a concave sheath is used, the concavity is kept toward the pubis. When catheters have been passed up the ureters, they may be left in place for collection of urine and for urograms. The catheterizing telescope is first withdrawn, leaving the catheters in the sheath. Then the sheath is removed as the catheters are pushed inward forming a loop in the bladder: this avoids dislodging them from the ureters. When the catheters have been passed only a few centimeters up the ureters it may be necessary to leave the cystoscope in place during the remainder of the procedure for fear of dislodging the catheters.

O. Cystoscopy hipogastrica

Cystoscopy may be performed through a suprapubic cystostomy opening (GORO). A direct or an obliquely forward telescope provides the best view unless the cystostomy passage extends obliquely downward instead of directly dorsalward; in these a right angle view is needed to visualize the fundus of the bladder. The vesical orifice is well seen. Stones, tumors and foreign bodies can be identified. An attempt can be made to pass a ureteral catheter outward through the urethra, in cases of impassable stricture. The ureteral orifices can be visualized but cannot be catheterized through this approach. Foreign bodies and small calculi can be removed.

P. Experimental and practice cystoscopy

I. Female dogs

Experimental cystoscopy can be done on female dogs (BARRINGER). The growth of induced bladder tumors can be watched and the results of cystoscopic procedures observed. However, animals are not practical to use for learning cystoscopy.

II. Phantom bladder

When this apparatus is available, it provides the best means of learning how to manipulate the cystoscope and ureteral catheters. Otherwise supervised practice on patients is the best method of learning cystoscopy.

Chapter III

Postendoscopic care, reactions and complications

A. Postendoscopy care

Routine orders following endoscopic examinations anticipate mild reactions which may occur. Administration of a sedative when the preendoscopic analgesic is wearing off helps to prevent spasm with its resulting frequency and urgency. Forcing fluids, 8 oz each hour for 12 hours following the procedure, aids in holding down infection and inflammation. When nausea prevents ingestion of fluids by mouth, 5 per cent glucose in saline is given intravenously. Application of heat such as short wave diathermy through the bladder immediately following cystoscopy is helpful in preventing spasm. Routine administration of an antibacteria agent has been recommended; but when aseptic technique is used and when there is no evidence of latent infection, this prophylactic measure is not necessary. Administration of antibacterial drugs is reserved for the treatment of frank and
latent infections and should not be used indiscriminately; the chances of benefitting the patient are not worth the risk of obtaining an unfavorable reaction to the medication, nor of developing an immune strain of bacteria.

B. Reactions and complications

Immediate mild symptoms almost always occur and are expected. These are burning on urination, frequency and urgency, a small amount of blood in the urine or a slight bloody urethral discharge; they usually disappear within six to 12 hours. Severe reactions arising from endoscopic examination, and complications following the procedure, are more often due to faulty technique than to any other cause (Wehrbein). When the immediate symptoms are severe, and when they occur consistently after each examination, the cystoscopist should examine his technique minutely to discover his faults and to correct them. Any endoscopic procedure is traumatic, but excessive trauma is almost always due to improper handling of the instruments or of the patient, or both. In exceptional cases it may be advisable for the cystoscopist to assume a calculated risk and proceed with the examination even though excessive trauma is unavoidable for its completion. Mercurial poisoning following use of mercury oxycyanide solution in cystoscopies has been reported (Page and Wilson).

C. Prophylaxis of complications

I. Gentleness

In the handling of endoscopic instruments gentleness minimizes trauma. A “sensitive touch” is necessary for the expert cystoscopist. He “feels” with the instrument which he has in his hands; the least resistance while passing the cystoscope is transmitted through the instrument to his finger tips. When an obstruction is encountered he feels first one way then another with the tip of the instrument until a way is found around the obstacle. The “light touch” which he has prevents his thrusting through, tearing and perforating; these are only for the man with the “heavy touch”, for the rough handler of instruments. Rapid jerky motions are more likely to be traumatic than slow deliberate ones; but every motion must count. When the entire interior of the bladder is surveyed, slow systematic movements are made first inward and then outward as the cystoscope is slowly rotated. The posterior urethra is examined only once; to move the instrument in and out of the bladder neck several times is traumatic. The ureteral catheter is slowly and gently inserted into the meatus and passed upward (Stolz); jabbing it into the mucosa produces pain and starts spasm.

II. Alertness

The skilled cystoscopist is alert. He has evaluated the patient and has ordered adequate sedation both before and after the examination. He remembers to connect the light cord and check the bulb before introducing the cystoscope; unnecessary trauma is caused by removing the instrument to adjust the light or replace the bulb. Most important of all, when fluid is running into the bladder, he is aware of it and he shuts it off before the bladder becomes overdistended (Lewis). Edema and petechial hemorrhages occur from mild overdistention. When the pressure of the irrigating fluid is high, severe trauma to the bladder mucosa and massive hemorrhage may result because the cystoscopist is not alert to the flow of water into the bladder.