The Brockenbrough Transseptal Catheterization

An Unusual Complication

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The transseptal method of left heart catheterization described by Ross is widely used and is generally considered to be the method of choice for the hemodynamic assessment of mitral and aortic valve disease. A number of complications, unique to this method, have been reported, including perforation of the catheter by the transseptal needle, puncture of the aorta or pulmonary artery, entry into the pericardial sac, creation of an atrial septal defect, and left atrial thrombus formation. The authors are presenting a complication of the Brockenbrough modification of the transseptal technic not previously reported.

Mrs. J.F. was admitted to the Kingston General Hospital in September 1963 for assessment of mitral valve disease. A combined cardiac catheterization was carried out by the Brockenbrough technic. The first attempt at puncture of the interatrial septum was unsuccessful, but with repositioning the catheter was easily passed into the left atrium. The left ventricle was then entered by the Seldinger technic from the right femoral artery, and simultaneous pressures showed a diastolic pressure gradient of only 3 mm. Hg across the mitral valve. It was then noted that the tip was absent from the Brockenbrough needle (fig. 1) and by fluoroscopy it was visualized in the interatrial septum (fig. 2). There had been no untoward effects during the catheterization, but in view of this acci-

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Circulation, Volume XXX, November 1964 743
right lateral oblique view of chest showing needle tip in the interatrial septum.

dent, the procedure was terminated. X-rays taken the following day showed the needle fragment in the region of the interatrial septum (fig. 3). The patient developed no complications and chest x-rays taken 4 months later showed no change in position of the needle tip.

Comment

The most probable explanation for this mishap is that during the first attempt to enter the left atrium, the needle tip separated and lodged in the interatrial septum. The septal passage was then effected either by the catheter going through a patent foramen ovale or by perforation of the septum.8

There have been no sequelae from this complication but there could have been embolization or infection. Careful handling of the Brockenbrough needle is essential to prevent damage or angulation at the union between the shaft and tip. The stress placed on the junction at the time of septal puncture is increased by such angulation and may be followed by separation. This potential hazard would be eliminated if the needle was of unit construction.

Addendum

Since this article was submitted for publication Susmano and Carleton9 reported a similar complication where the tip of the needle became lodged in the liver.

References


Circulation, Volume XXX, November 1964
The Brockenbrough Transseptal Catheterization: An Unusual Complication
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Circulation. 1964;30:743-744
doi: 10.1161/01.CIR.30.5.743
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0009-7322. Online ISSN: 1524-4539

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located on the World Wide Web at:
http://circ.ahajournals.org/content/30/5/743.citation

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