

Cannulation of the Internal Jugular Vein: A Cautionary Note

To the Editor:—Gibbs and Arandia¹ have recently suggested using a 22-gauge 14-cm spinal needle, threaded through a 16-gauge catheter-over-needle, as the “locator needle” in cannulation of the internal jugular vein. Once the vein is identified with the spinal needle, the catheter-over-needle is threaded 6 cm into the vein. Their technique closely parallels that previously recommended by Civetta *et al.*² for insertion of a catheter-through-needle into the jugular vein.

We have three concerns with both of these techniques. First, the use of the longer needle may permit deeper penetration and predispose to pneumothorax, which is a relatively rare complication with conventional high approaches using shorter needles.³ Second, threading a large-diameter catheter-and-needle combination over the spinal needle may result in unappreciated serious arterial puncture *after* the internal jugular vein has been correctly identified with the locator needle. Third, accurate identification of the vein is difficult with the described techniques.

Figure 1 illustrates an arteriovenous fistula which was produced when an attempt was made to thread a 14-gauge needle over a spinal needle as recommended by Civetta *et al.*² shortly after their technique was published. In that case arterial puncture was not appreciated, a large hematoma was produced, and successful cannulation was not achieved. When that patient returned for his postoperative checkup, he complained of tinnitus and a continuous to-and-for murmur was heard in the neck. Arteriography demonstrated an A-V fistula, and uneventful surgical repair was accomplished. In retrospect, we believe that both vein and artery were punctured as a result of inability to insure continued correct locator needle placement.

We believe that this will not happen if a small-diameter blunt-tip catheter is threaded into the vein over the locator needle. Observing the appropriate venous pressure waveform as transduced from the small diameter catheter is recommended prior to introduction of a guidewire, followed by insertion of a larger catheter or an introducer-sheath combination. This practice is felt to be more accurate than relying on color or flowrate of blood coming back through the locator needle.⁴

In summary, we agree with Gibbs and Arandia that percutaneous catheterization of the internal jugular vein to gain access to the central circulation has gained widespread acceptance. Furthermore, it may on occasion be a vital and even life-saving technique. How-

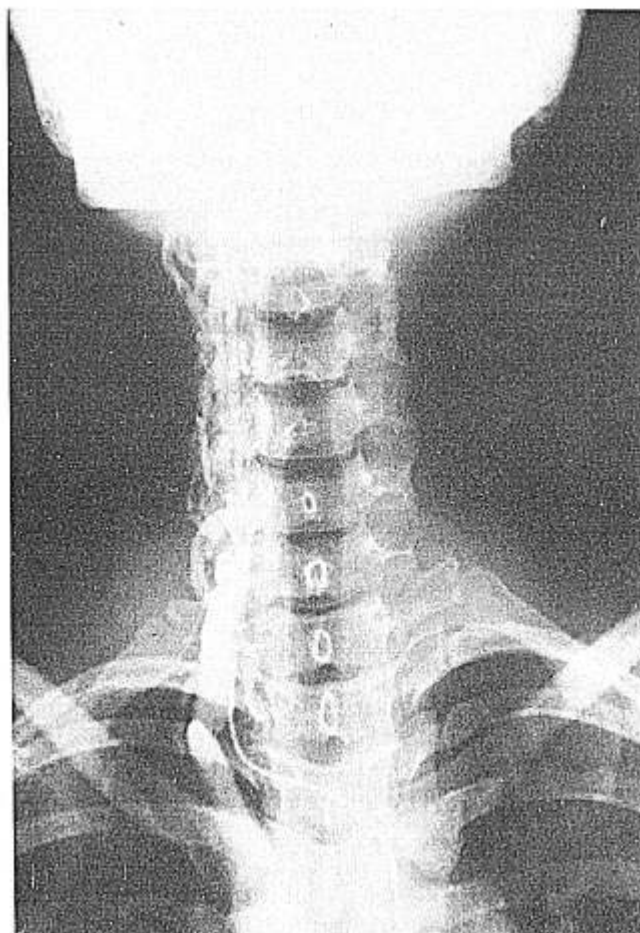


FIG. 1. Fistula between the right vertebral artery and the cervical vertebral venous plexus at the level of C7. Injection catheter shown lying in the lumen of the right subclavian and vertebral arteries.

ever, we caution that the approach which they recommend may increase the risk of complications associated with this procedure and recommend instead that a small needle-catheter combination with a guidewire be used as a safer approach.⁵

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REFERENCES

1. Gibbs C, Arandia H: A new technique for location and cannulation of the internal jugular vein. *ANESTHESIOLOGY* 54:89, 1981
2. Civetta JM, Gabel JC, Gewer M: Internal jugular-vein puncture with a margin of safety. *ANESTHESIOLOGY* 36:622-623, 1972

3. Cote CJ, Jobes DR, Schwartz AJ, et al: Two approaches to cannulation of a child's internal jugular vein. *ANESTHESIOLOGY* 50:371-373, 1979
4. Schwartz AJ, Greenhow DE, Jobes DR, et al: Carotid artery puncture. *ANESTHESIOLOGY* 51:S160, 1979
5. Seldinger SI: Catheter replacement of the needle in percutaneous arteriography. *Acta Radiol* 39:368-376, 1953

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A Further Plea to Standardize Equipment

To the Editor:— We read with interest Dr. Stehling's comments on intravenous cannulas and concur with her conclusion in the need for their standardization.¹ We further believe that there should be standardization in the markings placed on epidural catheters. As can be seen in figure 1, there are different marking systems on each of the catheters provided by five of the major catheter manufacturers. These different legends are confusing and may lead to inadequate advancement of the catheter. This situation may be especially true in the teaching hospital setting where the management of an epidural for labor is taken over by a different resident who deems it necessary to readjust the catheter. It is essential that there be an effort to standardize the manufacturing of not only epidural

and intravenous catheters, but of all medical equipment whenever possible.

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REFERENCES

1. Stehling LC: Standardization of intravenous cannulas. *ANESTHESIOLOGY* 53:437-438, 1980

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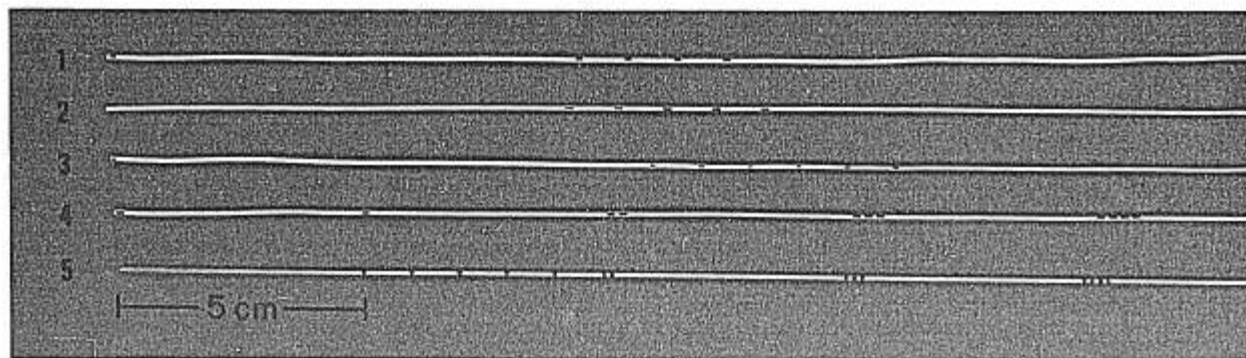


FIG. 2. Epidural catheters from five major manufacturers: 1) Travenol, 2) Desseret, 3) Abbott, 4) Curity, 5) Portex.