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THE EXAMINATION OF THE FEMALE BLADDER AND THE CATHETERIZATION OF THE URETERS UNDER DIRECT INSPECTION.

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In remarkable contrast to the elaborate cystoscope necessary for the illumination and inspection of the interior of the male bladder, the female bladder is open to a direct inspection by very simple instruments. By the methods which I shall describe, every part of the bladder-wall, including the ureteral orifice, can be examined and treated topically without difficulty, and the ureters can be catheterized with the greatest ease. I employ for this purpose a series of sixteen dilators and an equal number of specula with obturators (Fig. 1), ranging

in diameter from 5 to 20 mm. The urethra is first dilated up to 10, 12, 14, or 15 mm., the urine is drawn off, and a speculum corresponding in number to the last dilator used is inserted into the urethra and the obturator removed. The hips of the patient are then elevated until the sacrum is 20 to 30 cm. (8 to 12 inches) above the level of the table, *when the bladder becomes distended with air.*

With a head-mirror such as the laryngologists use, the examiner will be able to reflect the light from a lamp or an

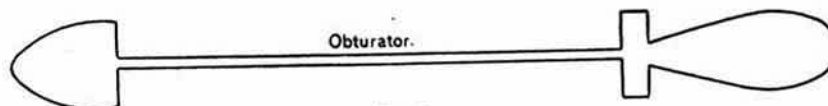


FIG. 1.

electric drop-light, or in a dark room from a candle, into the bladder and inspect its whole interior, as simply and as directly as the posterior wall of the pharynx (Fig. 2). Every part of the bladder can be seen by moving the speculum in various directions.

If the urine has not been entirely removed with the catheter, as is usually the case, the residue can readily be withdrawn through the speculum with a simple suction apparatus consisting of a rubber bulb and a long rubber tube in the end of which is fastened a hollow perforated tip. Small quantities

of urine collecting from the ureters during examination can readily be taken up with small cotton balls held in long delicate forceps. The normal mucous membrane of the bladder appears as a dead-white surface, mapped out into small areas by vessels which come to the surface, branch out stellately and anastomose.

By elevating the handle of the speculum, the inter-ureteric ligament often comes into view as a faint elevation or a slightly injected area. This ligament appears to lie nearer the observer than one would anticipate.

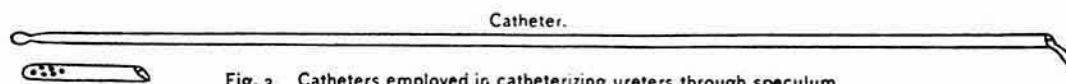


Fig. 3. Catheters employed in catheterizing ureters through speculum.

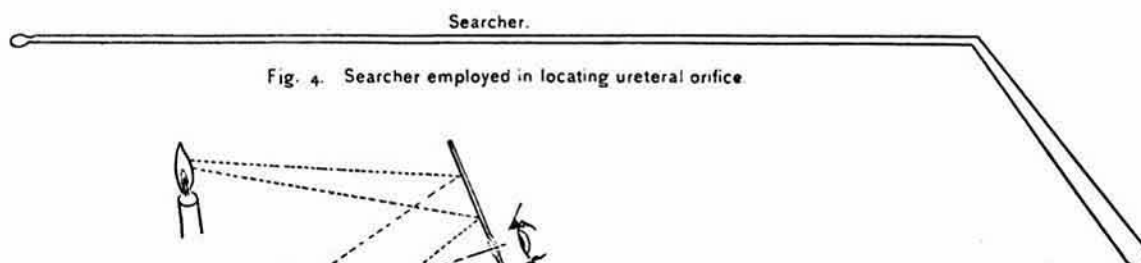


Fig. 4. Searcher employed in locating ureteral orifice.

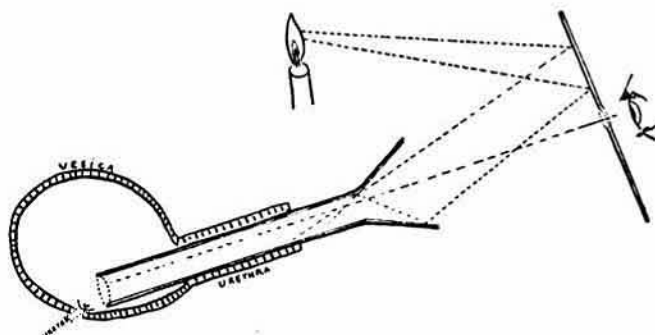


FIG. 2.—Method of illuminating bladder. Ureteral orifice exposed at end of speculum.

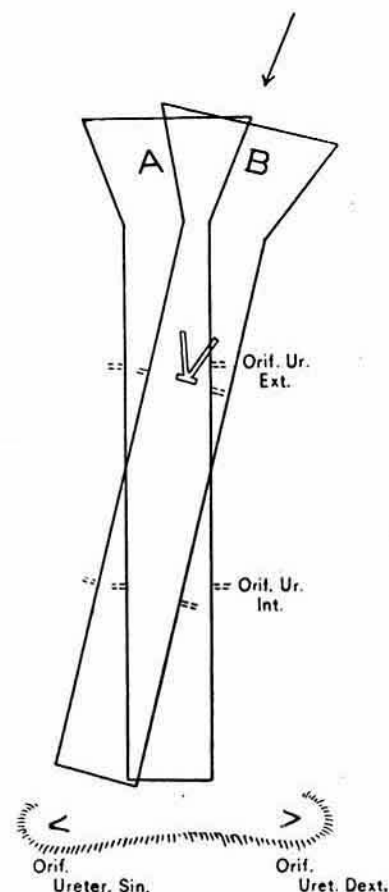


FIG. 5.—Position A, speculum introduced into bladder to apex of angle marked on exterior; position B, speculum inclined 30° to right, exposing orifice of left ureter.

The same is true of the ureteral orifices, which are readily seen by turning the speculum to one side until its axis makes an angle of 30 degrees with the median line of the body.

The orifices often appear as pits, or slits, or semilunar folds, with their convexities directed outward. Sometimes they are marked by a more rosy color than the bladder.

I have seen under reflected light small jets of urine spurt out from the ureteral orifices, and in unilateral diseases of the ureters and kidneys I have seen pus and blood flow from one opening while the other was discharging normal urine.

CATHETERIZATION OF THE URETERS.

Catheterization of the ureters can be as readily performed as the inspection, and consists simply in carrying a straight ureteral catheter, either without a handle (Fig. 3), or with one small enough to permit the speculum to be withdrawn over it, down into the orifice and up the ureter for several centimeters. I usually employ a searcher first, to assure myself that the opening under inspection is the ureter. This is especially necessary (Fig. 4) when there is vesical or ureteral disease, as the ureteral orifice is often more or less concealed in such cases.

An excellent mechanical method of exposing the orifice is by introducing the speculum until the apex of a V marked on the outside 6 cm. from the end, touches the external meatus urinarius. The angle between the arms of the V is 60 degrees. If the speculum is now elevated until the base of the bladder is brought in view, and then turned to the right or left until one of the sides of the V is in a line with the normal axis of the urethra, thus $\angle$, the ureter will appear within the field embraced by the inner orifice of the speculum (Fig. 5). The ureteral orifices are so easily found, after a little practice, that it is not even necessary to elevate the hips and distend the bladder in order to catheterize them. It is only necessary to introduce the speculum, elevate and turn the handle to the point where the ureteral orifice should be found. By pressing the inner end down against the bladder-wall the urine is excluded, and the ureteral opening will often be found at once within the lumen of the speculum. It can always be brought into view by exercising a little patience and sliding the end of the speculum over the bladder-wall, and thus inspecting the ureteral area.