

The Female Urethral Syndrome and Urethritis and Prostatitis in the Male

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Two common urological problems frequently encountered by the primary care physician are the female urethral syndrome and urethritis in the male. Although I will touch on chronic prostatitis in this discussion, I question whether it is anything but a relatively uncommon entity.

FEMALE URETHRAL SYNDROME

While the female urethral syndrome is neither life-threatening nor even serious, it causes great discomfort to the patient and is probably the most common genitourinary (GU) complaint bringing women to the primary care physician. Combined with cystitis it may account for as many as two thirds of the outpatient visits to the urologist, at least in my experience.

The symptoms of the syndrome are:

1. Frequency of voiding with or without burning,
2. Discomfort in the region of the urethra,
3. Pressure low in the pelvis,
4. Urgency and/or nocturia, and
5. Terminal dysuria.

By far the most common symptom is the frequency of urination with or without burning, and it may occur with any or all of the other symptoms.

Anatomically, the female urethra is homologous to the prostatic urethra, proximal to the ejaculatory

duct. It is about 3 to 5 cm in length and is surrounded by suburethral and paraurethral glands, the ducts of which empty for the most part into the distal portion of the urethra near the urethral meatus. Normally, the urethra is colonized by a certain number of introital bacteria, usually limited to the distal portion of the urethra, and when the bacteria are limited to this area, there are usually no symptoms. However, when bacterial colonization extends to the proximal suburethral and paraurethral glands, the symptoms of the female urethral syndrome occur.

Diagnosis

When a patient comes to the physician with symptoms of the female urethral syndrome, diagnostic evaluation should be based on the following procedures:

1. *Urinalysis and urine cultures.* The findings in a patient with one or more symptoms will usually show a modest pyuria of 15 to 20 white cells per high power field. Culturing the urine—aerobic, anaerobic and, in selected cases, acid fast—is imperative because, unless negative cultures, which are a feature of the syndrome, are established, the patient's symptoms may be confused with bacterial cystitis.

2. *Urograms and cystograms.* When symptoms persist, an excretory urogram should be done. Usually the results will be normal, but occasionally there will be a patient with a stone in the distal ureter that can produce the symptoms of urgency and frequency. While the patient's bladder is full of the contrast medium that has come down from the kidneys, she should also be asked to void under x-ray control. This will often demonstrate whether or not a urethral

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diverticulum exists, and the presence of one can sometimes mimic the symptoms of the syndrome. If a urethral diverticulum is suspected, the patient should additionally undergo a retrograde urethrogram.

3. *Vaginal examination.* Not only is a vaginal examination important to check for gynecological pathology but it is useful specifically to detect the presence of a urethral diverticulum. This is a readily detectable mass which varies in size from a pea to a golf ball and is found in the midline on the anterior vaginal wall. It may or may not have stones in it.

4. *Cystoscopy and urethroscopy.* These procedures establish conclusively the diagnosis of the female urethral syndrome. In appearance the urethra will look very similar to a red cobblestone road and this is called a granular urethritis; the pathology sometimes extends up into the trigone and is then called a granular urethro-trigonitis.

Treatment

There are several ways in which to treat the female urethral syndrome. Systemic antimicrobial therapy is usually unsuccessful because the antimicrobials are not able to penetrate the suburethral and paraurethral glands in sufficient quantities. However, with some of these patients I have used Furacin* Urethral Inserts® which put the antimicrobial agent in direct proximity to the suburethral and paraurethral ducts. It is well worth the time spent to show these patients how to use the inserts. There are two methods I have found helpful. One method is to put a mirror on a stool, have the woman put one leg up on it, and looking into the mirror, guide the suppository into her urethra. She should then lie down and put her legs tightly together for 20 to 30 minutes. The other method is best for supple individuals who can sit upright, put a mirror between their legs, and then guide the suppository into the urethra.

Another means of treating the syndrome is by urethral dilatation in selected patients. The rationale behind this is that the procedure opens the paraurethral and suburethral ducts and promotes drainage from the underlying glands as well as stretches the urethral meatus to promote a more rapid flow of urine. This procedure is best used in combination with the urethral inserts.

Finally, there are a number of surgical methods

for treating this condition such as unroofing the suburethral and paraurethral ducts and fulgurating them.

URETHRITIS AND PROSTATITIS IN THE MALE

Urethritis is probably the single most common urological problem bringing men to the primary care physician or the urologist. It is defined as inflammation, with or without infection, of any portion of the urethra and is broken down into specific and non-specific varieties.

Urethritis is very much more common than chronic prostatitis or prostatostasis with which it is often confused. This confusion between urethritis and prostatitis is not surprising in view of the anatomical relationship between the urethra and the prostate. The numerous ducts connecting the posterior urethra with the underlying prostate gland allow for a great similarity of symptoms of infection or inflammation between the two.

Causes

The etiology of urethritis is almost invariably that of sexual contact. It can be by conventional or anal intercourse, or, often, fellatio. Since it is well known that bacteria in the mouth can be more virulent than bacteria in the vagina or the anus, fellatio as a source of urethritis should always be kept in mind and the patient should be asked about the nature of his sexual contact.

There are a number of bacterial causes of urethritis. Specific urethritis is caused by the gonococcus organism. It affects the anterior portion of the urethra initially but will usually involve the posterior portion if left untreated. Mycoplasma, Trichomonas vaginalis, and Candida are causes of nonspecific urethritis, as are viruses, gram-positive organisms, and some others. Bacterial infections usually affect the posterior portion of the urethra.

The most common nonbacterial cause of inflammation is urethral "stripping." The affected patient does this every time he urinates and as many times in between voidings as privacy will allow. He takes out his penis, milks it out proximal to distal, and turns it up to look at the meatus to see if there is still some discharge. The urethral mucosa is almost as sensitive as the conjunctiva of the eye and if a urethra is traumatized by this vigorous stripping, a minimal discharge will often be produced, particularly in a urethra that has had recent infection in it. It is there-

* Unfortunately, Furacin inserts have just been removed from the market. An acceptable substitute is Protargol Urethral suppositories (17%) which can be made-to-order in pharmacies.

fore very important to discourage patients from this practice.

Another much less common cause of urethritis is persistently alkaline urine. A certain number of patients seem to have urine that has a pH of 6.8 or higher. It may be that such patients consume large quantities of citrus juice which is metabolized to bicarbonate and produces an alkaline urine, or it may be for other reasons. In any case, during the act of voiding, the calcium phosphate crystals, which are precipitated out of solution because of the high pH, act as irritants to the urethra and continue to irritate it until the next voiding.

Symptoms

The symptoms of anterior gonococcal urethritis include a copious urethral discharge that ranges from green to yellow in color; it may at times be whitish. It is usually accompanied by burning on voiding and a feeling of discomfort in the penile or anterior urethra. Rarely, there may be minimal or no urethral discharge. The symptoms of posterior or nonspecific urethritis are virtually the same as chronic prostatitis or prostatostasis. They consist of an itching or burning "inside" or at the base of the penis; discomfort or itching in the urethra on voiding; and most common, a minimal, clear mucoid urethral discharge on arising in the morning, or a 2 to 3 cm brownish or yellowish stain inside the patient's shorts that is seen at night.

Diagnosis and Treatment

The technique of three-glass urine collection in conjunction with prostatic massage and/or the post-prostatic massage fourth-glass specimen is used for determining the anatomical source of urethral infection and more specifically for separating chronic prostatitis from nonspecific urethritis. A three-glass urine specimen is first obtained, then the patient is asked to hold his urethra tightly shut while the physician massages the prostate vigorously. After the prostatic massage, the patient is asked to release his urethra and a few drops of prostatic secretions will usually come out into the culture tube or onto a slide. If no secretions are obtained, the patient should void a few cc of urine into a fourth glass and this will contain the prostatic secretions. The specimens in the first, second, and third glasses are then cultured as are the prostatic secretions or the fourth-glass specimen. If the first and/or third-glass urine has more bacteria colonies than the prostatic secretions or the

post-prostatic massage fourth-glass specimen, the infection is in the urethra. If the opposite is true, the infection is in the prostate. Bacterial colony counts from the urethra and prostate range from several hundred per cc up to a few thousand per cc. When these studies are carried out, it will be seen that true bacterial infection of the prostate gland is uncommon. There is, however, a condition called prostatostasis which occurs more frequently, but not, in my opinion, nearly as frequently as posterior urethritis. Prostatostasis can develop when a man goes from feast to famine sexually. The prostatic fluid is made continuously in abundant supply and when there is no ejaculation, the prostate gland enlarges and produces the symptoms already noted in conjunction with nonspecific posterior urethritis. The patient should be encouraged to masturbate frequently, and/or to have intercourse to relieve this condition. Both work equally well as does prostatic massage, although the latter is the least favored therapy.

For specific, or gonococcal, urethritis, a culture can be obtained from the discharge and, in the rare patient without discharge, from swabbing the distal urethra. The culture has to be made under increased CO₂ tension on a Thayer-Martin medium. It is best to do a smear and see gram-negative intracellular diplococci for the provisional diagnosis, but the culture should confirm it finally. The treatment of choice for gonococcal urethritis is aqueous procaine penicillin G with probenecid; alternative treatment is ampicillin with probenecid. For patients who are allergic to the penicillin group of drugs, spectinomycin and tetracycline are acceptable alternatives.

The mycoplasma organisms found with some cases of nonspecific urethritis can be confusing because these organisms have been reported in asymptomatic as well as symptomatic individuals. The organisms are cultured with a urethral swab or using the urine sediment, and the mycoplasma organisms are identified morphologically and by specific biochemical and bacteriologic tests. Patients with this infection are treated with one of the tetracycline group of drugs, although probably no more than 60% to 70% are cured by the medication.

Trichomonas vaginalis is not, in my experience, a common cause of urethritis in the male. However, it should be considered a possibility particularly if the consort has a trichomonas infection. The organism is seen either on a wet mount of the urine specimen or in urethral discharge. This infection is best treated with metronidazole (Flagyl®).

For those patients with inflammatory and non-organism causes of urethritis, treatment is relatively simple. The rare individuals with persistently alkaline urine can be successfully treated with ascorbic acid for two to three days until the symptoms disappear. However, care should be taken not to use this means on patients with known uric acid or cystine lithiasis.

Inflammation due to urethral stripping can be cured by counseling the patient to refrain from this activity.

The most important point in treating patients with nonspecific urethritis is to reassure them that these infections are self-limited, not serious, and will not lead to impotency, sterility, prostatic hyperplasia, or prostatic cancer.