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Use of a Coil Introducer to Shape Microcatheters

Robert Ernst and Thomas Tomsick

Summary: A coil introducer is used to form an angled tip on a microcatheter.

Index terms: Catheters and catheterization, instrumentation; Catheters and catheterization, technique

We present a simple and safe method to form a Tracker microcatheter tip shaped to a 40-degree angle with a distal length of 1 to 3 mm. This shape has been found useful for subselective intracranial catheterization of vessels whose origins arise at difficult angles.

Technique

A Tracker-18 catheter manufactured by Target Therapeutics is inserted in a retrograde fashion over a coil introducer designed for a Tracker microcatheter system. The catheter is advanced a variable distance of 1 to 3 mm distal to the angle of the handle of the coil introducer (Fig 1). If needed, secondary curves can easily be designed by shaping the coil introducer. The catheter tip is heated with a hair dryer or placed in steam for approximately 15 seconds and then rapidly transferred to cool water to fix the catheter shape.

Discussion

This method offers several advantages over the routine methods of shaping microcatheters (1,2):

The 0.018-inch coil introducer is designed to fit the Tracker-18 microcatheter. Because the introducer tip is ground smoothly, there is little risk of damaging the inner lining of the microcatheter, unlike using the firm end of a wire not specifically made to be introduced into the catheter.

The coil introducer has a 40-degree angle which is easily transferred to the microcatheter without significant risk of kinking or narrowing of the microcatheter lumen.

The distal catheter can be held 5 to 10 cm proximal to the tip secured by the coil introducer within it. The tip is then easily heated by a hair dryer or held in steam.

Secondary curves can be designed in the coil introducer proximal to the curved tip (Fig 2).

Summary

We have found that an angled tip with a 40-degree angle and a distal length of 1 to 3 mm

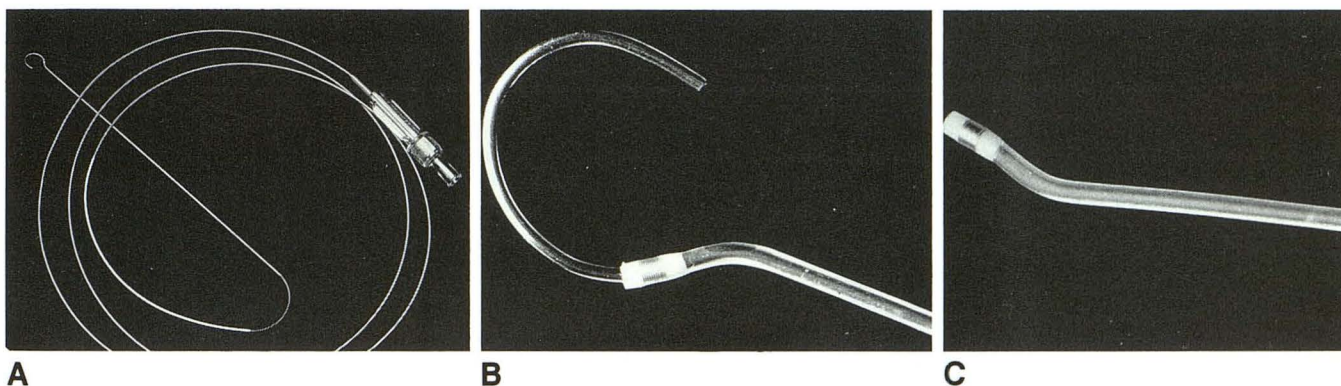
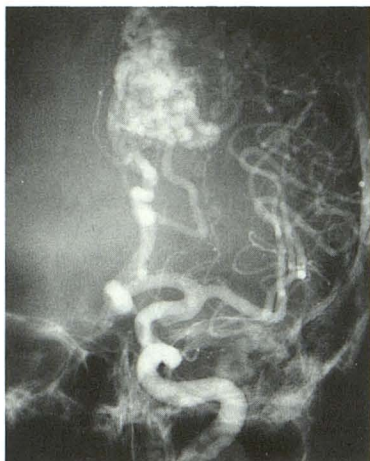


Fig. 1. A, Tracker catheter inserted over coil introducer. B, Magnified view of catheter tip. C, After fixing, a 40-degree-angle 2-mm distal catheter tip is produced.

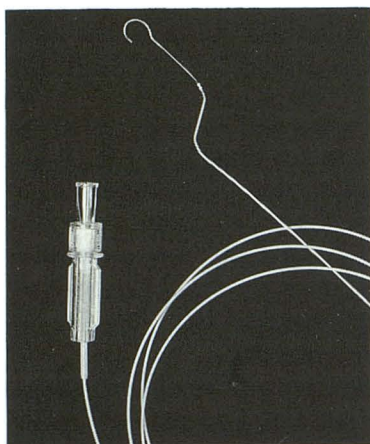
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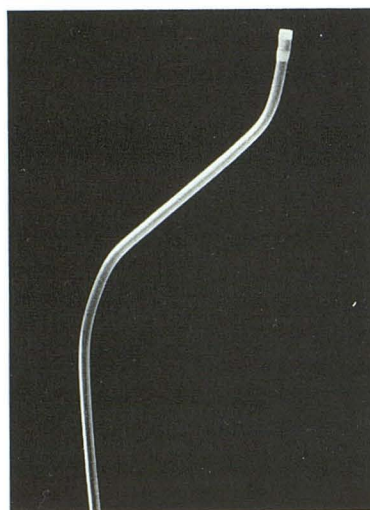
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A



B



C

can be useful in subselecting intracranial vessels whose origins are otherwise difficult to catheterize. In addition, curves can be introduced by shaping the coil introducer as needed. These shapes can be safely formed using a coil introducer inserted in a retrograde fashion and fixed in boiling water.

References

1. Wessbecher F, Hartling R, Nieves M, Eskridge M. Treatment of carotid cavernous fistulas: a new balloon delivery system. *AJNR Am J Neuroradiol* 1992;13:331-332
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Fig. 2. A, Left frontal arteriovenous malformation. Difficulty was encountered in attempting to select the A1 segment of the left anterior cerebral artery. B, Catheter shape introduced with the aid of a coil introducer. Catheter shape is similar to carotid terminus-A1 segment branch point. C, Secondary curve enabled successful catheterization of left anterior cerebral artery.