

2. Melick, D. W., and Gutekunst, R. A.: Spontaneous Pneumothorax Following Pneumectomy, *Amer Rev Tuberculosis* 62:116-117 (July 1A) 1950.

3. Borrie, J.: *Management of Emergencies in Thoracic Surgery*, New York: Appleton-Century-Crofts, 1958, pp 101-103.

4. Macklin, M. T., and Macklin, C. C.: Malignant Interstitial Emphysema of Lungs and Mediastinum as Important Occult Complication in Many Respiratory Diseases and Other Conditions: Interpretation of Clinical Literature in Light of Laboratory Experiment, *Medicine (Balt)* 23:281-358 (Dec) 1944.

5. Fry, W. A., et al: Serial Study of Postpneumectomy State, *Arch Surg (Chicago)* 85:578-586 (Oct) 1962.

6. Gaensler, E. A.: Parietal Pleurectomy for Recurrent Spontaneous Pneumothorax, *Surg Gynec Obstet* 102:293-308 (March) 1956.

7. Thomas, P. A., and Gebauer, P. W.: Results and Complications of Pleurectomy for Bullous Emphysema and Recurrent Pneumothorax, *J Thorac Cardio Surg* 39:194-201 (Feb) 1960.

Treatment of the Urethral Syndrome in Women

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A SYNDROME familiar to urologists is that which affects women and consists of urinary frequency; dysuria; "pressure"; pain in the low back, flank, and suprapubic area; occasional bleeding (most often blood on the toilet paper used after voiding); and often malaise and "tiredness." Although these symptoms are those of inflammation of the lower urinary tract, corroborative physical and laboratory findings are minimal if not absent altogether. There may be some suprapubic tenderness, and the genitalia and urethral meatus remain unremarkable. Urinalyses and pyelograms show normal results, as do tests of residual urine.

The urethra has been commonly blamed for this syndrome, and many experienced observers find urethral stenosis, edema, hyperemia, granularity, polyps at the neck of the bladder, or exudate on the trigone.¹ Others doubt the significance of these findings and do not feel that they can be correlated with the symptomatology. Allergic and psychic factors,² senile atrophy,³ obstruction,⁴ chronic infection in the urethral glands,⁵ and stress reactions,⁶ have been accorded etiological significance. Carlson⁷ observed that painful stimulation of the female urethra caused pain referred to this region and occasionally to the symphysis pubis but not to the back, abdomen, flanks, or groins.

Numerous forms of treatment have been advocated, including ingestion of cranberry juice,⁸ use of suppositories,³ fulguration and resection,⁴ and avulsion of the urethral glands.⁵ This fact suggests that no therapy has been consistently successful. Use of sounds and antibacterials have probably been the most popular forms of treatment.

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An attempt is made here to clarify the rationale and the effectiveness of treatment. Over a period of 8 yr, 190 patients were studied. Since it appeared that the symptoms, as in many situations, might have both physical and psychic bases, both these facets were considered.

Clinical Findings

The patients encompassed the age range of adult womanhood from 15 to 84 years. The majority were married and had up to five children.

There were 201 associated conditions, including 120 operations on the gynecological, gastrointestinal, and urological systems. Forty-two women had nervous or gastrointestinal symptoms, and 10 had allergies of various sorts. When possible, diagnoses were confirmed by hospital records. The incidence of cholelithiasis was comparable to that in the general population, whereas incidence of hysterectomy and pelvic surgery was at least twice that in the general population. The diagnosis of endometriosis was pathologically confirmed in one of every four cases. In the aggregate this rather large number of associated conditions, many of dubious organic basis, suggested a proneness to pelvic, abdominal, and nervous symptoms for which the most likely origin may well be neurosis of the anxiety, tension, or "pressure" type, or a hysterical somatization of emotional problems.

The majority of the women complained of urinary frequency and dysuria. Many had pains in the lower abdomen or low back, and pain in one or both flanks was common. Dyspareunia was mentioned in only nine instances.

About 25% of the patients gave histories of bleeding, which usually consisted of noting blood on the toilet paper used after voiding. They were carefully checked vaginally, cystoscopically, and pyelographically, but no definite lesions were found. It may be that bleeding was caused by inflammation or possibly by frequent and vigorous use of toilet paper.

Results of physical examinations were negative except for the presence of varying amounts of tenderness in the abdomen, flank, and back. Urinalyses showed no abnormalities other than an occasional white blood cell. In one case, more than 30 cc of residual urine was found, and the neck of the bladder was resected. Results of 114 pyelograms were normal, and two showed small kidneys; one, a malrotated kidney; and three, ptosis. Results of cystoscopy and urethroscopy were considered to be essentially normal in 75 of 123 instances.

A separate series of cystoscopies was performed on 32 consecutive women in an attempt to correlate frequency and dysuria with trigonal redness or exudate, polyps, redness, edema, folds in the posterior urethra, or tightness of the urethra to the No. 24 panendoscope. These conditions were found more frequently in women who did not have fre-

quency and dysuria (8 of 10) than those who did (11 of 17).

Treatment

During the course of study, 458 treatments of various sorts were given, and the patients were instructed to return when and if symptoms recurred. In this way the duration of improvement was estimated, and the percentage obtained of patients who improved for more than 12 weeks (the "best" category) with each form of treatment. Sounds of 14F to 34F caliber were used, as were antibacterials (sulfonamides, nitrofurantoin [Furadantin], methenamine mandelate [Mandelamine], and broad-spectrum antibiotics), antispasmodics (propantheline [Pro-Banthine] bromide and a preparation of belladonna, alkaloids, and phenobarbital [Donnatal]), sitz baths, local silver nitrate, sedatives, tranquilizers, placebos, suppositories, hexachlorophene (pHisoHex), estrogens, fulguration, resection and avulsion of urethral mucosa, streptokinase and streptodornase (Varidase), and various combinations of these.

About one third of the patients were improved for more than 12 weeks with any form of treatment, and no particular treatment proved to be statistically superior to any other.

Sterile neosynephrine was instilled into the urethras of several patients in the hope that it might shrink the edematous urethral mucosa. No significant benefit was evident.

Intramuscular placebos of sterile water were as effective as any other therapy.

Conclusions

The cause and treatment of this condition have engendered controversy. It appears that this group of patients exhibits a tendency to consult physicians with persistence and regularity concerning complaints apparently related to various abdominal and pelvic viscera, and for which, oftener than not, no clear and sufficient organic cause is found.

Inflammatory changes in the urethras, bladder necks, and trigones of these patients have been widely described. For the majority of patients in this series, diligent search revealed nothing at all different from the urethras, bladder necks, and trigones of patients who were cystoscoped for unrelated conditions, who had no "urethral" symptoms, and whose bladder outlets were normal.

Of the many treatments tried, none appeared to be superior. Some of the recommended therapies, such as dilation to the size of a 34F catheter or more, avulsion of the mucosa, and fulgurations and resections were used sparingly, in the belief that they may do more harm than good.

Because of factors in these patients' histories which made it appear that they were prone to visceral symptoms, because of the dearth of organic findings, because of the failure of treatment which

is well known to favorably influence organic infections and inflammations of the urinary tract, and because of the persistence of symptoms over several years without development of apparent organic changes, it is concluded that the "urethral syndrome" is, to a large extent, based on factors in the psyche, possibly hysteria and anxiety neurosis, rather than organic disorders in the urethra.

Treatment remains a problem. The good results claimed by advocates of different therapies could not be duplicated. These patients were not referred to psychiatrists because none appeared able to accept the idea that her symptoms had a psychic basis. Treatment caused temporary improvement, but the type of treatment seemed to be immaterial. At least, it should not be potentially harmful. Since instruments introduced into the urinary tract may carry bacteria, even the performance of catheterization and sounding may be criticized.

The relationship of the urethral syndrome to cervicitis, vaginitis, or a desire to avoid sexual relations was not apparent in these cases.

Summary

A study was made of 190 women who complained of the so-called urethral syndrome. The patients had frequency, dysuria, and pain in their backs, flanks, and abdomens. Many had undergone abdominal or pelvic surgery. Results of physical examinations, urinalyses, studies of residual urine, and pyelograms were negative. Cystoscopies showed no consistent pathological changes. About one third of the patients improved for more than 12 weeks with any form of treatment tried. It is suggested that the condition is mainly psychic in origin, and that treatment should be supportive and harmless.

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Generic and Trade Names of Drugs

Nitrofurantoin—*Furadantin*.
Methenamine mandelate—*Mandelamine*.
Propantheline bromide—*Pro-Banthine Bromide*.
Hexachlorophene—*Gamophen*, *Hexachlorophene*, *pHisoHex*,
Surgi-Cen, *Surofene*.

References

1. Powell, E. M., and Wattenberg, C. A.: Treatment of Urethritis in Female with Clinical and Pathologic Study, *J Urol* **72**:392, 1956.
2. Gray, L. A., and Pingelton, W.B.: Pathological Lesion of Female Urethra, *JAMA* **162**:1361, 1956.
3. Youngblood, V. H.; Tomlin, E. M.; and Davis, J. B.: Senile Urethritis in Women, *J Urol* **78**:150, 1957.
4. Davis, D. M.: Relationship Between Urethral Resistance and Chronic Urinary Tract Disease in Women, *J Urol* **76**:270, 1956.
5. Eberhart, C.: Etiology and Treatment of Urethritis in Female Patients, *J Urol* **79**:293, 1958.
6. Smith, D. R.: Stress Reaction Linked to Urinary Frequency, *Med-World News*, July 20, 1962.
7. Carlson, H. E.: Distribution of Pain in Female Urethra as Determined by Faradic Stimulation, *J Urol* **76**:401, 1956.
8. Moen, D. V.: Observations on Effectiveness of Cranberry Juice in Urinary Infections, *Wisconsin Med J* **61**:181 (May) 1962.