph 2).

Post-drilling flowmetry:
Volume: 459 cc.
Qmax: 21.7 ml/sec (graph 3).

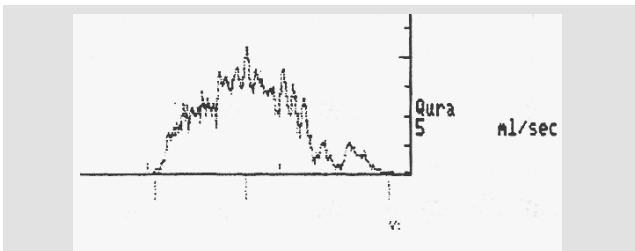
EUD Conclusion/Recommendation:
Normal filling phase. No micturition achieved in the study.



graph 1



graph 2



graph 3

Discussion:

In these cases, topical treatment with oestrogen cream restores local tropism and new colonisation by lactobacilli, thereby reducing the number of urinary tract infections. The patient is also recommended to be treated with pro- phylactic cranberry extract (Urell®).

Conclusion:

In relation to recurrent urinary tract infections, it is known that hormonal changes induced in the menopausal vaginal flora favour their development. In premenopausal women, oestrogens facilitate colonisation of the vagina by lactobacilli. These produce lactic acid and maintain a low vaginal pH, while inhibiting the growth of enteropathogens. With the menopause, the vaginal pH increases, lactobacilli disappear from the vaginal flora, and the vaginal introitus becomes colonised with enterobacteria, especially E. coli.

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MEGACYSTIS, IMPORTANCE OF PROPER VOIDING EDUCATION, AND URINARY TRACT INFECTIONS

Introduction

The finding of megacystis in infancy is rare, and the value at which it is considered large has not been defined. one bladder at each age. Once cases of perineal nervation and areflexia have been ruled out, this picture usually corresponds to disturbances in learning to urinate, especially in girls who are instructed to empty their bladder only in the home environment and therefore do not urinate during the whole school day. They empty their bladder only once or twice a day instead of the normal 4-7 times a day. Some external causes can influence the acquisition of this habit: dirty toilets, rigid teachers who do not allow children to go out to urinate, education with erroneous patterns by parents (some force their children to hold their urine or to "cut off" the stream during urination, both of which are TOTALLY WRONG habits). It is also possible to detect megacystis in cases of acute psychogenic retention. This situation may coexist without residue (more frequent) or be associated with voiding disorders that produce a permanent residue. It is sometimes associated with recurrent urinary tract infections that are resistant to treatment. The impact on the upper urinary tract is exceptional.

Clinical case

53-year-old woman, with a history of peptic ulcer, depression, appendectomy, tonsillectomy, hysterectomy and surgery for varicose veins in both lower limbs.

Since the hysterectomy, she has had repeated lower urinary tract infections and stress urinary incontinence has progressively appeared. She reports a sensation of incomplete voiding after urination and the need to perform an abdominal press to empty her bladder correctly. She urinates 2 to 3 times a day: once in the morning, once in the evening and sometimes once before going to bed.

Evidence:

Daily voiding: 2-3 micturitions per day of between 600 and 900 cc. Renovesical ultrasound: normal.

Urodynamic study. Cystometry:

First wish = 399 ml. Maximum capacity = >1001 ml
Accommodation > 1000 ml/cm H₂ O
There are no involuntary detrusor contractions or leakage (graph 1).

Pressure-flow:

Failed micturition attempt. Performing abdominal press, no detrusor contraction was demonstrated and no flow was obtained (graph 2).

Post-drilling flowmetry:

Volume: 376 cc.

Qmax: 25 ml/sec (graph 3).

EUD Recommendation:

- Bladder instability is ruled out. Bladder megacystis. Acontractile detrusor versus inhibition during the pressure-flow study. Absence of infravesical obstruction.
- Assess post-micturition residue for possible self-catheterisation, prescribed miction and intake of blueberry extract (Urell®) is recommended to reduce repeat infections.

Discussion:

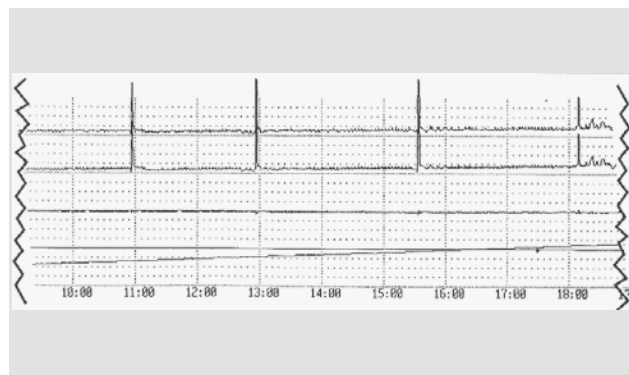
In this case, there is evidence of a relationship between the symptoms and the hysterectomy and the appearance of urinary tract infections, especially in the case of radical surgery. However, we have already mentioned the difficulty of diagnosing hypocontractile detrusor in women.

Conclusion:

Treatment consists of voiding re-education, with the help of a voiding diary. Patients should be instructed to go regularly to a toilet that is private and clean, although they may not continue to urinate at first. We do not advise routine abdominal pressing, although it may be necessary at first to re-establish the habit. The patient may fail to urinate at shorter intervals during the first few attempts, but the condition usually subsides and rarely presents complications.

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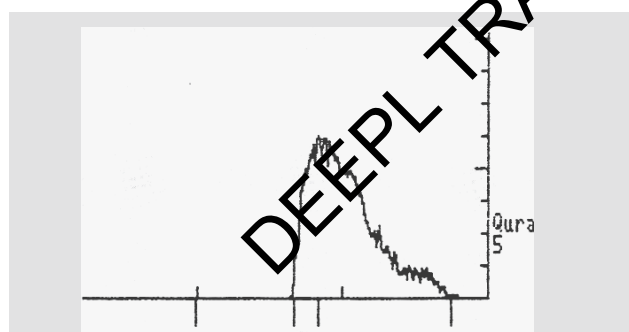
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graph 1



graph 2



graph 3

URINARY TRACT INFECTIONS IN A PAEDIATRIC CASE OF BLADDER INSTABILITY ASSOCIATED WITH REFLUX

Introduction

The initial impetus for urodynamics in children stems from seminal studies in patients with myelomeningocele, which led to a highly accurate diagnosis with prognostic and therapeutic implications. Many children without neurogenic alterations have benefited from these data, and the conceptual change in areas such as vesico-ureteral reflux, urodynamics, urodynamics of the urethra, ureteral reflux and urodynamics of the urethra.

enuresis or infections, has been enormous.

Clinical case

A 9-year-old girl presents with recurrent urinary tract infections of three years' duration. Occasionally, the infections are accompanied by febrile syndrome and right lumbar pain requiring hospital admission. Physical examination and X-ray of the spine are normal.

Evidence:

Filling cystography: grade III vesicoureteral reflux on right duplicity and grade II reflux on the left.

Renal ultrasound: Normal.

NOTE: An antibiotic prophylaxis regimen was instituted, but

continues to present infections, for which reason a dynamic urological study is carried out.

Urodynamic study. Physiological flowmetry:

Volume: 200 cc.

Qmax: 18 ml/sec. RPM: 0 (graph 1).

Cystometry:

First desire at 42 cc, with small detrusor contraction. Presence of involuntary detrusor contractions throughout filling. First involuntary contraction at 70 cc of filling, which is also the maximum involuntary contraction. No leakage is demonstrated.

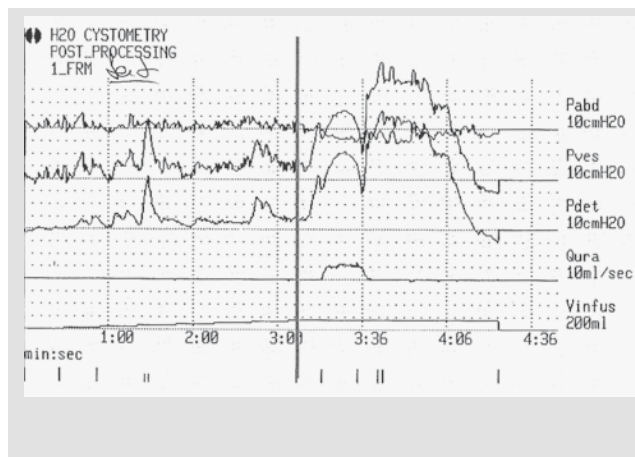
Accommodation: 15 ml / cm H₂ O (graph 2).

Pressure-flow:

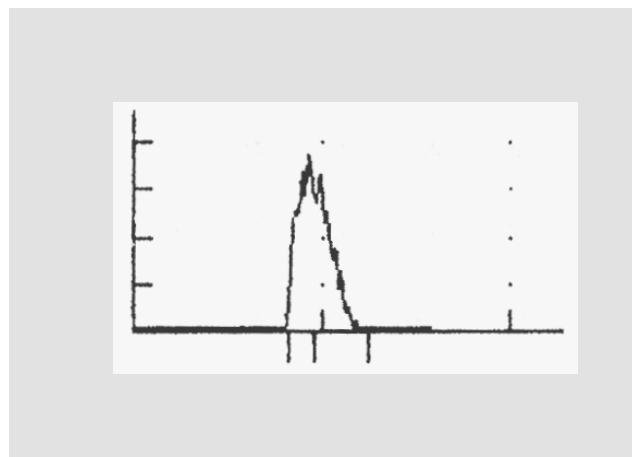
Urination from rest after involuntary contraction due to sustained detrusor contraction. Urethral resistance: 0.5.

EUD Recommendation:

- Detrusor instability. Severe obstruction ruled out by flowmetry.
- Anticholinergic treatment is indicated
- Prophylactic treatment with cranberry extract is not contraindicated.



graph 1 graph 2



Evolution:

The patient was treated with oxybutynin (5 mg/12 h) for 16 months, as well as chemoprophylaxis + extract of arane (Urell®) for 3 months, remained asymptomatic and

with sterile urine cultures. A urodynamic study at 8 months showed the disappearance of the instability, with persistence of hypoaccommodation. In a second study, 8 months later, only two contractions of low intensity persisted at the end of the study. Accommodation and capacity were normal, and it was decided to withdraw oxybutynin treatment. During the 16 months of anticholinergic treatment, he had no infections. In a control cystography, the reflux had disappeared.

Discussion:

Involuntary contractions during filling are present in all neonates. As the child grows, neurological maturation leads to inhibition of these contractions. Their persistence becomes pathological, and if there is no neurological alteration, it is called instability. In children, it is associated with three clinical pictures:

- Recurrent infections.
- Filling symptoms (daytime and nocturnal pollakiuria, urgency and intermictional leaks).
- Enuresis with daytime symptoms.

Conclusion:

These 3 clinical presentations are often combined with each other, and vesicoureteral reflux may be added to all of them. As in adults, the instability may be associated with phase disturbances. The presence of symptoms is sufficient to initiate anticholinergic treatment, but it is perfectly recognised as an isolated alteration of the filling phase, as in the case in question. Some claim that the urodynamic study in children is a tremendously aggressive examination, with multiple complications, and that the presence of symptoms is sufficient to initiate anticholinergic treatment. There are several data contrary to this opinion: 1) symptoms are unreliable in the diagnosis of instability; 2) the only reliable method of diagnosing instability is cystometry; and 3) treatment can be lengthy and must be based on objective findings.

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A CASE OF PSYCHOGENIC VOIDING ASSOCIATED WITH URINARY TRACT INFECTION

Introduction

Acute urinary retention of psychogenic origin has been described, mainly in women and children. Examination is normal and the urodynamic study shows an absence of instability waves, with a decrease in effective bladder contractions and an abnormal urethral pressure profile.

Clinical case

A 15-year-old adolescent girl who, for the last 3 years, has had episodes of right lumbar pain and urinary tract infections on request. Since menarche, she has had monthly episodes of acute urinary retention on the days prior to menstruation. She has no obstructive symptoms, no urgency or leakage. The urine leakage subsided after bladder catheterisation, which was performed in the emergency department and yielded waste volumes of between 400 and 700 cc.

Evidence:

Physical examination is normal, as well as renovesical ultrasound, intravenous urography, serial voiding cystourethrography and nuclear magnetic resonance imaging.

Urodynamic study. Physiological flowmetry:

Volume: 558 cc.
Qmax: 34 ml/sec.
Peaked morphology suggestive of abdominal press. RPM: 0 (graph 1).

Cystometry:

First desire at 386 cc at a Pdet of 4. No involuntary detrusor contractions are detected throughout filling, and no leakage is demonstrated (graph 2).

Pressure-flow:

Urination by sustained voluntary contraction of the detrusor. Urethral resistance: 0.037.

Conclusion/Recommendation EUD:

- Bladder megacystis. Detrusor instability is ruled out. Infravesical obstruction is ruled out. Contraction of the detrusor is demonstrated. Probable functional picture.
- Timed urination.
- If repeated UTIs persist, start treatment with cranberry extract (Urell®).
- Assess psychotherapy.

Discussion:

In the case of a child with repeated urinary tract infections and voiding symptoms, some type of organic pathology may be suspected as the cause, especially if, as in this case, there are several episodes of acute urinary retention. We begin the study with general urological examinations: in this case, ultrasound, urography, cystourethrography and even nuclear magnetic resonance were normal. In this case, it is noteworthy that the episodes of retention occurred in the days prior to menstruation, making it essential to search for urological, gynaecological and neurological causes. A great deal of time was spent looking for a cause of the obstruction, when, in fact, there was no evidence in favour of it.

The urodynamic study will tell us whether or not there is obstruction and the mechanism of micturition. In this case, it was performed in an asymptomatic period, but other patients require permanent catheterisation and the study is performed after a period of tape and uncovering of the catheter.

The study showed a large bladder capacity well above that appropriate for the patient's age. In addition, the

The objective evidence that the detrusor is contracting voluntarily and sustain- able, and that there is no obstruction. Our organicist view sometimes prevents us from thinking about psychological or non-organic causes, which we only suspect when the "objective" examinations are standard. There is no data in the study to suggest that the patient has difficulty or is unable to urinate. She even manages to urinate correctly after distending her bladder to high volumes.

Conclusion:

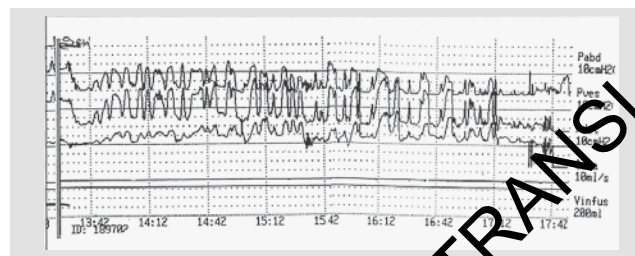
Prior to the consultation, the patient presented with 8-10 retention episodes/year. A consultation was made with the clinical psychology team, which detected an emotional conflict. While the psychological approach was being initiated, the patient was instructed to perform self-catheterisation on demand, which she did only if she had retention. The emotional conflict was adequately treated, decreasing the number of retention episodes until they disappeared after six months of psychological follow-up.

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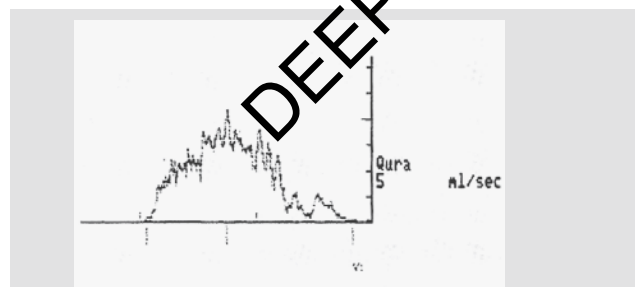
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graph 1



graph 2



graph 3

URINARY TRACT INFECTION AND PHYTOTHERAPY IN A PATIENT WITH STUDER TYPE ORTHOTOPIC NEOBLADDER

Introduction

The risk of urinary tract infections in neobladder patients is increased due to the greater ease with which germs can colonise the intestinal epithelium, with *E. coli* being the causative germ in 59% of the cases. monobacterial infections in this group of patients.

Clinical Case

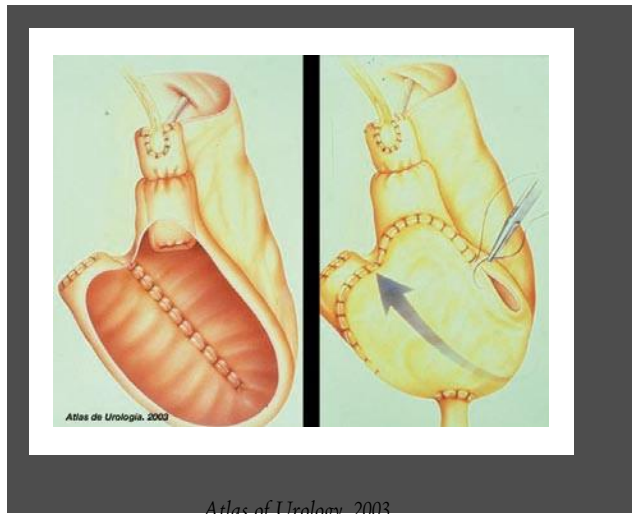
We present the case of a 49-year-old male patient who presented to the emergency department for an episode of macroscopic haematuria with clots.

In the initial study, a genitourinary ultrasound scan showed a mass in the bladder with abundant clots, with a normal upper urinary tract.

The patient was taken to the operating theatre and a 2 cm bladder tumour in the bladder fundus was resected and multiple biopsies were taken from the rest of the bladder. Analysis of the tumour revealed a high-grade T2 urothelial carcinoma with negative multiple biopsies.

The patient was proposed for cystectomy with an orthotopic studer-type neobladder. The final result of the analysis of the specimen was a stage pT3b N0 urothelial carcinoma. The hospital stay was uneventful and the patient was discharged on the tenth day, receiving instructions on the management of his neobladder. Ten days after discharge, the bladder catheter was removed and check-ups were scheduled every 4-6 months during the first year, in conjunction with the Oncology Department, using CT and ultrasound scans.

In the second year, urography was performed, which showed no alterations, and the patient had a normal follow-up with correct emptying of the neobladder and a good quality of life, except for the presence of repeated episodes of UTI, which on two occasions required hospital admission due to high fever. The germ isolated in the cultures was *E. coli* and was treated on all occasions according to the antibiogram. Prophylactic treatment was started with American cranberry "*Vaccinium macrocarpon*" (Urell®) at a dose of one 36 mg capsule daily, one month per quarter for one year, as a preventive measure. During the year of follow-up, urine sediment and urine culture were performed every three months, with no evidence of any episode of symptomatic urinary tract infection during the following six months.



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The genetically modified adhesins (F and P) bind specifically to host cell receptors (glycophospholipids present in the cell membranes of erythrocytes and epithelial cells of the genitourinary tract). One or both of these adhesins are present in 50-60% of E. coli strains causing urinary tract infection.

In 1994, Avorn et al. showed that regular use of cranberry juice decreased bacterial growth in the urinary tract.

Furthermore, Howell et al. in 2002 reported the in-hybiotic capacity of proanthocyanidins contained in cranberry juice to decrease the concentrations of isolated bacterial strains by 6-375 mcg/mL, demonstrating the in vitro anti-adhesion capacity of cranberry extract.

Urell® could therefore be beneficial in reducing leukocyturia and bacteriuria in patients with intestinal neobladders, which would have an impact on reducing the rate of symptomatic urinary tract infections.

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PHYTOTHERAPY AFTER CYSTECTOMY. A CASE OF USE IN A PATIENT WITH ILEAL CONDUIT / UROSTOMY.

Discussion

In neobladder patients with recurrent and symptomatic urinary tract infections, the adequacy of neobladder emptying should be assessed first. If the residual

is less than 20 cc as is the case here, the virulence factors of the micro-organisms involved in urinary tract infections play an important role in the aetiopathogenesis. Adherence of E. coli to the urothelial surface is considered to be the first step in the origin of urinary tract infection. The adhesion of the micro-organism occurs via so-called fimbriae or adhesins, which have been studied by several authors. The adhesins of E. coli determine the

Introduction

Urinary tract infection (UTI) in cystectomised patients may affect up to 30% of cases. However, prophylactic treatment is justified only in patients with a history of recurrent pyelonephritis. For this group of patients, the reduction of bacteriuria and pyuria resulting from colonisation of the ileal duct by germs would reduce episodes of infection and the consequent deterioration of the upper urinary tract.

Clinical Case

A 72-year-old male patient, with a history of hypercholesterolemia and moderate prostatism, who attended our centre due to macroscopic haematuria of one month's evolution. An ultrasound scan showed a lesion on the right lateral side of the bladder, suggestive of a bladder tumour, with a normal upper urinary tract. Transurethral resection of the lesion showed a high-grade T2 stage urothelial carcinoma with negative multiple biopsies.

Radical cystectomy and urinary diversion were performed and he was discharged 12 days after surgery. The pathological result of the

The piece was a pT3a N0 urothelial carcinoma.

The follow-up carried out every 4-6 months during the first year in conjunction with the Oncology Department, by means of CT and ultrasound, was normal.

In the second year, the patient underwent a ductography, which also showed no alterations, although the patient began to have repeated episodes of urinary tract infection, with four episodes in the period of one year with more than



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100,000 colonies of *E. coli*, symptomatic, with lumbar pain and fever, which were treated according to the antibiogram. Diagnosed with recurrent UTI, prophylactic treatment was started with American cranberry "*Vaccinium macrocarpon*" (Urell®) at a dose of one 36 mg capsule daily, one month per quarter for one year, as a preventive measure. During the year of follow-up, urine sediment and urine culture were performed every three months, with no episodes of symptomatic urinary tract infection and asymptomatic bacteriuria detected in only one of the control urine cultures.

Discussion

Virulence factors, specific to the micro-organisms involved in urinary tract infections, play an important role in the aetiopathogenesis. Adherence of *E. coli* to the urothelial surface is considered to be the first step in the aetiopathogenesis of urinary tract infection. Adhesion of the microorganism occurs via so-called fimbriae or adhesins, which have been studied by several authors. The genetically determined *E. coli* adhesins (F and P) specifically bind to host cell receptors (glycophospholipids present in the cell membranes of erythrocytes and epithelial cells of the genitourinary tract). One or both of these adhesins are present in 50-60% of strains of

E. coli causing urinary tract infection.

Several published studies document the anti-adhesion activity of Urell®.

Howell et al. conducted a study of 39 women diagnosed with recurrent UTIs in 2002, showing that prophylactic treatment with 36 mg PAC decreased bacterial adherence in 31 (80%) of the isolated strains, with maximum anti-adhesion activity experienced between 2 and 10 hours after ingestion.

Therefore, in patients with a urostomy and recurrent urinary tract infections without evidence of upper urinary tract obstruction, Urell® could be of benefit by decreasing the rate of bacteriuria and leukocyturia, which would result in a decrease in the number of episodes of symptomatic urinary tract infection.

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BLUEBERRY EXTRACT IN A PATIENT WITH RECURRENT URINARY TRACT INFECTION AND MORPHOLOGICAL ALTERATION OF THE URINARY TRACT

Introduction

In urinary tract infection (UTI), antibiotic therapy is the treatment of choice. When predisposing factors for UTI are present, appropriate aetiological treatment should be considered. In the case of renal ectasia not amenable to surgery, elimination of UTI may be difficult to achieve even with suppressive antibiotherapy (daily dosing, several months). Cranberry extract inhibits the in vitro and in vivo growth of *E. coli* colonies and may therefore be useful in cases of recurrent UTI^{1,2}. A case is presented in which cranberry extract (Urell®) has contributed to the treatment of recurrent UTIs. of a case of recurrent UTI associated with renal ectasia and lithiasis.

Clinical Case

40 year old man under control in the urolithiasis unit for the last 6 years.

GENERAL PATHOLOGICAL BACKGROUND: Gastritis, denies other pathological events.

UROLOGICAL HISTORY: 6 years ago, debuted with febrile syndrome and right lumbago, with renal ectasia of the right kidney.

same side. A double J catheter was placed on the right side and antibiotic therapy was administered, with immediate good evolution. Imaging studies ruled out lithiasis. The left kidney was normal. After catheter removal, recurrence of fever, presence of right renal ectasia with echogenic material in the urinary tract, suggestive of right pyonephrosis, was observed. A right puncture nephrostomy was performed and antibiotic therapy was administered. Nephrostomy pyelogram: stenosis of the right pyelo-ureteral junction (pyelo-caliectasia without passage of contrast to the ureter). Urine culture (pyuric urine due to nephrostomy): *E. coli*. DMSA renogram: 40% right renal function with parenchymal scar in the upper third; 60% left renal function. Post-treatment culture: negative. Doppler ultrasound: polar vessel adjacent to renal pelvis. Urine culture by nephrostomy: *E. coli*, *Enterococcus F*, *Corynebacterium*. Urine culture by urination: *E. coli*. Receives oral antibiotic treatment. Culture negative after 15 days.

With a diagnosis of right pyelo-ureteral junction syndrome, a Henderson-Hynes right uretero-pyeloplasty was performed via subcostal lumbotomy (year 2001). Control ultrasound: Double J catheter in the renal pelvis, uretero-pyelocaliceal dilatation up to the junction of the ureter to the bladder, compatible with an obstructive double J catheter. It was decided to remove the ureteral catheter, and calcification was observed.

cation of its proximal end. Urine culture: E. coli. Control intravenous urography (IVU): Improvement of the right pyelo-ureteral dilatation with small lithiasis in the pyelo-ureteral junction region. Extracorporeal shock wave lithotripsy (ESWL) with antibiotic coverage is indicated. After one session, the stone regressed to the lower calyceal group.

X-ray/ultrasound control, 6 months follow-up: right renal resi- dual dilatation and small pelvic lithiasis. Urine culture: E. coli. Antibiotic treatment was indicated prior to the decision on urolithiasis. The postoperative period was marked by wound infection requiring debridement and flat healing until complete healing. A few weeks later (2004), febrile syndrome and right lumbar pain. Control urine culture: Pseudomona A. Intramuscular treatment with Aztreonam, improving clinically. Ultrasound: Slight renal parenchymal thinning, residual renal ectasia and calculus located in the lower group (mobile). Control urine culture: Pseudomona A (multi-resistant). It was decided to follow the evolutionary controls without applying antibiotic therapy.

CURRENT ILLNESS: Patient with occasional low back pain (2008). Urine sediment: There was a notable presence of ammonium-magnesium phosphate crystals. Urine culture: E. coli (multisensitive). Suppressive treatment was decided (nightly dose with Ofloxa- cino). Control urine culture: Pseudomona A. Urine culture after withdrawal of antibiotic therapy: E. coli. Control ultrasound: Right kidney with slight residual ectasia and small infe- rior calyceal lithiasis. It was decided to carry out suppressive treatment with alternating Ciprofloxacin and Trimethoprim-Sulfamethoxazole, adding cranberry extract tablets (Urell®). Urine culture at 2 months: Pseudomona A. Control CT scan: mild renal ectasia (stable). Right lower renal calyceal li- tiasis without changes or repercussions. It is recommended to stop antibiotic therapy and continue with cranberry extract but the patient voluntarily interrupts the treatment. Control urine culture at 3 months: E. coli.

He currently remains asymptomatic and has been instructed to continue with suppressive antibiotic therapy associated with cranberry extract, pending further monitoring.

Discussion

UTI may be recurrent and resistant to various antibiotic treatments. Although recurrent UTI may be idiopathic, it is frequently associated with structural abnormalities of the urinary tract or a history of surgery or other urological manipulations. The present case debuted with

UTI on a congenital structural anomaly of the right kidney (pyelo-ureteral junction syndrome) which can be interpreted as a predisposition to keep the urine infected.

Although appropriate treatment with drains (J-catheter and nephrostomy) and antibiotherapy adapted to the antibiogram, definitive sterilisation of the urine was not achieved. The corrective surgery performed on the basic stenosis resulted in wound infection, a complication favoured by the presence of infected urine. The result of pyeloplasty in the present case was considered correct due to the decrease in residual right renal ectasia and its stabilisation over the years. The appearance of renal lithiasis is probably due to calcification of the double J catheter that was initially placed. There has been no insistence on treating the stone with ESWL as it has evolved favourably (it has not increased in size and has not obstructed the kidney).

The persistence of UTI can be attributed to a number of factors. Firstly, the debut of pyelonephritic junction syndrome was with complicated UTI (acute pyelonephritis). Infection is not usually present in most cases of junctional syndrome when it affects males, so its presence suggests a tendency to UTI. Urinary manipulation with internal and external diversions adds to the chances of developing recurrent UTI. Residual ectasia (even without obstruction) and uro-lithiasis (uncomplicated calculi) may also be involved in the establishment of recurrent UTI.

The therapy for recurrent UTI in patients with renal anatomical abnormalities amenable to surgical repair is, obviously, surgery. Once surgery has achieved its goal (in this case, freeing the ureteral stricture and unclogging the kidney), the UTI may remain and require suppressive antibiotics. Distinguishing between asymptomatic bacteriuria and recurrent UTI is impossible in this type of patient with renal structural anomalies, multimanipulated and with hardly any symptoms, so one possible option is to leave them without treatment and observe the clinical evolution and that of their renal unit. Even in the presence of repeated positive urine cultures, it is appropriate not to perform antibiotic treatment, which is what was done in this case between 2004 and January 2006, and between June 2006 and January 2008.

However, attempts have been made to treat recurrent UTI with long courses of daily single-dose oral antibiotic treatment, known as "suppressive antibiotherapy".

A history of pyonephrosis, the persistence of ectasia, the pre-existing

The presence of struvite crystalluria (infective) and the patient's occasional mild lumbar discomfort were the reasons for indicating this treatment schedule which, to date, has not been able to produce a negative urine culture.

Apart from antibiotic therapy, there are few other options to achieve this goal. Urine acidification is one possibility that can inhibit bacterial growth if a urinary pH of around 5 is maintained. Acetohydroxamic acid is a classic drug for this purpose, although its efficacy is not proven in well-designed clinical studies and it is currently used on a very individualised basis. One of its main problems is nephrotoxicity. In addition, the most widespread indication for the use of this drug is UTI associated with chronic lithiasis.

A natural option to prevent recurrence of urinary tract infection is the ingestion of natural cranberry (Vaccinium macrocarpon) extracts^{1, 2}. Cranberry extract, which is able to inhibit the growth of E. coli colonies in vitro⁵, has shown efficacy in in vivo studies (urine with fewer E. coli colonies after ingestion of cranberry compared to placebo)³. The preparation is effective against both antibiotic-resistant and antibiotic-sensitive bacteria⁶. Tolerance of the preparation is very good and the likelihood of undesirable effects is minimal⁷, making it particularly suitable for patients with recurrent UTI and Escherichia coli infection (in vivo and in vitro studies focus mainly on the fimbriated P-type phenotype)⁸. In the present case, it is interesting to note that administration of cranberry eliminated E. coli from the urine, but Pseudomonas took its place.

Once the patient stopped cranberry treatment, E. coli reappeared. This fact allows us to understand the possible selective efficacy of cranberries on recurrent UTI to E. coli, even in patients with underlying urinary pathology.

Conclusion

It is possible that maintained therapy with oral cranberry extract may be able to control the growth of colonies of E. coli in patients with recurrent UTI, although randomised double-blind studies are desirable to establish the certainty of this effect. The good in vitro results and the good tolerability and safety of cranberry extract make it an acceptable option for the treatment of recurrent UTI.

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RESIDUAL RENAL LITHIASIS ASSOCIATED WITH URINARY TRACT INFECTION: USEFULNESS OF CRANBERRY EXTRACT

Introduction

Residual renal lithiasis is considered to be the fragments present in the kidney immediately after active treatment of the lithiasis¹. When residual lithiasis is associated with urinary tract infection (UTI), rescue treatment is conditional on prior sterilisation of the urine with antibiotic therapy, a requirement that is not always possible. The bioactive compounds in cranberry (*Vaccinium macrocarpon*), eliminated in the urine, inhibit the growth of uropathogens like *E. Coli*²⁻³, and may therefore be useful for this type of patient. We present the case of a patient with UTI and urolithiasis receiving active treatment with extracorporeal shock wave lithotripsy (ESWL) and uretero-rensoscopy (URS) in which treatment with cranberry extract was used with good results.

Clinical Case

A 33-year-old woman has been monitored in the urolithiasis unit for 3 years.

UROLOGICAL HISTORY: Pyelocaliceal lithiasis

right, treated with pyelolithotomy in another centre (Year 2000). Urine culture: *E. coli*.

X-ray control (2005): Upper hydrocalyx in the right kidney caused by a stone 2 cm in diameter, several pelvic and lumbar ureteral lithiasis causing moderate renal ectasia. Metabolic study: isolated hypercalciuria. Placement of a double J catheter and ESWL was indicated; 3 sessions, two on the lumbar and one on the renal pelvis. She received oral antibiotic therapy. Control urine culture: *E. coli*.

She attended the emergency department (2006) for right renal colic. X-ray/echo: Lithiasis in right upper hydrocalyx, right lithiasic street in sacral ureter, renal ectasia. ESWL was performed (2 sessions) which produced fragmentation without elimination. Admitted as an emergency patient for symptoms compatible with acute obstructive right pyelonephritis. X-ray: Several lithiasic fragments in the lumbar, sacral and juxtavesical ureter. It was decided to place a double J catheter (initially a straight catheter) and intravenous antibiotic therapy. Once the febrile condition was overcome, 2 ESWL were performed, which resolved the problem. X-ray control: stable lithiasis in the upper calycinal group and absence of urethral lithiasis. Removal of the catheter was indicated (calcification of its distal

ESWL was decided. Early control X-ray/ultrasound: No evidence of urethral lithiasis or renal ectasia. Culture: *E. coli*. She received oral antibiotic treatment.

CURRENT ILLNESS: readmission for acute obstructive pyelonephritis (2007). X-ray: sacral ureter lithiasis. X-ray/ultrasound: Right kidney with ectasia and known lithiasis in the upper group. A J catheter was placed and antibiotherapy was administered, with good evolution. The patient was discharged from hospital. She was recommended to complete the antibiotic treatment for a further 2 weeks and to start continuous cranberry extract (Urell®). Control urine culture: negative. Two new sessions of ESWL were performed.

URS was decided (2008), achieving lithofragmentation using Holmium laser and extraction of sacral ureteral calculi with Nitinol baskets. In the same procedure, flexible URS and lithotripsy of the calculus lodged in the upper calyceal group were performed, which could not be fully completed due to bleeding and difficulties in endoscopic vision. Double J catheter was left in place. X-ray control: calyceal calculus in 2 fragments, one of them displaced to the renal pelvis. Four sessions of ESWL were indicated, achieving complete fragmentation of the renal calculus. X-ray control: Small residual fragments in the kidney and ureter, expellable. Apart from the profi-

end). Control intravenous urography (IVU): Right renal lithiasis without variation, calculi in the right lumbar ureter.

The risk of sepsis is increased. UTI also increases bladder discomfort in patients with a double J catheter in the process of stone expulsion and facilitates stone calcification, which in some cases makes it necessary to remove the catheter earlier than desired. As in this case, when ESWL does not resolve ureteral lithiasis, it is necessary to perform URS with laser lithotripsy.

Urolithiasis associated with UTI is frequent in women, given the ease of progression of uropathogenic germs from the perineo-anal region to the urethra, bladder and, ascending, to the kidney. When there is infected urine and the stone is located in the ureter, it causes obstructive pyelonephritis, which requires renal drainage (in this case with retrograde catheterisation) and, once the septic condition has been overcome, treatment of the lithiasis. The previous renal surgery, the various ureteral manipulations and the stones lodged in the upper group of the kidney, with focal ectasia, present in this case, favour the persistence of UTI throughout the therapeutic process.

The patient had several admissions for UTI complicated by successive ureteral obstructions due to residual stones sliding into the ureter from the kidney, which were well controlled with catheterisation and antibiotherapy, but only after the administration of cranberry extract was she able to maintain her ureteral function.

The patient continues with antibiotic laxis and continues to take cranberry extract. Urine culture negative.

It was decided to remove the ureteral catheter, and the patient progressed well. He continues therapy with cranberry extract.

Discussion

Residual lithiasis after renal surgery (open or percutaneous) represents a current challenge for urology, especially when the patient suffers repeated episodes of UTI, as is the case here. If the residual stone is lodged in a peripheral calyx and does not cause repercussions, it is possible not to apply active treatment, as long as the UTI behaves like asymptomatic bacteriuria. On the other hand, if the stone causes complications (obstruction, pain) or the UTI is symptomatic or there is a risk of sepsis, ESWL or a surgical manoeuvre such as URS or percutaneous nephrolithotomy is indicated.

ESWL is the treatment of choice for foot and residual ureteral urolithiasis that does not exceed 2-3 cm in length⁴⁻⁵. If there are episodes of UTI interspersed in the treatment routine, the therapeutic plan is interfered with, delaying ESWL sessions, leading to readmissions, catheterisations and au-

The combination of oral antibiotic and cranberry extract (Urell®) has been successful³ . The combination of oral antibiotic and cranberry extract (Urell®) has given good results³ . Cranberries in patients with UTI have several advantages: low toxicity, good tolerance⁶ and, above all, the elimination of active metabolites in the urine, such as acid compounds and anthocyanidins, capable of inhibiting the adhesion of bacteria (in particular E. coli with P-fimbriae) to the urothelium⁷. Another possible favourable effect is the avoidance of renal oxidative damage secondary to UTI (pyelonephritis) - evidence in an animal model⁸ . The beneficial effects on cardiac health and cancer prevention, shown in in vitro studies, have not been demonstrated in vivo⁹. However, a significant decrease in serum levels of oxidative proteins has been demonstrated in healthy subjects ingesting high concentrations of cranberry juice⁶. In the present case, the urine pH did not fall below 7, which would suggest that the effect of cranberry is not so much to acidify the urine as to prevent bacterial adhesion². Although it is not possible to state categorically that cranberry extract was the key to remission of the UTI, the fact that urine culture was negative after ingestion is a favourable finding in favour of this preparation.

Conclusion

Cranberry extract (Urell®) has been shown to be useful in the control of UTI due to its ability to inhibit urothelial adherence of some uropathogens. In patients with residual lithiasis, with obstructive episodes associated with UTI, who respond to ESWL, it is optional to consolidate antibiotic treatment and renal drainage (catheter) with cranberry extract. This assumption requires well-designed studies to scientifically prove the efficacy of cranberry extract.

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FEMALE SEXUAL DYSFUNCTION SECONDARY TO RECURRENT URINARY TRACT INFECTION. COMBINED TREATMENT

Introduction

Several studies show a clear association between lower urinary tract symptoms, such as urinary tract infections and urinary tract infections.

recurrent urinary tract infections, and different types of sexual dysfunction in women.

Preventing recurrence of urinary tract infections can sometimes improve not only a woman's overall quality of life, but also her sexual health.

Among the therapeutic strategies, the combination of prophylactic antibiotic treatment and treatment with American cranberry extract (vaccinium macrocarpon) has proven to be effective.

Clinical case

We present the case of a 54-year-old woman who consulted our Female Sexual Dysfunction Unit because she presented dyspareunia and hypoactive sexual desire of two years' duration. From the data obtained from the anamnesis, repeated episodes of post-coital bacterial cystitis stood out, with positive cultures for E. coli (5 episodes in the last 6 months).

with voiding itching and frequency of urination, as well as vaginal dryness, prior to the onset of sexual dysfunction.

Her pathological history included a hysterectomy plus bilateral oophorectomy for endometriosis at the age of 50.

The genital physical examination revealed moderate to mild atrophy of the vaginal mucosa, with slight muco-cutaneous erythema, the rest of the examination, both genital and general, being normal.

Urine and vaginal secretions were cultured and both were positive for Escherichia coli (>107 CFU/ml).

Given the diagnosis of female sexual dysfunction associated with recurrent post-coital urinary tract infection, prophylactic oral antibiotic treatment was started with post-coital cotrimoxazole (40 mg trimethoprim/200 mg sulfamethoxazole), together with appropriate hygienic measures and topical vaginal treatment with promestriene 1%. In subsequent controls, the patient reported a certain reduction in the number of episodes of cystitis, but not significantly, so it was decided to add to the antibiotic treatment a complementary treatment with a daily capsule of "vaccinium macrocarpon" extract (Urell®) every 24 hours, corresponding to 36 mg/day of proanthocyanidins, managing to eliminate the episodes of recurrent infection.

and significantly improve the quality of sexual relations.

Discussion

Recurrent urinary tract infections are a common clinical problem, especially in young sexually active women, in postmenopausal women and in patients with underlying urological pathology. It is estimated that approximately 20% of women with a first urinary tract infection will experience a second infection within 6 months1 .

Recent studies also show a high prevalence of sexual dysfunction in women with lower urinary tract symptoms 2,3.

In a prospective study of 216 sexually active women consulting for lower urinary tract symptoms, 46% were diagnosed as having some form of sexual dysfunction. Of these, 34% had hypoacid sexual desire, 23% had arousal disturbances, 11% had orgasm disturbances and 44% had dyspareunia. In 60% of the women with altered arousal and 61% of those with dyspareunia, recurrent bacterial cystitis was found to be concurrent.

Several factors have been described that increase the risk of recurrent UTIs. These include sexual activity, use of contraceptives (such as a combination of spermicidal creams and diaphragms), menopause and voiding pattern.

Sexual activity, especially in premenopausal women, is the most common contributing factor. Bacteria spread easily from the perineal area to the urethral meatus. In addition, vaginal penetration, especially in cases of poor lubrication, may cause irritation or congestion of the urethra and vaginal wall, favouring infection.

In postmenopausal women, oestrous decline will reduce vaginal elasticity and lubrication, decrease vaginal glycogen and, secondarily, *Lactobacillus spp.* concentration, and increase vaginal pH, thus increasing the risk of enterobactya infection.

Furthermore, the decrease in oestrogen may lead to changes in pelvic floor muscle tone, favouring an increase in post-micturition residue and a consequent increase in the likelihood of urine infection.

In a study of 899 women over the age of 55, with infectious diseases, the

compared to a control group of 911 healthy women, it was found that women in the former group were more often sexually active (OR=1.42)4.

Therapeutic strategies for women with recurrent UTIs are mainly based on antibiotic prophylaxis for long periods of time, continuous or postcoital as appropriate, or self-treatment of cystitis, together with the acquisition of the habit of frequent urination and postcoital micturition.

The most commonly used antibiotics are co-trimoxazole (40 mg trimethoprim/200 mg sulfamethoxazole/day or postcoital) or low-dose quinolones (ofloxacin 200 mg/day or 100 mg/postcoital; ciprofloxacin 250 mg/day or 125 mg/postcoital; nor-floxacin 200 mg/day or postcoital).

Another recently proposed alteration is the administration of fosfomycinatrometamol 3 g every 10 days.

Oral oestrogen administration has not been shown to reduce the number of urinary tract infections or prevent recurrent urinary tract infections, although intravaginal application of oestrogen creams may help to reduce the incidence of recurrent infection in postmenopausal women.

Other preventive strategies complementary to antibiotic treatment have been proposed that appear to improve outcomes, such as the use of cranberry extract for its inhibitory action on uropathogen adherence to uroepithelial cells.

Several randomised, double-blind, placebo-controlled studies have shown a reduction in the incidence of recurrent urinary tract infection. In one such study of 150 sexually active women with recurrent UTI, aged 21-72 years, the 1-year incidence of symptomatic UTI was lower in the cranberry-treated group than in the placebo group (32% vs. 20%; p<0.05)5.

Similarly, a recent Cochrane Literature review concludes that cranberries significantly reduce the incidence of urinary tract infection at 12 months follow-up (OR=0.61) compared to placebo6 .

Conclusion

Urinary tract symptomatology in women should be kept in mind as a cause of sexual dysfunction.

In this case, an adequate treatment of the urinary picture will be to

essential to improve the different altered aspects of a woman's sexual response.

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POST-COITAL THERAPY ASSOCIATED WITH CRANBERRY IN URINARY TRACT INFECTIONS

Presentation

A 23 year old woman presented to her doctor with a frequency of urination of 1 day, dysuria and a feeling of emptying of the bladder.

Incomplete diagnosis. No fever, chills, lumbar pain or vaginal discharge.

As a background of interest, the patient reports having had four similar episodes in the last 12 months. The patient is sexually active (steady partner) and uses condoms as an anti-con- ceptive method, reporting that most of the previous episodes began the day after sexual intercourse. She is not currently taking any medication.

Physical examination revealed only slight discomfort on suprapubic pressure. Lumbar fist-percussion was negative. The dipstick is positive for esterase and nitrites, and the urine sediment shows abundant pyuria and the presence of bacteria.

Empirical antibiotic treatment was started with fosfomycin trometa- mol 3g/VO/monodosis. Urine culture showed >10x5 CFU of E. colimultisensitive.

Subsequently, given the high frequency of urinary tract infections and their clear association with sexual intercourse, suppressive antibiotic treatment with nitrofurantoin 50 mg/VO postcoital was started.

together with cranberry extract (Urell®) on a daily basis, as well as educational measures including postcoital urination.

The patient progressed without further urinary tract infections in the following 6 months.

Discussion

In the case of a woman with voiding syndrome, a differential diagnosis must be made between cystitis, infectious urethritis, traumatic urethritis and vaginitis¹.

Cystitis and infectious urethritis have pyuria (> leucocytes/field of unspun urine or 5 in spun urine examined at 40x magnification) and differ in that the former has a positive urine culture and the latter is negative. Infectious urethritis should be suspected in patients with sexual promiscuity, recent change of partner or non-response to antibiotic treatment. Traumatic urethritis and vaginitis do not have pyuria if the urine sample is correctly collected.

Approximately 20% of sexually active young women who present with a urinary tract infection have reinfections, without any diagnosed urinary anatomical abnormalities. The most common

Most of these recurrences are caused by the same strain of E. coli, the reservoir of which would be the gastrointestinal tract.

These women are advised to drink plenty of fluids, to get into the habit of frequent urination and to have a postcoital urination.

If, despite the above measures, infections recur more than 3 times a year and there is a clear association with sexual intercourse, postcoital antibiotic prophylaxis at low doses is recommended²⁻⁴ for 2 h after intercourse. Postcoital prophylaxis has been shown to be as effective as continuous daily prophylaxis in these patients²⁻⁵. This chemoprophylaxis can be done with nitro furantoin, quinolones or co-trimoxazole.

A recent Cochrane review⁶ has shown that treatment with cranberry extract significantly reduces the number of urinary tract infections at 12 months compared to placebo, and therefore its association with antibiotic treatment is recommended.

Conclusion

- 1) Recurrent cystitis occurs when the patient has 3 or more urinary tract infections in the last 12 months or 2 in the last 6 months.
- 2) Postcoital antibiotic regimens, taken within two hours of intercourse, are as effective as continuous daily regimens.
- 3) Cranberry extract (Urell®) taken daily significantly reduces recurrences of symptomatic cystitis.

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PHYTOTHERAPY AND POST-MENOPAUSE: A RESOURCE TO CONSIDER IN ELDERLY PATIENTS WITH UTIS

Presentation

A 65-year-old woman consults her doctor for a new episode of voiding syndrome with dysuria, urinary frequency, urinary frequency and urgency, and tenesmus of 2 days' duration. She reports similar episodes for several years. She also reports itching in the vaginal introitus and dyspareunia. She does not report fever or back pain.

Physical examination revealed only redness and dryness of the vaginal introitus.

The dipstick is positive for esterase and nitrites, and the urine sediment shows abundant pyuria and bacteria.

Empirical treatment with ciprofloxacin 500 mg/vo/3 days was started. The patient partially improved, but the culture showed multidrug-resistant E. coli, including ciprofloxacin. Therefore, treatment was repeated with an appropriate antibiotic according to the an- tibiogram and treatment was associated with cranberry extract (Urell®) and vaginal oestrogen cream every night for 1 month, followed by a maintenance regimen of 1 application per week.

At 6 months, the patient is free of infection and there is marked improvement in vaginal itching and dryness.

Discussion

Re-infections are more frequently observed in post-menopausal women.

They are often associated with low oestrogen levels in the vagina (if underlying urological pathology is ruled out) which reduces the number of Lactobacillus spp. and produces an increase in vaginal pH, favouring colonisation by enterobacteria of intestinal origin.

In these patients with frequent urinary tract infections, prophylactic treatment with low doses of antibiotics should be initiated for 6-12 months2. Maintenance treatment with vaginal oestrogen creams5 and cranberry extract (Urell®)6 has also been shown to significantly reduce the number of urinary tract infections at 12 months compared to placebo.

Conclusion

1) Continuous daily antibiotic prophylaxis for 6-12 months significantly reduces the number of cystitis cases.

2) Cranberry extract taken daily significantly reduces recurrences of symptomatic cystitis.

3) Patients treated with intravaginal oestrogens have a lower frequency of bacteriuria at 5-8 months than untreated patients.

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