

STERILIZATION OF UROLOGIC INSTRUMENTS

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Urologic instruments may be divided into the following groups:

A. Metal instruments without an optical system

1. Van Buren sounds
2. Straight urethral sounds
3. Le Forte follower sounds
4. Metal evacuation catheters

B. Metal instruments with an optical system

1. Cystoscopes
2. Urethrascopes
3. Mc Carthy resectoscopes
4. Young's rongeur
5. Visual lithotrite

C. Rubber catheters

D. Silk instruments

These are fashioned of woven silk, impregnated with a gum resin, polished, and then covered with shellac. They include:

1. Filiform bougies
2. Larger urethral bougies
3. Mercier catheters (Coude)
4. Delfosse followers
5. Ureteral catheters

Heat Sterilization

The metal instruments without an optical system and the rubber catheters (Groups A and C above) are preferably sterilized by heat--by boiling in water for 10 minutes or autoclaving. For routine use in the dispensary, boiling is usually adequate. But when these instruments are used in the operating room, autoclaving is imperative. The latter is naturally the better and safer method.

After sterilization, the above mentioned instruments are cooled before use in either sterile water or a mild antiseptic (1-2000 oxycyanide of mercury, 1-2000 bichloride of mercury, or 1-2000 biniodide of mercury Parke-Davis germicidal discs).

These antiseptics are corrosive and will on prolonged action damage the smooth surface of polished metal instruments and rubber catheters. If you can possibly avoid it, never leave them in such a solution longer than 10 minutes.

When boiling or autoclaving rubber catheters, never curve the latter in a coil, because this will leave a permanent curve in the catheter and impair its usefulness. Always store and sterilize such catheters perfectly straight and in their natural shape.

CHEMICAL STERILIZATION

This is less effective than heat, and hence is reserved for those instruments which are damaged by boiling or autoclaving. The latter include groups B and D above.

B. Cystoscopes and other instruments equipt with an optical system.

Heat will loosen the cement which holds the lenses in place, and it may even crack the latter. These are serious accidents, for such optical systems cost from 100% up; and they will hence be available only in strictly limited numbers.

D. Silk instruments.

Heat dissolves the impregnating gum resin and destroys the shellac, causing the instrument to swell and disintegrate.

HENCE THE ABOVE MENTIONED INSTRUMENTS ARE STERILIZED BY PLACING THEM IN AN ANTISEPTIC SOLUTION.

They are placed in one of the following solutions for 10 minutes; and they are used directly out of the solution.

1. Biniodide of mercury- 1-2000
2. Oxycyanide of mercury- 1-2000
3. Bichloride of mercury- 1-2000

CAUTION:

Never leave the instruments in longer than the specified time because of the corrosive action of these solutions.

After the instruments are used, or after they are removed unused from the above solutions, always wash them carefully in warm (not hot) tap water to remove the solution. Then dry them carefully before putting them away.

Cystoscopes and urethral catheters should be dried inside and out before being put away. Compressed air, if available, is excellent for inner drying of the former.

Cystoscopes should always be put away in their proper cases- never out of them.

Following their use and before they can be cleaned, delicate urologic instruments should never be laid in a pan with other instruments. Heavy sounds may be dropped upon them through carelessness and cause serious damage.

Handle all silk instruments with care, both before and after use. They are very perishable as well as expensive. With care, however, they will last a long time. They should be kept in a separate place, never along with other instruments, whose weight may cause serious damage to their delicate, shellacked surface. Slender cardboard boxes are the best containers. Never bend silk instruments. This causes cracking of their surface and splitting of the fibres.

CARE OF URETERAL CATHETERS

AFTER USE-

1. Wash outside with sterile water.
2. Wash lumen by syphonage for 20 minutes with water.
3. Syphon antiseptic solution through lumen for 15 minutes. Then wash solution out of lumen with water with the aid of a syringe.
4. Lay catheter in antiseptic solution for 15 minutes.
5. Wash inside and outside of catheter with water.
6. Carefully dry outside of catheter.
7. Blow fluid out of lumen with syringe or use compressed air.
8. Inject a small quantity of alcohol (96%) 2 cc. through lumen.

Blow out with air. Inject 1 cc. ether through lumen. Blow out with air.

CAUTION. Do not use alcohol or ether on nylon ureteral catheters.
catheters. It will destroy them.

Antiseptic solution used in the above includes any of the following:

1. Oxycyanide of mercury- 1-2000 solution.
2. Bichloride of mercury- " "
3. Biniodide of mercury- " "
4. 4% formalin solution.

If formalin is used, increase the time from 15 to 20 minutes. If a formalin vapour cabinet is available, this is perhaps the best method of sterilization. If formalin is used, always remove latter by syringing and washing in sterile water, because formalin is very irritating to tissues and mucous membranes!

PRECAUTIONS:

1. Always remember that the above antiseptic solutions are very corrosive. If a catheter is left in the above and forgotten for 1-2 hours or longer it will be ruined.
2. Do not allow catheters to lie around wet, even in water for hours or days.
3. Immediately after use, wash off the outside of the catheter with water and syringe through the lumen to keep secretions and urine from drying on it. Then, as soon as convenient, preferably within an hour or so, sterilize and dry the catheter.
4. Never kink or sharply bend catheters. This breaks them. Be especially careful near the tip, near the eyes. This is the vulnerable part.
5. Put away catheters straight. Do not curve them. If a long pan is not available for pre-operative sterilization and preparation, they may be broadly curved in a large pan just before use.

PRE-OPERATIVE STERILIZATION:

1. Syringe through with antiseptic solution and assure yourself of their patency.
2. Lay in antiseptic solution for 10 minutes.
3. Lay in a cooling pan.

The cooling pan is preferably a round sterile metal pan, 12 or more inches in diameter, containing about 1-2 inches of sterile water. This is placed in a larger pan containing chopped ice. The catheters are used directly from this pan.

CAUTION:

Before handling or sterilizing ureter catheters always scrub your hands carefully and always wear a mask. If sterile gloves are available wear them.