



A new Subcutaneously Anchored Device for Securing External Cerebrospinal Fluid Catheters: our Preliminary Experience

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■ **BACKGROUND:** Accidental dislocation or removal is a well-known complication of external cerebrospinal fluid (CSF) drainage in daily clinical practice. At present, no data about the incidence of such complications are available in the scientific literature. SecurAcath (Interrad Medical, Plymouth, Minnesota, USA) is a subcutaneously anchored device recently adopted for securement of central venous catheters, known to be highly effective (and cost-effective) in reducing the risk of catheter dislodgement and/or accidental removal.

■ **METHODS:** We report our preliminary experience with the use of SecurAcath to secure CSF drainage, either ventricular or spinal, to the skin.

■ **RESULTS:** SecurAcath was used in 29 consecutive patients (age range: 3 weeks-16 years, median age 6.3 years). In particular, the device was used for 25 ventricular catheters (a patient received 2 catheters in the same procedure for bilateral brain abscess) and 5 spinal drainages. Period in place ranged from 1–4 weeks (median 22 days). No complication related to the use of the device was observed, in particular there was no case of dislocation or accidental removal of the catheter. The removal procedure was extremely easy. The device has proven its utility also in 3 cases requiring an adjustment of the length of the catheter.

■ **CONCLUSIONS:** In our experience, SecurAcath is a safe and effective device to secure CSF external catheters to the skin, with several relevant advantages: its placement and maintenance are easy; it may stay in place for the entire duration of the catheter; it allows a more complete antiseptics of the exit site, thus reducing local skin

complications; it eliminates the risk of suture-related needlestick injuries.

Accidental dislocation or removal is a well-known complication of external cerebrospinal fluid (CSF) drainage in daily clinical practice. At present, no precise data about the incidence of such complication are available across the scientific literature. The impact of this complication, which may require a new surgical procedure to replace the catheter—sometimes as an emergency, in case of intracranial hypertension—does not require additional comments. Sutures and staples still remain the most widely used methods to anchor the CSF drainage to the skin, although these methods have been overcome to secure vascular accesses due to their complications.¹⁻³ Even very recent articles and consensus statements seem to neglect any discussion of this point or the research of alternative solutions.^{4,5} This seems compelling, at least in particular subgroups of neurosurgical patients with increased risk of catheter dislocation (e.g., children, psychomotor agitation, long period of stay, occipital site).

We report our preliminary experience with the use of a new device (SecurAcath, Interrad Medical) to secure CSF drainage, either ventricular or spinal, to the skin. This device is a subcutaneously anchored device recently adopted for securement of central venous catheters. It is highly effective (and cost-effective) in reducing the risk of catheter dislodgement and/or accidental removal.¹⁻³

METHODS

Ventricular catheters and spinal external CSF drainages were placed with standard technique. After placing the catheter, this was tunneled under skin using the device provided in the

Key words

- CSF catheter
- External ventricular drainage
- Skin anchor
- Skin securement
- Spinal drainage ventricular catheter

Abbreviations and Acronyms

CSF: Cerebrospinal fluid

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Citation: *World Neurosurg.* (2016) 93:1-5.
<http://dx.doi.org/10.1016/j.wneu.2016.05.045>

Journal homepage: www.WORLDNEUROSURGERY.org

Available online: www.sciencedirect.com

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kit for ventriculostomy and using a 14-gauge Abbocath catheter in case of spinal drainage. Then, the catheter was anchored to the skin using the SecurAcath. The appropriate size SecurAcath device was chosen to match the catheter diameter. In particular, we used SecurAcath 8 F for ventricular catheters (Bactiseal, Codman, Division of Johnson & Johnson Medical Ltd., Wokingham, UK) and SecurAcath 5 F for external spinal drainages (Lumbar catheter accessory kit,

Integra, Plainsboro, New Jersey, USA). The system consists of 2 components: an anchor base and a cover (Figure 1). The anchor base is folded downward until the anchor tips come together. The catheter is lifted until it is perpendicular to the skin surface to visualize the insertion site. The folded anchor base is held sideways and the anchor tips inserted into the insertion site until the curved segment is no longer visible. If the insertion site is not large enough to insert the



Figure 1. The two components of the SecurAcath are shown: the anchor base above and the cover below (A). Examples of cerebrospinal fluid catheters secured to the skin with SecurAcath: ventricular catheter in a child (B), bilateral ventricular catheters in a newborn (C), and spinal catheter in a young girl (D).

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