

Cystoscopy Procedure: Nurses Role & Responsibility in Procedure Area

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Abstract

Cystoscopy is generally done at cystoscopy room or minor Operation theatre area, it is done to examine lower urinary tract. For safe and minimizing procedure associated complication, nurses assisting in procedure should be technically competent in cystoscopy procedure. Nurses need to be technically as well as clinically competent to provide good quality of care to urological patients. This article will give brief review on cystoscopy procedure.

Keywords: Cystoscopy, Rigid Cystoscopy, Flexible cystoscopy.

Introduction

Rigid cystoscopy is used for diagnostic and therapeutic procedures under general anesthesia. It can be done in outpatient as well as inpatient settings. This procedure uses a cystoscope with a small telescope with a camera to look at the urethra and bladder. Cystoscopy is usually performed in operation theatre under local anesthesia and general anesthesia. Anesthesia depends on patient condition.¹

This article aims to provide an overview of the functioning of a cystoscope and its application for various procedures.

Indication Of Rigid Cystoscopy:

A surgeon suggested cystoscopy for many conditions such as visualization of microscopic blood in urine, urinary tract abnormality, recurring urinary tract infection, observing certain types of bladder or kidney cancer. No other tests can accurately assess the inner lining of the bladder to avoid a cystoscopy. These are the following indications of cystoscopy.²

- Monitoring for bladder and urethral malignancies
- Assessment of gross/microscopic haematuria, voiding symptoms, urethral/cystic fistula, congenital anomalies
- Diagnosis of urethral/bladder neck stricture
- Assessment of urethra for diverticulosis (females)
- Removal of ureteral stent
- Urethral catheterization in difficult conditions.

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Cystoscopy Instruments

These instruments are used to assess the urinary bladder and the endoscope is measured by the outer diameter, it is mainly measured in French units (Fr).

Nowadays two variety of cystoscopes are commonly used in practice

- A. Rigid type cystoscope
- B. Flexible type cystoscope

Rigid type cystoscopes

Rigid type cystoscopes were 1st discovered for the urological procedure and used for a long time. This was the only way to endoscopic examination and treatment for the lower urinary tract in early time. The diameter of rigid cystoscopes varies from 6F to 27F; most commonly used in adults between 17F and 25F in diameter.³



Fig. 1: Rigid type cystoscopes

The size of the cystoscope depends on the endoscopic procedure. Normally the smallest diameter instruments are used for the procedure.

Rigid cystoscopes consist of three main parts.

- External sheath along with obturator
- Intermediate piece' (bridge)
- Telescope' (optical system)

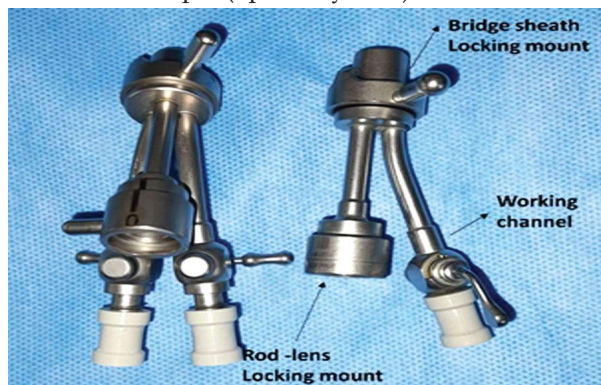


Fig. 2: Bridge



Fig. 3: Resectoscope

The outer sheath should be used to protect the telescope while inserting the telescope and irrigation fluid into the bladder. 22F diameters are most commonly used for normal adult diagnostic cystoscopy.

24-26 F is used for therapeutic procedures as they allow easy passage of instruments through the working channel. At its proximal end, the sluice is equipped with two connections (ports), flow and return, for the introduction and drainage of the rinsing fluid.

While blind insertion of outer sheath the obturator will be used to avoid trauma.

The telescope

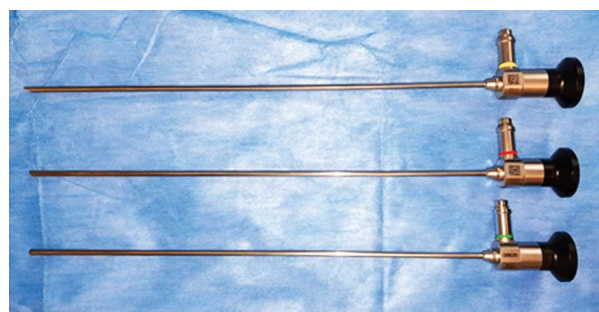


Fig. 4: Telescope

The telescope is useful to transmit light into the bladder and can be transmitted images to the examiner.

Harold Hopkins developed Modern rigid type of cystoscopes which have different angles for the view that allow a complete bladder examination.

0 optical angles which are used for forwarding view are helpful especially for urethroscopy. 30 angles which have forward and oblique views are specially designed for examining the base, posterior wall, and lateral walls of urinary bladder, and 70 optical for side view allow the surgeon to see the

anterolateral walls and bladder dome.

The different viewing angles of the telescope should be mentioned on the peripheral field to give orientation while doing cystoscopy and the mark should be directly opposite to the viewing angle.

The 70 degree telescope is preferred for complete bladder inspection but for diagnostic and the manipulation of intravesical instruments 30 degree Telescope is most commonly used.



Fig. 5: Rigid Biopsy Forcep



Fig. 6: Working Element



Fig. 7: Penile Clamp

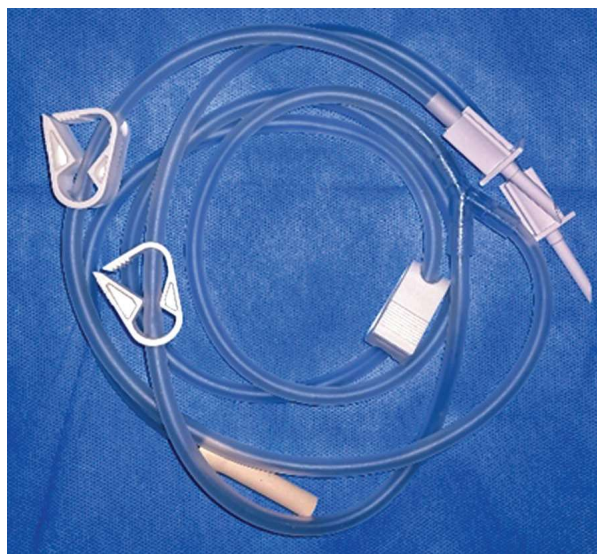


Fig. 8: Irrigation Tube 'Y' Connector

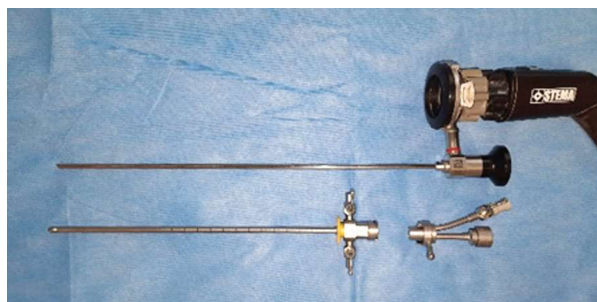


Fig. 9: Complete Attachments (Un-attached)



Fig. 10: Complete Attachments

The advantages of rigid cystos-copes

- Provides Large visual field for examination
- Provides Broad working passag for accessory instruments.
- Large caliber irrigation channel for better visibility.
- To remove debrides or blood clots from the bladder.
- Good orientation and easy handling during the procedure.

Equipment:***Following instruments are used in the cystoscopy procedure***

- Rigid cystoscope 17 Fr
- Rigid cystoscope 22 fr(is required for biopsy)
- Cystoscopy bride (It used to connect the optical lens to the sheath), meatus dilator, and phallus dilator for females.
- Telescope 0°,30° and 70°
- Camera with cart
- Irrigation set, Sterile water
- Lignocaine jelly 2%,Pineal clamp
- Iodine solution and sponge holder for surgical preparation.
- Surgical drape (TURBT drape): It covers the whole leg and lower abdomen of the patient.

Position: Lithotomy position. The cystoscopy was performed in dorsolithotomy position with legs suspended in stirrups.⁴

Patient preparation: After giving the comfortable position to the patient. clean the perineal area (outer to inside). Clean the penis meatus and vulva with iodine solution. Clean the area three times.

Procedure: Drape the genito-perineal part after preparing the patient

- 2% lignocaine jelly was used to sedate the urethra. In men, the penis was clamped and gently massaged to distribute the local anesthetic evenly throughout the urethra. In female patients, the thump should place on the meatus after gel installation to prevent spillage and light pressure should be applied to 1 cm of the vaginal wall.
- Cystoscopy can be performed after five minutes by a 17 F rigid cystoscope.
- In men, the penis is holded with fingers of the operating surgeon's non-dominant hand while passing a rigid scope, and the penis is stretched to its maximum.
- When passing a flexible scope, the penis is grasped with the thumb and index fingers of the non-dominant hand and Lowering the distal end of the cystoscope onto the

operating table.

- When the cystoscope progress with irrigation the lower urinary tract should be systematically assessed.
- The penis and bulbar urethra should be examined for the signs of stricture and the patient should be relaxed when the cystoscope is advanced through the urethra.
- Once the cystoscope is in the prostatic urethra, the verumontanum and posterior utricle can be identified. The size of the prostatic lobe, the length of the prostatic urethra, and the presence of a median lobe or bladder neck obstruction should be noted.
- A 30-degree telescope is normally used to inspect the bladder and while entering to the bladder mucosa should be carefully monitored.
- The floor and trigone of the bladder are inspected and then identify the ureteral openings and note their location.
- The bladder should be examined for bladder stones, trabeculae, bladder diverticula, erythematous patches, or papillary/sessile bladder lesions.
- By rotating the cystoscope and keeping the camera orientation fixed the surgeon can visualize the lateral walls of the bladder. The dome and posterolateral walls of the bladder are inspected using a 70° lens on a rigid cystoscope.
- Before removing the endoscope, the bladder should be emptied.

Complication: The serious complications are rare.

- Urinary tract infections
- Urinary retention due to swelling on the urethra and prostate. If the patient is not able to empty the bladder after a cystoscopy. A catheter may need to be temporarily placed in the bladder.
- Voiding (dysuria)
- Haematuria
- Urethral stricture
- Fever

Postoperative Care

Cystoscopy Nursing Responsibility

Before cystoscopy

- Assess the patient level of anxiety and discomfort.
- Explain the procedure and clear all doubts of patient regarding the procedure.
- The procedure is generally done in an operation theatre or separate cystoscopy room
- Its about 30-45 minutes procedure.
- Inform the patient performing the test, where it will done, and other members of healthcare team involved in the care.
- Obtain a written informed consent form before the procedure and administration of any medications.
- Stop anti-coagulant. examples are aspirin, warfarin.
- Provide instructions for preparing for fasting and non-fasting. Unless general anesthesia has been prescribed, inform the patient that food and fluids need not be restricted. If general anesthesia is administered, instruct the patient to fast for at least 6 to 8 hours before testing.
- Prepare IV line for infusion of fluids, sedatives, anesthetics, and any emergency medicines.
- Instruct patient to void bladder and prepare for the procedure.
- Give sedation and other medications as directed by anaesthetic.
- Preoperative drugs are administered 1 hour prior to procedure. Sedative reduces the spasm of the bladder sphincter and reduces the patient's discomfort.

Post cystoscopy

The nurse should check the following nursing care after cystoscopy

- Check the vital signs and record on nurses notes/Vital sheet.
- Check urinary retention due to

instrumentation and patient's capacity to urinate 24 hours after procedure.

- Observe urine color, slight difficult when urinating may occur after the procedure for a few times.
- Encourage the patient to increase fluid intake. Fluids will easy to flush the bladder to reduce the bleeding and reduce the chance of infection.
- Deep breathing exercises will relieve bladder spasms
- Watch for indication of any serious complications like sepsis haematuria, bladder perforation.
- Observe persistent and severe flank pain, higher temperature above 38°C, chills, bright red blood, or clots in the urine, painful urination, or urinary retention, if occur must report immediately to the operating surgeon.

Cleaning, disinfection, sterilization

The way of cleaning can have good impact on the lifespan of endoscopes, the safety of the patient and the user.

Check the rigid cystoscopes and telescope's optics function and check any damage like sharp edges, loose parts, or visible deformation before each use. Preparation before cleaning.

Wet cleaning should be carried out immediately after the operation to avoid clotting of blood, protein, and other substances on the endoscope and to protect the personnel.

Cleaning protocol for instruments

Put on protective gloves, cloths, and a face mask when cleaning the contaminated instruments.

- All attachments should be disassembled and should be an open position.
- Rinse the instruments thoroughly before cleaning to remove any gross residue.
- With the instrument jaws open, completely immerse the instruments in an enzymatic cleaning solution like Enzol, Metrizyme, or equivalent diluted to the correct concentration according to the

manufacturer's instructions. Do not mix high concentrated detergent as it damages the instruments.

- Remove all debris and contaminated particles from the instrument using the brush, soft cloth, or cotton swab.
- While submerged, clean the opening of the instrument and inlet with cleaning brush. Clean the inlet and outlet of the sheaths with the cleaning brushes.
- All visible deposits should be removed and dip the instruments in cleaning solution and rinse with syringe.
- Rinse all instruments at least three times by using distilled water for minimum one minute and discard the solution after cleaning.
- Dry the instruments with soft cloth and compressed air inside the instruments. Make sure that all instruments should be free from debris.
- Check the instruments for cleanliness and damage after cleaning.
- Do not use any instruments that are visibly damaged as they will be harmful to the patient during the procedure.

Disinfection

- Place the disassembled, cleaned, and inspected instruments in the 2.4% glutaraldehyde disinfectant solution like CIDEX for the prescribed exposure time so that the instruments are adequately covered.

- Remove instruments from cleaning bath after some time and rinse them thoroughly at least five times with water.
- By using the air compressor dry the instruments.
- Pack the instruments as soon as possible to avoid contamination.

Conclusion

Cystoscopy helps the surgeon to examine urethra and urinary bladder. Nurses working in cystoscopy room are responsible for preparation of patient as well as cystoscopy instrument so the nurses should be technically and clinically competent for assisting cystoscopy procedure and safely handling of cystoscopy instrument.

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