

In the foregoing remarks on infection we have implicated ourselves in the etiology and pathology of the disease under discussion. These two elements of this disease have in the past been much disputed, but roughly we may state that the two great theories of the disease were:—

(1) The septic theory: (2) the nervous theory.

Recently it has been clearly demonstrated, I think, that neither sepsis alone nor the nervous system alone is responsible in any given case, but, in all probability, the two factors acting together have produced the disease,—sometimes the septic symptoms predominating and at other times the nervous.

Guyon showed that microbes may even enter the bladder without bad effect, if the bladder resistance is normal. If, however, it be diminished as, for instance, by a foreign body, injury, or residual urine, trouble may be anticipated. When we remember how each instrumentation is known to cause a modification of the urethral circulation,—any instrument introduced really being a foreign body,—and when we consider the influence of the nervous system upon inflammatory processes as well as upon resistance (either by impairing the nutritive activity of the part or by diminishing phagocytosis), it is difficult to say to what extent instrumentation of the urethra or bladder acts by reflex irritation through the nervous system, and to what extent by the introduction of sepsis. The influence of the nervous system is demonstrated in those cases where the passage of a sterilized bougie may be followed by the complete suppression of urine, which suppression is probably due to a reflex spasm of the renal arterioles. In such cases the circulation in the bladder is also interfered with and, should any contamination have been introduced, the danger of acute sepsis of the whole tract is very great. It seems very doubtful, however, whether the nervous system alone can be at fault in any case of urethral chill. But, as Newman pointed out, in any case, if the bladder fails to empty itself completely, as from urethral stricture, local or general paralysis, enlargement of the prostate or other cause, the danger of sepsis by the most minute particles of infection cannot be exaggerated. In such cases the mucous membrane loses its resisting power and the retained contents of the bladder become contaminated by even the smallest inoculation of infective material introduced from without. The discovery that the normal urethra swarms with microbes, often pathogenic, explains the cause of the disappointment of those who, when antiseptic treatment was first introduced, supposed that infection was due to the non-disinfected instrument; and great was their surprise on finding that the number of cases of catheterization infection was but slightly reduced in spite of the most careful sterilization of instruments. The number of microbes is greatly increased in those cases in which instrumentation is called for, e. g., examination