

II. If the pus be from the urethra, having special reference to the male, most of it comes away just before the urine in micturition. It is also discharged in the intervals between the micturitions and the urine is usually acid. The causes are: A. Gonorrhœa; B. An abscess of the prostate; C. An abscess of Cowper's glands or of the perineum, opening into the urethra.

A. *Gonorrhœa* is distinguished by: 1. Great pain and burning in the urethra during micturition; 2. Redness, swelling, itching, and burning at the meatus; 3. The appearance of pus at the meatus when the glans penis is gently pressed between the thumb and fingers.

B. *An abscess of the prostate* is distinguished by: 1. Pain which is present not so much during as just at the termination of micturition; 2. A swelling and tenderness of the prostate which is discoverable by rectal examination; 3. The condition of the prostate, which enables the physician by squeezing it to force pus and microscopic calculi along the urethra and out at the meatus. According to Sir Henry Thompson, an abscess of the prostate may give rise to inflammation extending back into the neck of the bladder, accompanied by symptoms resembling those of stone; such as great frequency of micturition, pain following micturition and referred to near the lower end of the penis, a little blood occasionally with the last drops of urine, an alkaline reaction of the urine which is turbid with altered pus, an exaggeration of all these symptoms when the patient is exercising or moving about. Such a condition is distinguished from stone by (a) the absence of any history of the descent of a calculus; (b) more or less discharge from the urethra during the intervals between micturitions, but perhaps appearing only upon squeezing the glans penis or urethra; (c) often a history of gonorrhœa; (d) swelling and tenderness of the prostate; (e) the absence of a stone in the bladder, determined by the sound.

C. *An abscess in Cowper's glands or the perineum* is detected by local examination.

III. If the pus be from the bladder, most of it comes away at the end of micturition. It is altered, viscid, and like "ropy mucus due to the alkaline condition of the urine. The urine is usually more or less ammoniacal, fetid, and deposits crystals of triple phosphates. There is more or less pain in the region of the bladder over the pubic bones, which is increased according to the disease present, sometimes before and sometimes after micturition, and which is often accompanied with tenderness in the same region, especially when the bladder is full of urine; and there is increased frequency of micturition. The causes are; A. Cystitis; B. Calculus; C. New growth.

A. *Simple cystitis*, independent of calculus or new growth, is distinguished by: 1. Pain, which is severest just before micturition, when the bladder

is full, and which is relieved by emptying the bladder; 2. Hematuria only in rare cases, except when the disease is unusually acute or the result of an injury; 3. The symptoms of the primary trouble of which cystitis is really only a symptom; such as (a) the retention of urine by a stricture, an enlarged prostate, by a stone in old people, by fevers paralyzing the muscular coats of the bladder, or by paraplegia; (b) gonorrhœa extending backward to the bladder; (c) poisoning by cantharides, or by morbid states of the blood, as occurs in gout (gout being the cause of most "idiopathic cases"); 4. The absence of symptoms specially characteristic of stone or new growth.

B. *Calculus* is distinguished by the symptoms of the accompanying cystitis, and by: 1. Pain, which is severest at the end of micturition and for some time after (because then for a time, when the bladder is empty, the stone comes in contact with the sensitive mucous lining), and which is more distressing than the pain in simple cystitis, and referred to the glans penis about one inch from the meatus; 2. Hematuria very commonly in small quantity, so small often as only to be detected by the microscope, which is increased by violent exercise; 3. Increased frequency of micturition, which is more noticeable during the day when the patient is moving about than it is during the night (the reverse being true in prostatic stricture); 4. Sometimes a sudden stoppage in micturition due to the stone acting as a ball-valve in the bladder-opening of the urethra; 5. In a great number of cases a previous history of nephritic colic, a severe pain shooting from one kidney down to the testicle or penis, retraction of the testicle attended with rigors and vomiting, nausea, pallor, a quick and feeble pulse, intermittent pyrexia, and sometimes swelling of the testicle, all suddenly ceasing after the passage of the stone into the bladder; 6. The passage of a stone, red sand, or gravel in the urine; 7. The presence of a stone determined by a sound.

C. *New growths* originating in the bladder or penetrating it from without, either exciting secondary cystitis or ulcerating, are distinguished by: 1. Paroxysms of severe lancinating pain quite independent of micturition (in villous disease, however, there need be no pain if the urethra be not blocked by a blood-clot); 2. Hematuria, irrespective of exercise, which is irregular, coming on at long intervals, or being very persistent, and is sometimes very copious, especially in villous disease, in which it is dangerously so; 3. The presence in the pus of epithelial cancer-cells, or, in villous disease, villous processes; 4. Cachexia and emaciation; 5. The absence of stricture, prostatic disease, and other causes of retention; 6. Possibly a hard, irregular, tender tumor, which can be felt by the rectum or vagina; 7. Possibly enlarged glands in the groin, or the evidence of new growths in dis-