

the amount of residual urine can never be obtained by one catheterization, but can only be made after several such measurements. Various conditions are liable to vary the amount of urine thus obtained, but an average may be readily arrived at.

Residual urine sooner or later becomes contaminated, not from its mere presence in the bladder, but usually by infection from without. The use of the catheter is the most potent cause of the cystitis so certain to develop in the majority of cases of marked hypertrophy. The catheter introduces infection, the mucous membrane is congested, and consequently pus and debris are deposited within the bladder. This being heavier than the urine, it settles in the most dependent portion; in these cases the post-prostatic pouch, and cystitis is rapidly developed.

If urination was frequent before the advent of cystitis, the presence of this inflammation now makes it much more so, and the relief experienced by evacuation is much less than before contamination. Tenesmus is marked, and the suffering now becomes almost intolerable. A complete urinalysis will almost invariably reveal the presence of mixed infection with mucous, pus, and blood all present.

*Retention of urine* presents itself to the patient as a symptom only when it becomes acute. This is usually caused by excessive congestion in the neck of the bladder, and the first warning a patient may have of his condition is sometimes the sudden and acute retention which follows. More often, however, he will remember that heretofore the urine had not passed naturally—that there had been delay in starting the stream, that there had been lack of force or some of the other symptoms already described. He may never have noticed them before, or, having noticed them, were banished from his mind as a matter of no importance until acute retention developed.

It is quite possible, and frequently happens, that acute retention develops without the slightest previous warning; and, after relief by catheter, months or even years may pass without recurrence, and in some instances may never appear again. Whatever may be the subsidiary cause, the immediate and direct cause of acute retention is one of three things—failure in expulsive power, increase in resistance, or a combination of both.

The most common cause of the three is *sudden increase in resistance*. The mucous membrane around the neck of the bladder is congested, and suddenly by some exciting cause it becomes much more swollen, when, by the aid of the prostatic outgrowth, it succeeds in effectually blocking the opening into the urethra. This sudden increase in resistance may be, and usually is, caused by some such inflammatory action as that produced by the irritating condition of the urine or sudden exposure to cold, though not infrequently it is depend-