New Introducer for Subcutaneous Placement of Cerebrospinal Fluid Shunts: Technical Note

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SUMMARY: *A new introducer system for subcutaneous placement of shunt tubings is described. The advantages of this system over previous introducers are discussed.*

RÉSUMÉ: *Nous décrivons un nouveau système d'intromission pour le placement sous-cutané des tubes à dérivation. Les avantages de ce système sur les précédents sont décrits.*

In the insertion of ventriculoperitoneal or ventriculoatrial shunt, subcutaneous placement of the shunt tubing sometimes poses problems. Currently used introducers include trocars and canulas, and rods, to which the shunt tubing are tied and pulled through the subcutaneous tissue. The main disadvantages of these introducers are subcutaneous tissue trauma and significant contact of the shunt tubing with the skin at the time of introduction. We also find the unitarian length of current introducers unsatisfactory.

This report describes a new introducer with variable length which produces less subcutaneous tissue trauma and that almost eliminates shunt catheter contact with the skin.

DESCRIPTION OF INSTRUMENT

The 'introducer' is made up of four parts—a handle, body, head and tunnel (Fig. 1). The head, body and handle are made of stainless steel and the tunnel is made from polythene catheter.

The head is one inch long and has a spindle-shaped tip with a maximum diameter of 3/16 inch. The proximal end is drilled into a receptacle for Number 8-32T screw.

The body is twelve inches long. The last half-inch of each end is reduced to a Number 8-32T screw. There are two six-inch extensions to the body—one straight and one slightly curved. Each extension has a Number 8-32T screw at one end and a Number 8-32T screw

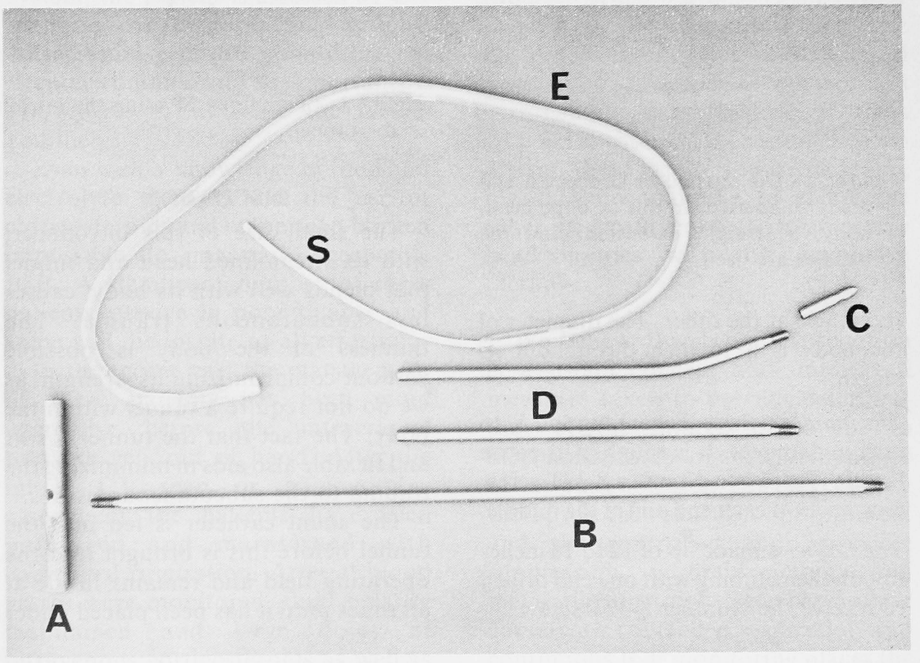

Figure 1—The components of the introducer: A—handle; B—body; C—head; D—extensions of the body; E—tunnel; S—shunt tubing.

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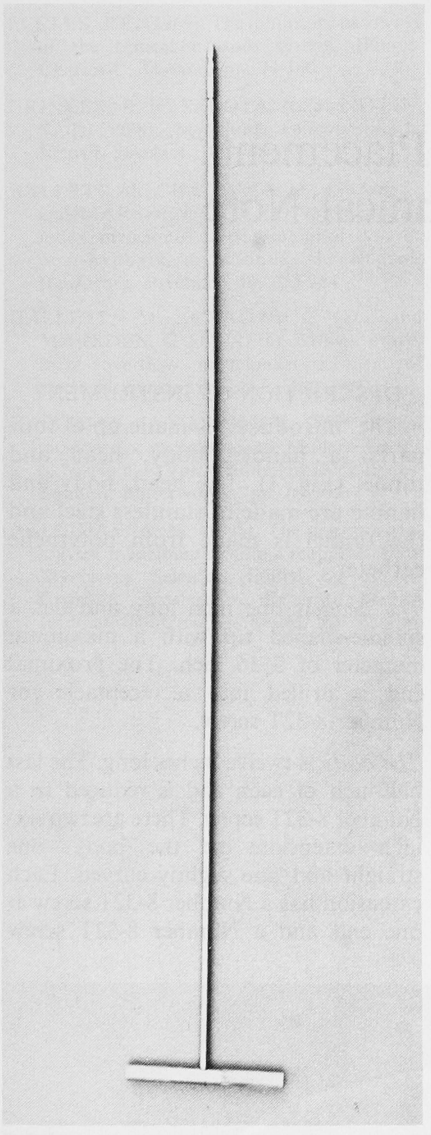

Figure 2—The introducer connected and ready to be used. In this case the head, body, a straight extension, and the handles are used.

receptacle at the other. The diameter of the body is 3/16 inch throughout its length.

The handle is three inches long and 5/16 inch in diameter. It is rough in its entire length. There is a Number 8-32T screw receptacle at each end and at the middle.

The tunnel is made up of 12 to 18 inches of polythene tubing with one end drilled to receive the Number 8-32T screw.

The introducer is connected as shown in Figure 2. The desired length of the body is selected by the number of extensions used before the head is attached. The introducer is then passed from either incision directly to the other, or through an intermediate incision. The head is then unscrewed and replaced by the tunnel with the shunt tubing already fed into it. The entire introducer is then pulled through with the shunt catheter stopped at the desired place (Figure 3). The shunt catheter is then introduced into the peritoneal cavity or internal jugular vein in the usual fashion.

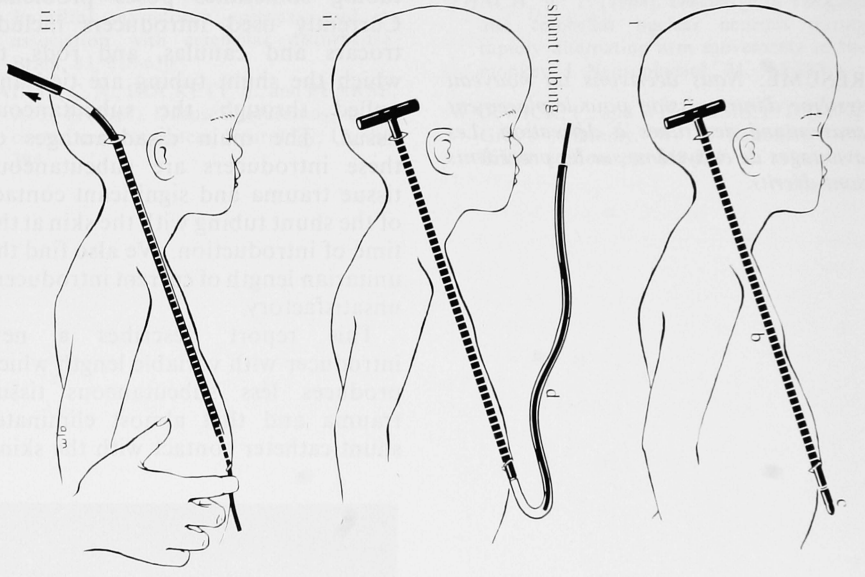

Figure 3—Technique of using the introducer: See text. c—head; b—body; a—handle; d—tunnel.

DISCUSSION

The small size of this introducer, with its streamlined head and tunnel that blends well with its body, causes less subcutaneous trauma. The thinness of the body is possible without compromizing its strength, as we do not require a tunnel within the body. The fact that the tunnel is soft and flexible also aids in minimizing the trauma to the subcutaneous tissues.

The shunt catheter is fed into the tunnel before this is brought into the operating field and remains inside at all times until it has been placed under the skin and ready to be inserted into the abdomen or internal jugular vein. We believe that elimination of contact of the shunt catheter with the skin of the patient should reduce or eliminate contamination of the shunt tubing by skin organisms which are a major cause of shunt infections (Ignelzi & Kirsch, 1975; Venes, 1976). The variable length of the introducer body allows adjustment according to the size of the patient.

Our initial experience with this introducer has been impressive. The handle and the tunnel fit on either end of the body. The handle also fits end-on or at right-angles. These features make the introducer versatile and operating time is reduced.

ACKNOWLEDGMENT

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REFERENCES

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