EXAMINATION OF A UROLOGICAL PATIENT

In the workup of any patient, the history is of paramount importance; this is particularly true in urology. It is necessary to discuss here only those urologic symptoms that are apt to be brought to the physician's attention by the patient. It is important to know not only whether the disease is acute or chronic but also whether it is recurrent, since recurring symptoms may represent acute exacerbations of chronic disease. Obtaining the history is an art that depends on the skill and methods used to elicit information. The history is only as accurate as the patient's ability to describe the symptoms. This subjective information is important in establishing an accurate diagnosis.

SYSTEMIC MANIFESTATIONS

Symptoms of fever and weight loss should be sought. The presence of fever associated with other symptoms of urinary tract infection may be helpful in evaluating the site of the infection. Simple acute cystitis is essentially an afebrile disease. Acute pyelonephritis or prostatitis is apt to cause high temperatures (up to 40°C), often accompanied by violent chills. Infants and children who have acute pyelonephritis may have high temperatures without other localizing symptoms or signs. Such a clinical picture, therefore, invariably requires bacteriologic study of the urine. A history of unexplained attacks of fever occurring even years before may otherwise represent asymptomatic pyelonephritis. Renal carcinoma sometimes causes fever that may reach 39°C (102.2°F) or more. The absence of fever does not by any means rule out renal infection, for it is the rule that chronic pyelonephritis does not cause fever. Weight loss is to be expected in the advanced stages of cancer, but it may also be noticed when renal insufficiency due to obstruction or infection supervenes. In children who have "failure to thrive" (low weight and less than average height for their age), chronic obstruction, urinary tract infection, or both should be suspected. General malaise may be noted with tumors, chronic pyelonephritis, or renal failure. The presence of many of these symptoms may be compatible with human immunodeficiency virus (HIV).

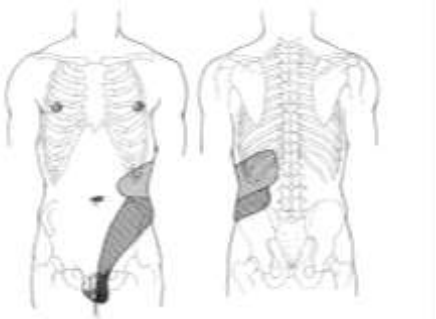
LOCAL AND REFERRED PAIN

Two types of pain have their origins in the genitourinary organs: local and referred. The latter is especially common. Local pain is felt in or near the involved organ. Thus, the pain from a diseased kidney (T10–12, L1) is felt in the costovertebral angle and in the flank in the region of and below the 12th rib. Pain from an inflamed testicle is felt in the gonad itself. Referred pain originates in a diseased organ but is felt at some distance from that organ. The ureteral colic (Figure 3–1) caused by a stone in the upper ureter may be associated with severe pain in the ipsilateral testicle; this is explained by the common innervation of these two structures (T11–12). A stone in the lower ureter may cause pain referred to the scrotal wall; in this instance, the testis itself is not hyperesthetic. The burning pain with voiding that accompanies acute cystitis is felt in the distal urethra in females and in the glandular urethra in males (S2–3). Abnormalities of a urologic organ can also cause pain in any other organ (eg, gastrointestinal, gynecologic) that has a sensory nerve supply common to both. Kidney Pain. Typical

renal pain is felt as a dull and constant ache in the costovertebral angle just lateral to the sacrospinalis muscle and just below the 12th rib. This pain often spreads along the subcostal area toward the umbilicus or lower abdominal quadrant. It may be expected in the renal diseases that cause sudden distention of the renal capsule. Acute pyelonephritis (with its sudden edema) and acute ureteral obstruction (with its sudden renal back pressure) both cause this typical pain. It should be pointed out, however, that many urologic renal diseases are painless because their progression is so slow that sudden capsular distention does not occur. Such diseases include cancer, chronic pyelonephritis, staghorn calculus, tuberculosis, polycystic kidney, and hydronephrosis due to chronic ureteral obstruction.

Ureteral Pain

Ureteral pain is typically stimulated by acute obstruction (passage of a stone or a blood clot). In this instance, there is back pain from renal capsular distention combined with severe colicky pain (due to renal pelvic and ureteral muscle spasm) that radiates from the costovertebral angle down toward the lower anterior abdominal quadrant, along the course of the ureter. In men, it may also be felt in the bladder, scrotum, or testicle. In women, it may radiate into the vulva. The severity and colicky nature of this pain are caused by the hyperperistalsis and spasm of this smooth muscle organ as it attempts to rid itself of a foreign body or to overcome obstruction. The physician may be able to judge the position of a ureteral stone by the history of pain and the site of referral. If the stone is lodged in the upper ureter, the pain radiates to the testicle, since the nerve supply of this organ is similar to that of the kidney and upper ureter (T11–12). With stones in the midportion of the ureter on the right side, the pain is referred to McBurney’s point and may therefore simulate appendicitis; on the left side, it may resemble diverticulitis or other diseases of the descending or sigmoid colon (T12, L1). As the stone approaches the bladder, inflammation and edema of the ureteral orifice ensue, and symptoms of vesical irritability such as urinary frequency and urgency may occur. It is important to realize, however, that in mild ureteral obstruction, as seen in the congenital stenoses, there is usually no pain, either renal or ureteral.



Vesical Pain

The overdistended bladder of the patient in acute urinary retention causes agonizing pain in the suprapubic area. Other than this, however, constant suprapubic pain not related to the act of urination is usually not of urologic origin. The patient in chronic urinary retention due to bladder neck obstruction or neurogenic bladder may experience little or no suprapubic discomfort even though the bladder reaches the level of the umbilicus. The most common cause of bladder pain is infection; the pain is usually not felt over the bladder but is referred to the distal urethra and is related to the act of urination. Terminal dysuria may be a major complaint in severe cystitis.

Prostatic Pain

Direct pain from the prostate gland is not common. Occasionally, when the prostate is acutely inflamed, the patient may feel a vague discomfort or fullness in the perineal or rectal area (S2–4). Lumbosacral backache is occasionally experienced as referred pain from the prostate, but is not a common symptom of prostatitis. Inflammation of the gland may cause dysuria, frequency, and urgency.

Testicular Pain

Testicular pain due to trauma, infection, or torsion of the spermatic cord is very severe and is felt locally, although there may be some radiation of the discomfort along the spermatic cord into the lower abdomen. Uninfected hydrocele, spermatocele, and tumor of the testis do not commonly cause pain. A varicocele may cause a dull ache in the testicle that is increased after heavy exercise. At times, the first symptom of an early indirect inguinal hernia may be testicular pain (referred). Pain from a stone in the upper ureter may be referred to the testicle.

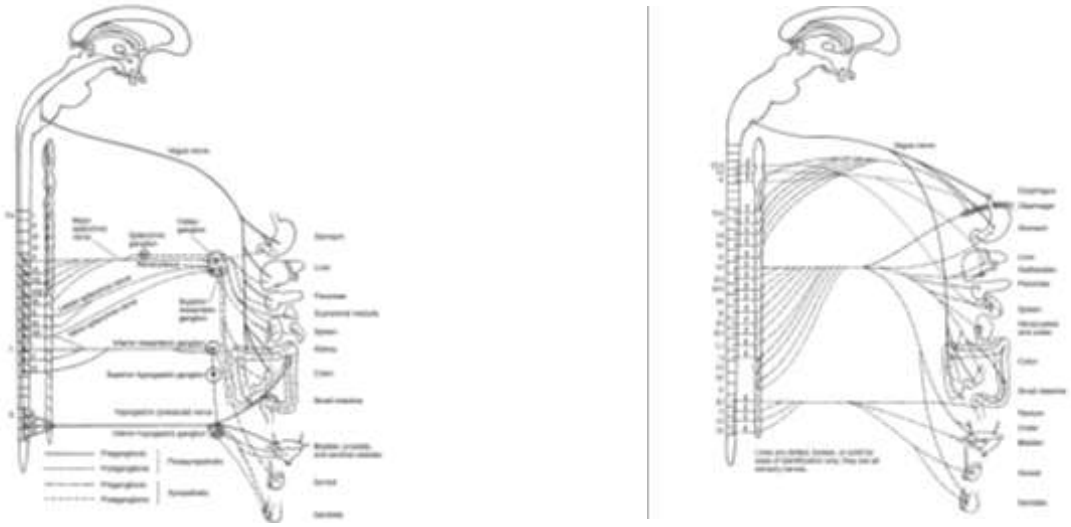
Epididymal Pain

Acute infection of the epididymis is the only painful disease of this organ and is quite common. The pain begins in the scrotum, and some degree of neighborhood inflammatory reaction involves the adjacent testis as well, further aggravating the discomfort. In the early stages of epididymitis, pain may first be felt in the groin or lower abdominal quadrant. (If on the right side, it may simulate appendicitis.) This may be a referred type of pain but can be secondary to associated inflammation of the vas deferens.

GASTROINTESTINAL SYMPTOMS OF UROLOGIC DISEASES

Whether renal or ureteral disease is painful or not, gastrointestinal symptoms are often present. The patient with acute pyelonephritis not only has localized back pain, symptoms of vesical irritability, chills, and fever but also generalized abdominal pain and distention. A patient who is passing a stone down the ureter has typical renal and ureteral colic and, usually, hematuria and may experience severe nausea and vomiting as well as abdominal distention. However, the urinary symptoms so far overshadow the gastrointestinal symptoms that the latter are usually ignored. Inadvertent overdistention of the renal pelvis (eg, with opaque material in order to obtain adequate retrograde urograms) may cause the patient to become nauseated, to vomit, and to complain of

cramplike pain in the abdomen. This clinical experiment demonstrates the renointestinal reflex, which may lead to confusing symptoms. In the very common “silent” urologic diseases, some degree of gastrointestinal symptomatology may be present, which could mislead the clinician into seeking the diagnosis in the intraperitoneal zone.



Cause of the Mimicry

A. Renointestinal Reflexes

Renointestinal reflexes account for most of the confusion. They arise because of the common autonomic and sensory innervations of the two systems (Figures 3–2 and 3–3). Afferent stimuli from the renal capsule or musculature of the pelvis may, by reflex action, cause pylorospasm (symptoms of peptic ulcer) or other changes in tone of the smooth muscles of the enteric tract and its adnexa.

B. Organ Relationships The right kidney is closely related to the hepatic flexure of the colon, the duodenum, the head of the pancreas, the common bile duct, the liver, and the gallbladder (Figure 1–3). The left kidney lies just behind the splenic flexure of the colon and is closely related to the stomach, pancreas, and spleen. Inflammations or tumors in the retroperitoneum thus may extend into or displace intraperitoneal organs, causing them to produce symptoms.

C. Peritoneal Irritation The anterior surfaces of the kidneys are covered by peritoneum. Renal inflammation, therefore, causes peritoneal irritation, which can lead to muscle rigidity and rebound tenderness. The symptoms arising from chronic renal disease (eg, noninfected hydronephrosis, staghorn calculus, cancer, chronic pyelonephritis) may be entirely gastrointestinal and may simulate in every way the syndromes of peptic ulcer, gallbladder disease, or appendicitis, or other, less specific gastrointestinal complaints. If

a thorough survey of the gastrointestinal tract fails to demonstrate suspected disease processes, the physician should give every consideration to study of the urinary tract.

SYMPTOMS RELATED TO THE ACT OF URINATION

Many conditions cause symptoms of "cystitis." These include infections of the bladder, vesical inflammation due to chemical or x-radiation reactions, interstitial cystitis, prostatitis, psychoneurosis, torsion or rupture of an ovarian cyst, and foreign bodies in the bladder. Often, however, the patient with chronic cystitis notices no symptoms of vesical irritability. Irritating chemicals or soap on the urethral meatus may cause cystitis-like symptoms of dysuria, frequency, and urgency. This has been specifically noted in young girls taking frequent bubble baths.

Frequency, Nocturia, and Urgency

The normal capacity of the bladder is about 400 mL. Frequency may be caused by residual urine, which decreases the functional capacity of the organ. When the mucosa, submucosa, and even the muscularis become inflamed (eg, infection, foreign body, stones, tumor), the capacity of the bladder decreases sharply. This decrease is due to two factors: the pain resulting from even mild stretching of the bladder and the loss of bladder compliance resulting from inflammatory edema. When the bladder is normal, urination can be delayed if circumstances require it, but this is not so in acute cystitis. Once the diminished bladder capacity is reached, any further distention may be agonizing, and the patient may urinate involuntarily if voiding does not occur immediately. During very severe acute infections, the desire to urinate may be constant, and each voiding may produce only a few milliliters of urine. Day frequency without nocturia and acute or chronic frequency lasting only a few hours suggest nervous tension. Diseases that cause fibrosis of the bladder are accompanied by frequency of urination. Examples of such diseases are tuberculosis, radiation cystitis, interstitial cystitis, and schistosomiasis. The presence of stones or foreign bodies causes vesical irritability, but secondary infection is almost always present. Nocturia may be a symptom of renal disease related to a decrease in the functioning renal parenchyma with loss of concentrating power. Nocturia can occur in the absence of disease in persons who drink excessive amounts of fluid in the late evening. Coffee and alcoholic beverages, because of their specific diuretic effect, often produce nocturia if consumed just before bedtime. In older people who are ambulatory, some fluid retention may develop secondary to mild heart failure or varicose veins. With recumbency at night, this fluid is mobilized, leading to nocturia in these patients. A very low or very high urine pH can irritate the bladder and cause frequency of urination.

Dysuria

Painful urination is usually related to acute inflammation of the bladder, urethra, or prostate. At times, the pain is described as "burning" on urination and is usually located in the distal urethra in men. Women usually localize the pain to the urethra. The pain is present only with voiding and disappears soon after micturition is completed. More

severe pain sometimes occurs in the bladder just at the end of voiding, suggesting that inflammation of the bladder is the likely cause. Pain also may be more marked at the beginning of or throughout the act of urination. Dysuria often is the first symptom suggesting urinary infection and is often associated with urinary frequency and urgency.

Enuresis

Strictly speaking, enuresis means bedwetting at night. It is physiologic during the first 2 or 3 years of life but becomes troublesome, particularly to parents, after that age. It may be functional or secondary to delayed neuromuscular maturation of the urethrovesical component, but it may present as a symptom of organic disease (eg, infection, distal urethral stenosis in girls, posterior urethral valves in boys, neurogenic bladder). If wetting occurs also during the daytime, however, or if there are other urinary symptoms, urologic investigation is essential. In adult life, enuresis may be replaced by nocturia for which no organic basis can be found.

Symptoms of Bladder Outlet Obstruction

A. Hesitancy

Hesitancy in initiating the urinary stream is one of the early symptoms of bladder outlet obstruction. As the degree of obstruction increases, hesitancy is prolonged and the patient often strains to force urine through the obstruction. Prostate obstruction and urethral stricture are common causes of this symptom.

B. Loss of Force and Decrease of Caliber of the Stream

Progressive loss of force and caliber of the urinary stream is noted as urethral resistance increases despite the generation of increased intravesical pressure. This can be evaluated by measuring urinary flow rates; in normal circumstances with a full bladder, a maximal flow of 20 mL/s should be achieved.

C. Terminal Dribbling

Terminal dribbling becomes more and more noticeable as obstruction progresses and is a most distressing symptom.

D. Urgency

A strong, sudden desire to urinate is caused by hyperactivity and irritability of the bladder, resulting from obstruction, inflammation, or neuropathic bladder disease. In most circumstances, the patient is able to control temporarily the sudden need to void, but loss of small amounts of urine may occur (urgency incontinence).

E. Acute Urinary Retention

Sudden inability to urinate may supervene. The patient experiences increasingly agonizing suprapubic pain associated with severe urgency and may dribble only small amounts of urine.

F. Chronic Urinary Retention

Chronic urinary retention may cause little discomfort to the patient even though there is great hesitancy in starting the stream and marked reduction of its force and caliber. Constant dribbling of urine (paradoxic incontinence) may be experienced; it may be likened to water pouring over a dam.

G. Interruption of the Urinary Stream

Interruption may be abrupt and accompanied by severe pain radiating down the urethra. This type of reaction strongly suggests the complication of vesical calculus.

H. Sense of Residual Urine

The patient often feels that urine is still in the bladder even after urination has been completed.

I. Cystitis

Recurring episodes of acute cystitis suggest the presence of residual urine.

Incontinence

There are many reasons for incontinence. The history often gives a clue to its cause.

A. True Incontinence

The patient may lose urine without warning; this may be a constant or periodic symptom. The more obvious causes include previous radical prostatectomy, exstrophy of the bladder, epispadias, vesicovaginal fistula, and ectopic ureteral orifice. Injury to the urethral smooth muscle sphincters may occur during prostatectomy or childbirth. Congenital or acquired neurogenic diseases may lead to dysfunction of the bladder and incontinence.

B. Stress Incontinence

When slight weakness of the sphincteric mechanisms is present, urine may be lost in association with physical strain (eg, coughing, laughing, rising from a chair). This is common in multiparous women who have weakened muscle support of the bladder neck and urethra and in men who have undergone radical prostatectomy. Occasionally, neuropathic bladder dysfunction can cause stress incontinence. The patient stays dry while lying in bed.

C. Urge Incontinence

Urgency may be so precipitate and severe that there is involuntary loss of urine. Urge incontinence does not infrequently occur with acute cystitis, particularly in women, since women seem to have relatively poor anatomic sphincters. Urge incontinence is a common symptom of an upper motor neuron lesion.

D. Overflow Incontinence

Paradoxic incontinence is loss of urine due to chronic urinary retention or secondary to a flaccid bladder. The intravesical pressure finally equals the urethral resistance; urine then constantly dribbles forth.

Oliguria and Anuria

Oliguria and anuria may be caused by acute renal failure (due to shock or dehydration), fluid-ion imbalance, or bilateral ureteral obstruction.

Pneumaturia

The passage of gas in the urine strongly suggests a fistula between the urinary tract and the bowel. This occurs most commonly in the bladder or urethra but may be seen also in the ureter or renal pelvis. Carcinoma of the sigmoid colon, diverticulitis with abscess formation, regional enteritis, and trauma cause most vesical fistulas. Congenital anomalies account for most urethroenteric fistulas. Certain bacteria, by the process of fermentation, may liberate gas on rare occasions.

Cloudy Urine

Patients often complain of cloudy urine, but it is most often cloudy merely because it is alkaline; this causes precipitation of phosphate. Infection can also cause urine to be cloudy and malodorous. A properly performed urinalysis will reveal the cause of cloudiness.

Chyluria

The passage of lymphatic fluid or chyle is noted by the patient as passage of milky white urine. This represents a lymphatic– urinary system fistula. Most often, the cause is obstruction of the renal lymphatics, which results in forniceal rupture and leakage. Filariasis, trauma, tuberculosis, and retroperitoneal tumors have caused the problem.

Bloody Urine

Hematuria is a danger signal that cannot be ignored. Carcinoma of the kidney or bladder, calculi, and infection are a few of the conditions in which hematuria is typically demonstrable at the time of presentation. It is important to know whether urination is painful or not, whether the hematuria is associated with symptoms of vesical irritability, and whether blood is seen in all or only a portion of the urinary stream. The hemoglobinuria that occurs as a feature of the hemolytic syndromes may also cause the urine to be red.

A. Bloody Urine in Relation to Symptoms and Diseases

Hematuria associated with renal colic suggests a ureteral stone, although a clot from a bleeding renal tumor can cause the same type of pain. Hematuria is not uncommonly associated with nonspecific, tuberculous, or schistosomal infection of the bladder. The bleeding is often terminal (bladder neck or prostate), although it may be present throughout urination (vesical or upper tract). Stone in the bladder often causes hematuria, but infection is usually present, and there are symptoms of bladder neck obstruction, neurogenic bladder, or cystocele. Dilated veins may develop at the bladder neck secondary to enlargement of the prostate. These may rupture when the patient strains to urinate, resulting in gross or microscopic hematuria. Hematuria without other symptoms (silent hematuria) must be regarded as a symptom of tumor of the bladder or kidney until proved otherwise. It is usually intermittent; bleeding may not recur for months. Because the bleeding stops spontaneously, complacency must be condemned. Less common causes of silent hematuria are staghorn calculus, polycystic kidneys, benign prostatic hyperplasia, solitary renal cyst, sickle cell disease, and hydronephrosis. Painless bleeding is common with acute glomerulonephritis. Recurrent bleeding is occasionally seen in children suffering from focal glomerulitis. Joggers and people who engage in participatory sports frequently develop transient proteinuria and gross or microscopic hematuria.

B. Time of Hematuria

Learning whether the hematuria is partial (initial, terminal) or total (present throughout urination) is often of help in identifying the site of bleeding. Initial hematuria suggests an anterior urethral lesion (eg, urethritis, stricture, meatal stenosis in young boys). Terminal hematuria usually arises from the posterior urethra, bladder neck, or trigone.

Among the common causes are posterior urethritis and polyps and tumors of the vesical neck. Total hematuria has its source at or above the level of the bladder (eg, stone, tumor, tuberculosis, nephritis).

OTHER OBJECTIVE MANIFESTATIONS

Urethral Discharge

Urethral discharge in men is one of the most common urologic complaints. The causative organism is usually Neisseria gonorrhoeae or Chlamydia trachomatis. The discharge is often accompanied by local burning on urination or an itching sensation in the urethra.

Skin Lesions of the External Genitalia

An ulceration of the glans penis or its shaft may represent syphilitic chancre, chancroid, herpes simplex, or squamous cell carcinoma. Venereal warts of the penis are common.

Visible or Palpable Masses

The patient may notice a visible or palpable mass in the upper abdomen that may represent renal tumor, hydronephrosis, or polycystic kidney. Enlarged lymph nodes in the neck may contain metastatic tumor from the prostate or testis. Lumps in the groin may represent spread of tumor of the penis or lymphadenitis from chancroid, syphilis, or lymphogranuloma venereum. Painless masses in the scrotal contents are common and include hydrocele, varicocele, spermatocele, chronic epididymitis, hernia, and testicular tumor.

Edema

Edema of the legs may result from compression of the iliac veins by lymphatic metastases from prostatic cancer. Edema of the genitalia suggests filariasis, chronic ascites, or lymphatic blockage from radiotherapy for pelvic malignancies.

Bloody Ejaculation

Inflammation of the prostate or seminal vesicles can cause hematospermia.

Gynecomastia

Often idiopathic, gynecomastia is common in elderly men, particularly those taking estrogens for control of prostatic cancer. It is also seen in association with choriocarcinoma and interstitial cell and Sertoli cell tumors of the testis. Certain endocrinologic diseases, for example, Klinefelter syndrome, may also cause gynecomastia.

COMPLAINTS RELATED TO SEXUAL PROBLEMS

Many people have genitourinary complaints on a purely psychological or emotional basis. In others, organic symptoms may be increased in severity because of tension states. It is important, therefore, to seek clues that might give evidence of emotional stress. In women, the relationship of the menses to ureteral pain or vesical complaints should be determined, although menstruation may exacerbate both organic and

functional vesical and renal difficulties. Many patients recognize that the state of their "nerves" has a direct effect on their symptoms. They often realize that their "cystitis" develops after a tension-producing or anxiety-producing episode in their personal or occupational environment.

Sexual Difficulties in Men

Men may complain directly of sexual difficulty. However, they are often so ashamed of loss of sexual power that they cannot admit it even to a physician. In such cases, they may ask for "prostate treatment" and hope that the physician will understand that they have sexual complaints and that they will be treated accordingly. The main sexual symptoms include impaired quality of erection, premature loss of erection, absence of ejaculate with orgasm, premature ejaculation, and even loss of desire. Sexual Difficulties in Women

Women who have the psychosomatic cystitis syndrome almost always admit to have an unhappy sex life. They notice that frequency or vaginal–urethral pain often occurs on the day following the incomplete sexual act. Many of them recognize the inadequacy of their sexual experiences as one of the underlying causes of urologic complaints; too frequently, however, the physician either does not ask them pertinent questions or, if patients volunteer this information, ignores it.

QUESTIONS FOR CHECK-UP

1. Peculiarities of pain and pain syndrome upon urological diseases.

2. Principles of differential diagnistics upon urological pain.

3. Nicturia, nocturia – reasons, presentations.

4. Symptoms of Bladder Outlet Obstruction.

5. Acute vs chronic urinary retention, clinical presentations.

6. Hematuria: definition, types.

7. Possible sexual disorders related to urology.

Recommended education resources:

1. uroweb.ru
2. uroweb.org
3. "SMITH & TANAGHO'S GENERAL UROLOGY", 2017