

## CARE OF SUPRA-PUBIC DRAINAGE

The care of supra-pubic drainage is by far the most important part of the after care of the supra-pubic operative case. If properly managed, first intention wound healing and rapid convalescence is the gratifying reward. If it is mismanaged, as is frequently the case, wound infection, pyelonephritis and sepsis with their terrifying train of symptoms result which end in a protracted and stormy convalescence, and not infrequently terminate fatally.

In every case in which the bladder is opened, a large tube (Pezzer or Freyer) is left in the bladder. The wall of the latter is closed about the tube with many closely placed sutures. The aim of this is to produce an air and water-tight closure, to prevent urine from seeping into the tissues.

The bladder tube is attached, by means of a glass connector to 5 - 6 feet of rubber tubing, the end of which is placed in the bottom of a bottle at the bedside, which contains a small quantity of water. Since this tubing is filled with water, an airtight syphon system results which produces mild suction and keeps the bladder dry. If this ideal state is maintained for a period<sup>d</sup> of 4 - 5 days, primary wound healing will result. The channel through the tissues, which is occupied by the tube, becomes sealed off during this time; and if seepage of urine occurs around the tube after this, it merely seeps to the outside around the tube. But if such seepage occurs immediately after the operation, the urine will flow into the pre-vesical space and in between the various tissue planes causing severe infection. This will occur if the tube becomes blocked, and hence, we must guard strenuously against the latter. Further, if blockage of the tube occurs - stagnation of urine in the bladder will follow. If there is a tendency toward bleeding, the latter will be enhanced; the stagnation will also favor the development of urinary infection and pyelonephritis, which often causes a fatal outcome.

Blockage of supra-pubic drainage is most dangerous immediately post-operative and this danger decreases with the lapse of time: The first 24 hours is the most crucial period. Good drainage, however, is imperative as long as supra-pubic drainage is maintained. Adequate supra-pubic drainage is maintained by constant <sup>care</sup> on the part of the ward personnel, and a strict adherence to a few simple principles, can be maintained only by following a definite routine, by strict adherence to a few simple principles, and by constant vigilance. A few hours of neglect may completely ruin the outcome of a carefully executed operation.

Certain rather typical episodes frequently occur in the supra-pubic patient. These tend to defeat proper drainage and we must constantly look out for them and control them. They are as follows:

1. Blockage of the tubing by blood clots, clumps of fibrin and pus.

This is overcome by irrigation of the tubing with sterile water <sup>or</sup> physiologic salt solution. The clots may form in the bladder or in the tube. If extensive clotting occurs in the bladder, this is a serious situation and may require re-operation for removal of the clots.

This occurrence, however, is usually the result of previous neglect ~~the result~~ of previous neglect on the part of the attendant who allows the tube to become blocked and does nothing about it.

If the bladder is kept collapsed and empty by proper drainage, such clotting cannot occur. Even in the presence of slight bleeding, if the bladder is not kept empty by proper drainage, the blood remaining behind may clot and give rise to trouble.

2. The tubing becomes kinked because it is not carefully attached to the bed, or is too long, or the patient lies on it.
3. The end of the tube is allowed to pull up above the surface of the water in the bottle. The water in the tube will then run out and the siphon action will cease.

4. The supra-pubic tube pulls out of the bladder or becomes dislodged. This is a serious accident and requires reoperation for re-insertion of the tube. This occurs only as a result of incompetence and criminal neglect on the part of the attendant. The causes of this are usually.

1. The dressing is improperly applied.
2. The tube is not properly fixed to the binder.
3. The binder is not applied properly and adjusted often enough. If the binder slips, it may drag the tube with it.
4. There is not enough slack in the tube, so that when the patient moves or turns there is a severe tension on the supra-pubic tube.

#### FREYER TUBE

This is a straight rubber tube 10 - 20 mm. in diameter. It is open on both ends. Near one end there are two large openings on the side. At the other end is a large-calibre L-shaped glass connecting tube.

To the outer end of the glass angle tube a 12" length of 1/2 inch rubber tubing is connected before the dressings are applied at the end of the operation. This is further connected to a 4 foot length of 1/2" tubing with the aid of a straight glass connector. The other end of the latter tubing is placed in the bottom of a 2 quart or 1 gallon jar containing 16 ounces of sterile water.

SUPRA-PUBIC SET-UP

Attention -

Pezzer catheter - is a mushroom tipped catheter of large calibre (24 to 36 F.)

When this is employed the mushroom end lies in the bladder cavity. No. L. tube or 12" length of 1/2" rubber tubing is used as in the case of the Freyer tube (Fig 2). Instead the outer end of the catheter (M in the illustration above) is connected directly to the 4 foot length of rubber tubing with the aid of a glass connector as at X (Fig 2).

The binder in this case is placed about the Pezzer catheter just as described below (Fig 3) and the latter is fixed to the binder in a like manner with adhesive tape.

The binder is snugly applied over the dressing with one edge over and the other under the rubber tube. There must be no tension on the tube! The binder is pinned with safety pins. A piece of adhesive  $1/2''$  wide and  $4''$  long is then placed - around the tube at 1. (illustration) - as follows:

and pinned to the binder to give support to the tube. A similar length of adhesive is placed on the tube at 2 and pinned to the bed to give further support.

The following principles must be observed.

1. Rubber tubing must all be of adequate calibre ( $1/2''$ ).
2. It must be in good condition and free from perforations.
3. Glass connectors must be of adequate calibre ( $3/8$  to  $1/2''$ ).
4. All tubing  $\neq$  bottles  $\neq$  water must be sterile.
5. Tube must be filled with water to maintain syphon action and always keep end of tube at Z under the surface of the water in the bottle.

When first connecting up the system, place a clamp on tube at X. Fill tube to Y with water; connect to 12 inch length of tubing. Then remove clamp from X.

6. When emptying bottle - apply clamp at X. Have clean bottle containing 16 ounces water ready. Put end of tube in clean bottle. Remove clamp from X. Under no circumstances leave clamp on for more than a few seconds.

7. Glass connector  $\neq$  tubing from Y down must be washed  $\neq$  sterilised Q - 48 hours.

When this is done have fresh tube ready.

8. Maintain constant syphon drainage.
9. If tube becomes clogged with blood clots, fibrin or debris irrigate these out with sterile water or saline. But keep such irrigations to a minimum.
10. Do not allow tube to become kinked, or patient to lie on tube.

11. Leave enough slack in tube so patient can move freely, but not so much that tube will kink.

If these principles are observed - the patients, will do better, the wounds will heal more quickly and there will be less tendency to soaking of the dressings with urine. The ultimate amount of nursing care and labor for the attendant will be greatly reduced.