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Selections: Medicine.

PUS IN THE URINE.*

BY CHARLES MURCHISON, M.D., LL.D., F.R.S.

Three tests are used to determine the presence or absence of pus in the urine.

1. In acid urine where there is a more or less creamy sediment with the upper part clear, heat produces greater or less opacity in the clear portion, and a much more marked one in the creamy layer. Pale lithates clear up on heating. In alkaline urine, heat makes it a little more opaque (phosphates) cleared up by nitric acid; so that the two tests leave its turbidity much as it was before.

2. If liquor potassæ be added to the acid urine, the pus becomes viscid "ropy." If the precipitate be phosphates no change takes place. In alkaline pyuria the "ropy" change has already taken place.

3. The microscope shows pus corpuscles, identical with white blood corpuscles, a drop of acetic acid causes the granular contents to disappear and in its place a nucleus often three-lobed is seen.

Pus in pyuria may have five sources: I. Female genital organs; II. Urethra; III. Bladder; IV. Kidneys and ureters; V. Abscesses which burst into the genito-urinary channels.

I. Pus from Female Genital Organs is due to *a*, vaginal leucorrhœa; *b*, uterine do.; *c*, ulcerated os uteri; *d*, cancer of uterus; *e*, lochia; (abscesses, (*e.g.*, pelvic cellulitis.) These are distinguished by (1) the clinical history and symptoms; (2) the microscope shows pavement epithelium from the vagina, cylindrical from the uterus, or cancer structure; (3) a purulent discharge independent of micturitions; (4) absence of pus when the urine is drawn by catheter.

II. Urethral pus comes away before micturition, and between micturitions; urine usually acid. Causes are gonorrhœa, abscess of prostate, Cowper's glands, or perineum. In prostatic abscess there is pain at the end of micturition; rectal examination shows tenderness and pain and on pressure pus (and calculi sometimes) forced out of urethral meatus. Prostatic abscess may simulate stone, but there is an absence of symptoms of a renal calculus having descended; there is discharge during intervals between micturitions; there is often a history of gonorrhœa, swelling and tenderness of prostate; and absence of signs of stone on sounding.

III. *Pus from the Bladder,* most of it comes away at the end of the micturition; it is viscid and like "ropy mucus;" urine usually ammoniacal, fetid, and deposits triple phosphates; pain in bladder above pubis, increased before or after micturition; tenderness above pubis; increased frequency of micturition. The causes are (*a*) cystitis, (*b*) calculus, (*c*) new growth. A. In simple cystitis there is (1) pain severest just before the micturition, relieved by it, (2) hæmaturia rarely, (3) retention of urine, caused by stricture, enlarged prostate, stone, fevers, paraplegia, gonorrhœa, poisoning by cantharides or blood-poisaning (*e.g.* gout); (4) absence of symptoms of stone or new growth.

B. *In Calculus* there is pain at end of micturition and for some time after, and often referred to the end of the penis. Hœmaturia

*Abstract of the last clinical lecture delivered by the late Dr. Murchison.