Venous pressure catheter was noted in the right atrium and superior vena cava on a routine postoperative chest x-ray film.

A Dormia ureteral stone dislodger with the straight filiform tip was inserted into the superior vena cava through a cutdown in the right antecubital fossa. Using but 15 minutes of fluoroscopic time, this fragment was snared on end and totally extracted. The patient tolerated the procedure well and was discharged eight days later.

**DISCUSSION**

The author believes that one should attempt to snare embolized central venous pressure catheters at their proximal end, as in the second and third extraction maneuvers in case 1 (Fig 2). Total entrapment of this end, which is usually quite sharp (Fig 1), prevents possible laceration of delicate structures upon withdrawal. A large loop (Fig 2B) may be difficult to extract. However, one should not let a catheter loose after having captured it, if the catheter is grasped in or about the middle, forming a small loop which can be easily extracted. Here, both ends are trailing on removal, protecting the vessel walls.

The hazards of abandoning intracardiac foreign bodies to their own fate include arrhythmias, infection, perforation, myocardial damage, aneurysms, thromboembolism, and death.1,2,3 Because thoracotomy carries an increased risk of morbidity and mortality, and also with this an extended basis for medicolegal damages, one must strive to remove the foreign body quickly, easily, and safely. I believe that the delicate, straight filiform tip added here to the Dormia ureteral stone dislodger adds to the speed and ease of insertion of this catheter through a venous cutdown and possibly through a sheath introduced percutaneously. The delicate filiform tip has typical cardiac-catheter memory and can be performed to overcome obstructions encountered during passage of the catheter. Preforming the tip of the catheter without a filiform tip may damage the helical basket, which is enclosed during introduction. This delicate filiform tip also overcomes the objections raised by Bloomfield and Block: there is less risk of perforation of the heart and blood vessels. This modification, therefore, adds to the safety of the apparatus. Thus, the Dormia helical-basket design has established itself as a reliable and useful intracardiac snare, and the addition of a delicate filiform tip makes it even more useful.

**ACKNOWLEDGMENT**

I wish to thank Drs. H. J. C. Swan, William Ganz, and Harold S. Marcus for their criticism and review of this paper.

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**Clinical Experience Using a Small-Gauge Needle for Arterial Puncture**

*Stanley Sabin, M.D., F.C.C.P.,** James R. Taylor,† and Alfred I. Kaplan, M.D., F.C.C.P.*

The present study was undertaken to ascertain the feasibility of using a 25-gauge needle for arterial punctures. A total of 11,500 arterial punctures were performed over the past four years by this technique without any major complication. Repeated arterial punctures were well tolerated by all patients, and the necessity for indwelling arterial catheters was almost totally eliminated during this period of study.

During the past decade, the measurement of arterial pH, oxygen tension (PaO₂), carbon dioxide tension (PaCO₂), and bicarbonate levels has become routine in the proper management of patients with various cardiopulmonary disorders. During the past three years, we have utilized a technique that is simple, safe, and almost completely painless. Even in patients with respiratory failure who previously had required arterial cannulation, this procedure has negated the use of indwelling arterial catheters. Most institutions without house officers can easily train their respiratory technicians or therapists in this procedure.1-3

**METHODS**

A small arterial kit is used for the collection of arterial blood. The kit consists of a 5-ml glass syringe, a 1-ml vial of heparin (1,000 units/ml), a 25-gauge ¾-inch needle, an

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alcohol wipe, a 4 × 4-in sterile gauze pad, and a metal cap. Heparin is aspirated into the glass syringe to moisten the internal surface of the syringe and fill the small needle. Either the radial artery or brachial artery is chosen for the site of arterial puncture.

For brachial arterial puncture, the arm is fully extended with a towel placed under the elbow. The brachial artery is palpated, and the artery is penetrated at a 45° to 60° angle with a smooth but firm entry (Fig 1). No local anesthesia is necessary. Because of the small size of the needle, the syringe barrel will not be forced back by the pressure in the artery. However, entry into the artery is almost always noted by the evidence of blood in the needle and the tip of the syringe (Fig 2). With firm but gentle aspiration, 2 ml of blood is withdrawn into the barrel of the syringe. In the event that any air bubbles have entered the syringe, these are immediately evacuated; and the syringe is capped, placed in ice, and immediately brought to the blood gas laboratory. Because of the small size of the needle, the syringe barrel will not be forced back by the pressure in the artery.

For radial arterial puncture, especially during the withdrawal of blood and to avoid air bubbles entering the syringe barrel. Entry into the artery is noted by the presence of blood in the needle and bottom of the syringe. No local anesthetic is needed, as often is recommended over the more common use of larger-bore needles (20-gauge to 22-gauge) because of much less pain and the uncertainty of arterial damage with frequent insertions of the larger-bore needles.

FIGURE 1. After palpation, brachial artery is penetrated at an angle of approximately 45° to 60°.

FIGURE 2. Entry into artery is identified by small amount of blood in needle of syringe.
The venous samples in this study were most often identified by the lack of appearance of blood in the needle and bottom of the syringe without aspiration. This fact is carefully noted. On a few occasions the results were clinically questionable, that is, the PaO₂ being so low or the PaCO₂ increased to a level so unexpected that a repeat study was immediately obtained and the correct results substituted.

Indwelling arterial catheters are important in certain circumstances, as, for example, during the very frequent blood gas measurements needed with lung lavage or in some patients with hypotension and a poorly palpable pulse. However, the routine use of indwelling arterial catheters is not advocated, although a recent study of 70 patients with battle casualties from Vietnam who had long-term arterial catheterization showed good results. The need for close monitoring of the “arterial line” to avoid blood loss, in keeping the arm immobile so as to prevent the catheter from becoming dislodged, and the at least theoretic complications of ruptured or clotted arteries, large hematomas, and embolization are but some of the reasons that we feel repeated arterial punctures with the small-bore needle are advantageous.

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Anomalous Double Blood Supply to the Lung*

Philip J. Hofschire, M.D.; Edward P. Todd, M.D.; Richard L. Varco, M.D., F.C.C.P.; Edward L. Kaplan, M.D.; and Jesse E. Edwards, M.S., F.C.C.P.

We report an unusual case in which an apparently normal upper lobe of the right lung was supplied by major systemic arterial and pulmonary arterial vessels. The anomalous artery arose from the descending aorta. Following interruption of this vessel, the machinery-like murmur previously present disappeared.

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Table 1—Data from Right Cardiac Catheterization

<table>
<thead>
<tr>
<th>Site</th>
<th>Pressure, mm Hg</th>
<th>Oxygen Saturation, Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right lower lobe wedge</td>
<td>Mean, 10</td>
<td>...</td>
</tr>
<tr>
<td>Distal pulmonary artery</td>
<td>28/10 (Mean, 14)</td>
<td>77</td>
</tr>
<tr>
<td>Pulmonary trunk</td>
<td>28/10 (Mean, 14)</td>
<td>77</td>
</tr>
<tr>
<td>Right ventricle</td>
<td>32/0-4</td>
<td>76</td>
</tr>
<tr>
<td>Right atrium</td>
<td>Mean, 6</td>
<td>77</td>
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<tr>
<td>Superior vena cava</td>
<td>...</td>
<td>78</td>
</tr>
<tr>
<td>Ascending aorta</td>
<td>100/80 (Mean, 82)</td>
<td>93</td>
</tr>
</tbody>
</table>

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