An Unusual Complication Following Cannulation of an External Jugular Vein

To the Editor:—There have been several cases of internal jugular and subclavian venous thrombosis produced by cannulation of the central venous system.\textsuperscript{1,2} The present case report describes the occlusion of an external jugular vein after percutaneous cannulation and the subsequent surgical complication which resulted.

REPORT OF A CASE

A 76-year-old woman with a history of heavy snuff usage was admitted to the hospital for evaluation of dysphagia. Her past history was significant in that she had had a tumor of the tongue which required a hemiglossectomy and right radical neck dissection during which a portion of the right internal and external jugular veins were surgically removed. One year prior to the current hospitalization, the patient had a second oral tumor removed from the left alveolar ridge. Diagnostic procedures on this admission confirmed the presence of a carcinoma of the floor of the mouth and a total laryngopharyngectomy with a free jejunal graft for replacement of the cervical esophagus was planned.

Preoperatively, the left external jugular vein was cannulated percutaneously and a 16-gauge catheter (Arrow Central Vein Catheterization Kit #AK-04200) was advanced into the central venous system. The patency of the catheter was maintained with intermittent boluses of normal saline containing 2 units/ml heparin. An appropriate pressure waveform was transduced from the central venous catheter after an awake oral intubation, anesthesia was induced with 200 \textmu g fentanyl and 125 mg sodium thiopental injected through a peripheral intravenous catheter. Anesthesia was maintained with enflurane, nitrous oxide, and oxygen. After the total laryngectomy and pharyngectomy had been performed, a short segment of jejunum was taken to replace the resected cervical esophagus. The artery from the jejunal graft was to be anastomosed to a thyroidal artery while the vein would be connected to the left external jugular vein with an end-to-side anastomosis. When the surgeon realized that the left external jugular vein had been cannulated, the catheter was removed and external pressure applied to the skin. This occurred approximately 4.5 hours after the insertion of the central venous line. The surgical procedure then continued and the appropriate arterial and venous anastomoses were made. The jejunal graft appeared viable at the end of the procedure and the patient recovered from the anesthesia without incident.

Twelve hours later, the jejunal graft was noted to be engorged and cyanotic and the patient was returned to the operating room for re-exploration of the neck. The jejunal graft was non-viable although there appeared to be no occlusion of the arterial supply. Further examination revealed that the external jugular vein was thrombosed distal to the anastomosis with the jejunal vessels and that this was responsible for the failure of the graft. A new section of jejunum was removed from the abdomen and was used to replace the non-viable graft. The arterial anastomosis was made to the same thyroid artery as was used previously, but the venous anastomosis was made to the left internal jugular vein. This jejunal graft remained viable and the patient recovered from the second procedure uneventfully.

Monitoring of the central venous pressure was indicated in this major surgical procedure. Because of the previous right radical neck dissection, the right internal and external jugular veins were unavailable for access. Thrombosis of central veins are a recognized complication of percutaneous cannulation.\textsuperscript{1,2} In the present case, thrombosis of the external jugular vein resulted in the failure of the first free jejunal graft. Two surgeons were involved in this procedure. The first performed the laryngopharyngectomy while the second was responsible for procuring and inserting the free jejunal graft. The choice of the external jugular vein for monitoring the central venous pressure was discussed preoperatively with the first surgeon but not the second. If it had been known that the surgical procedure utilized the one remaining external jugular vein, a different site would have been selected for a central venous catheter.

Although the incidence of venous occlusion is small when catheters are introduced into large veins with high flow such as the internal jugular or subclavian veins, it might be expected that thrombosis of external jugular veins may be more common because of their smaller size and lower flow rates. This case demonstrates the need for a complete understanding of the proposed surgery prior to the institution of intraoperative monitoring catheters and demonstrates a surgical complication which may have resulted from the placement of a central venous catheter in the external jugular vein.

ARNOLD J. BERRY, M.D.
Assistant Professor of Anesthesiology
GHALEB A. GHANI, M.D.
Assistant Professor of Anesthesiology
Emory University Clinic
1364 Clifton Road, NE
Atlanta, Georgia 30322
Difficult Pediatric Intubation—An Indication for the Fiberoptic Bronchoscope

To the Editor:—Borland and associates have applied retrograde tracheal intubation in a 30-month-old child suffering from ankylosis of left temporomandibular joint, deviation of the jaw to the left with maximum oral opening of 9–10 mm and a history of intermittent airway obstruction with sleep. This technique was chosen after several failed attempts at awake blind nasotracheal intubation and it was done under general anesthesia. This case is an excellent example of a difficult airway in which intubation could have been accomplished with ease, within a short time, and without the dangers of airway obstruction under general anesthesia by use of a fiberoptic bronchoscope. Borland et al. noted in their discussion that fiberscopes are not suitable for tracheal tubes of less than 5 mm; however, pediatric fiberscopes of 3.2 mm are on the market and their use in pediatric patients has been reported.2,3

Two other techniques also have been described for small children and neonates in whom the fiberscope will not pass through the tube. Stiles4 has suggested introduction of a small cardiac catheter guide wire through the fiberscope suction channel into the trachea while the fiberscope tip is kept above the vocal cords. The fiberscope is removed and a cardiac catheter passed over the guide wire into the trachea. The tracheal tube is then fed over the catheter. This technique can be applied transnasally using small sized bronoscopes with suction channels, such as Olympus BF-3C4.5 Allfrey et al.5 introduced a fiberoptic bronchoscope through one nostril and a tracheal tube through the other. Under direct vision they were able to maneuver the tube into the trachea.

We fully agree with the statement that competence and familiarity of the anesthesiologist with the use of the fiberscope is important for management of a difficult airway. Although fiberoptic bronoscopes have been in use for 15 years and their value in difficult tracheal intubation has been stressed repeatedly, many anesthesiologists appear not to have used this instrument. Analysis of 170 questionnaires completed during our Scientific

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<th>Table 1. Number of Fiberoptic Intubations Performed</th>
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<tr>
<td>None</td>
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<td>1–5</td>
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<td>6–10</td>
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<tr>
<td>11–25</td>
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<td>Not answered</td>
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Exhibit* shows that a high percentage of respondents have never used the fiberscope or have very limited experience with it (table 1). It was on the basis of similar observations that we developed a teaching program6 for the use of the fiberscope for nasotracheal intubation and now give all our trainees the opportunity to learn the technique.

We believe that in patients such as the one presented awake fiberoptic nasotracheal intubation is the technique of choice. We also believe that every anesthesiologist should learn to use the fiberscope proficiently for management of difficult intubations. This will not be achieved unless the value of this instrument is appreciated more widely and efforts are made to teach routine use of it.

ANDRANIK OVASSAPIAN, M.D.
Associate Professor of Clinical Anesthesia
Northwestern University School of Medicine;
Chief, Anesthesia Service
V. A. Lakeside Medical Center

MICHAEL H. M. DYKES, M.D., M. ED.
Professor of Clinical Anesthesia and
Associate Chairman
Northwestern University School of Medicine

*OVASSAPIAN A, YELICH SJ, DYKES MHM, KREJCIC TC, LINDE HW: Fiberoptic intubation—A technique for popularization. Scientific Exhibit presented at the ASA annual meeting, 1980, St. Louis; the 34th NY Postgraduate Assembly in Anesthesiology, New York City; and the IARS annual meeting 1981, Atlanta.