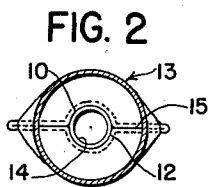
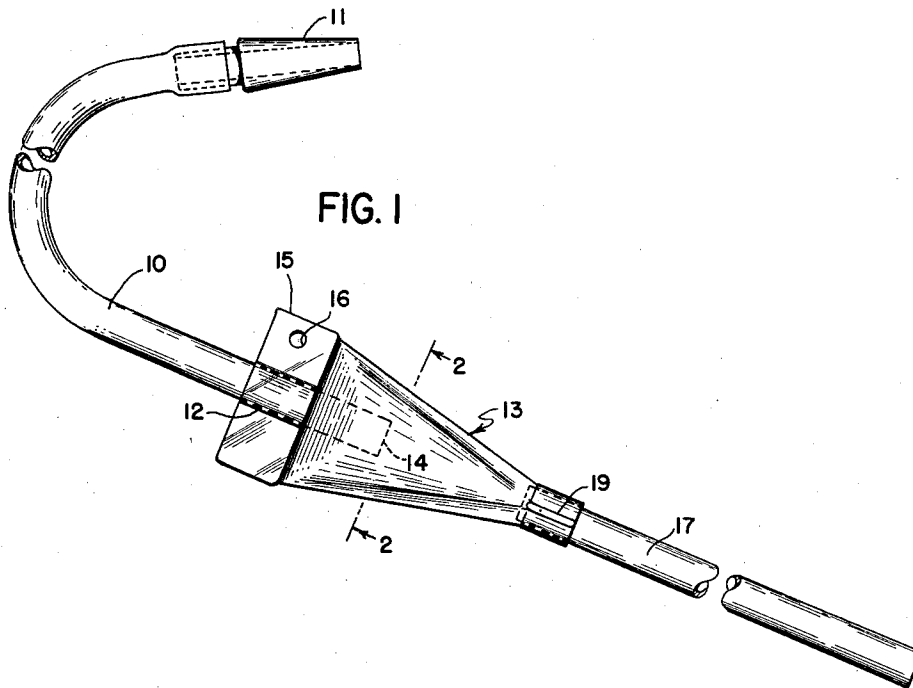


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SURGICAL DRAINAGE TUBE

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SURGICAL DRAINAGE TUBE

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The present invention relates to a novel surgical drainage tube. More specifically it relates to an expendable drainage tube particularly safe and useful in connection with urinary drainage and the like.

In the past the drainage tubes used by most hospitals have been merely lengths of large diameter flexible tubing having a catheter adapter at one end. In use the adapter was fitted to the catheter in the patient and the other end of the tubing placed in a fluid receptacle such as a bag, jar, or bottle. Such drainage tubes although they are easy to manufacture and expendable possess a serious disadvantage. Under some conditions of use such drainage tubes provide a direct route for the entry of infective agents into the patient's body. For example, if in the course of fluid collection, the receptacle becomes filled to a point at which the fluid surface contacts or covers the free end of the tubing an uninterrupted wet path is provided upon which infective agents present in the receptacle may travel up the drainage tube, through the catheter and into the patient's body.

It is, therefore, an object of the present invention to provide an inexpensive, expendable drainage tube which eliminates the danger described. More particularly it is an object of the invention to provide a drainage tube construction provided with means therein for establishing a break in the fluid path which prevents infective organisms employing it as a route into the patient. Other objects and advantages will appear as the specification proceeds.

The invention is shown by the accompanying drawing in which—

FIGURE 1 is a perspective view of the novel drainage tube structure of the present invention.

FIGURE 2 is a transverse sectional view, the section being taken as indicated at line 2—2 of FIGURE 1.

In the illustration given 10 designates a flexible tube formed of plastic or similar flexible material and provided at one end with a catheter adapter 11 of polystyrene or the like. At a point 12 intermediate along the tube 10 and adjacent its opposite end is the chamber 13. The chamber 13 is secured to the tube at 12 by heat sealing, gluing or the like to effect an airtight seal with the tube and to allow a section 14 of tube 10 to project into said chamber. The seam 15 thus formed by the heat seal etc., may be apertured if desired as at 16. The lower end of the chamber is provided with an outlet communicating with tube 17. Tube 17 is preferably secured at 19 by heat sealing, gluing etc.

The drainage tube structure of the present invention may be formed in wide variety of methods. A particularly convenient method comprises heat sealing to a 36 inch length of ½ inch diameter plastic tubing a 4 inch section of 1 inch diameter thermoplastic tubing at a point intermediate its length and adjacent its opposite end and then heat sealing the lower section of the large tubing to

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a 12 inch length of ½ inch tubing at right angles to the original heat seal. The technique of heat sealing at right angles provides a convenient means of centering the inlet tube 14 in chamber 13 so that it does not contact the side of said chamber. A sufficiently large internal diameter is thus formed and maintained within the chamber at the point at which the inlet tube terminates thereby providing means for breaking the fluid path. Other means of centering the inlet tube can, of course, also be used.

After the expendable drainage tube structure has been sterilized by heat or chemical means it may be packaged for contamination-free shipment by stopping up the free ends of the tubing with cotton and sealing the entire device in a sterile plastic envelope.

In the operation of the device, the adapter is simply joined to the catheter in the patient and the cotton plug, if any, is removed from the free end of tube 14. That end is then placed into a suitable receptacle for the collection of fluids. If desired the suspension of the drainage tube chamber assembly in a vertical position may be insured by passing a wire or string through aperture 16 and fastening the chamber assembly in a vertical position to a chair, bed, etc.

It will be readily apparent that the chamber assembly of the present invention completely eliminates the uninterrupted wet surface found in conventional drainage tubes by providing a means for breaking the fluid flow in to free falling drops thus making it impossible for infective agents to utilize the drainage tube as a direct route into the patient's body. Furthermore, the chamber assembly when formed of the preferred transparent thermoplastic materials, such as polyvinyl chloride, polyethylene or the like, provides a convenient and useful point for visual inspection by the attending physician or nurse of the fluid leaving the patient.

While in the foregoing specification a specific structure has been described it will be understood that many details of structure may be varied without departing from the spirit and scope of the present invention. For example, the tubing and chamber sections may be made separately and later joined to form the structure.

The embodiments of the invention in which an exclusive property or privilege is claimed are as follows:

1. In a surgical drainage system for conducting fluids from the body of a patient to a collection receptacle which system comprises a catheter, a surgical drainage tube communicating with said catheter, and a fluid collection vessel, the improved surgical drainage tube which comprises a length of flexible resilient tubing having a catheter adapter at one end, means for interrupting the fluid path of liquids passing through said tubing, said means comprising a transparent chamber positioned intermediate the length of said tubing, said chamber having an inlet and an outlet communicating with said tubing, the inlet being provided with an inlet tube which is connected to and communicates with the resilient flexible tubing, said inlet tube projecting partially into and terminating within said chamber, said chamber being so constructed that a sufficiently large internal diameter is formed and maintained within said chamber at the point at which the inlet tube terminates so that the inlet tube does not contact the sides of said chamber, and means associated with said chamber for suspending and fastening said chamber in a substantially vertical position.

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2. In a surgical drainage system for the conduction of surgical fluids from a patient via a catheter and a surgical drainage tube to a collection receptacle, the improved surgical drainage tube which comprises a resilient flexible tube having a catheter adapter at one end, a transparent plastic chamber interposed along the length of said tubing and means associated with said chamber for suspending and fastening said chamber in a substantially vertical position, said chamber having an inlet and an outlet communicating with said tubing, the inlet of said chamber being provided with an inlet tube which is connected to and communicates with the resilient flexible tubing, said inlet tube projecting into and terminating within said

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chamber, the chamber being so constructed that a sufficiently large internal diameter is maintained at point where the inlet tube terminates so that said inlet does not contact the sides of said chamber.

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