A disposable ventriculostomy apparatus

Technical note

GARY D. VANDER ARK, M.D., AND KARL STECHER, JR., M.D.

Division of Neurological Surgery, Denver General Hospital, Denver, Colorado

Instructions for constructing a “homemade” ventriculostomy apparatus are given.

KEY WORDS • ventriculostomy • disposable apparatus

The use of ventricular cannulation for measuring intracranial pressure, removal of ventricular fluid, and ventriculography has increased markedly in recent years. Instrumentation for ventricular puncture ideally should be readily available, simple, sterile, and inexpensive. Because we were unable to interest a manufacturer in providing such a kit, we have developed a ventriculostomy apparatus that meets the above criteria using materials readily available in most general hospitals.

The materials necessary are pictured in Fig. 1. Only the twist drill is nondisposable and must be autoclaved and kept in a sterile wrapper. A Plexitray sterile myelogram tray containing a short length of extension tubing, a 3½-in. 18-gauge spinal needle,* and a disposable No. 11 scalpel completes the kit. The 18-gauge spinal needle with stylet in place is inserted into the extension tubing. This tubing is then cut on a bevel slightly behind and parallel to the tip of the spinal needle. Additional side holes are also placed, as seen in Fig. 2.

The sponges on the myelogram tray may be used to prep the head. A twist drill hole is placed as desired. The homemade cannula with solid core (both needle and stylet) is then directed into the ventricle. When fluid returns, the stylet and spinal needle may both be removed from the plastic cannula. The external end of the cannula provides a good surface for suturing to the surrounding scalp. It also readily accepts intravenous extension tubing, which can then be connected to a transducer for pressure monitoring, or to a bag or bottle for ventriculostomy drainage.

This cannula has significant advantages over existing methods. Because the stylet of the cannula is solid, the cannula does not fill with brain tissue before the ventricle is entered. The cannula is soft and pliable, yet does not kink and occlude; moreover, it is immediately adaptable to intravenous tubing. We have found this apparatus quite satisfactory in our clinical experience.

*Spinal needle made by Travenol Laboratories, Inc., 200 Wilmot Road, Deerfield, Illinois 60015.
Fig. 1. Materials for ventriculostomy: connector tubing, scalpel with No. 11 blade, No. 18 spinal needle, and twist drill with small and large bits.

Fig. 2. The constructed ventriculostomy needle. Note that the beveled plastic edge is not quite flush with needle edge. Note also the side holes in plastic.