Late Percutaneous Extraction of an Intracardiac Catheter Fragment

Ali OTO, M.D.,* S. Lale TOKGOZOGLU, M.D.,** A. ORAM, M.D.,* Giray KABAKCI, M.D.,*** Oguz CAYMAZ, M.D.,*** E. ORAM, M.D.,* *and* S. UGURLU, M.D.*

SUMMARY

A patient was found to have a mobile catheter fragment in the right atrium incidentally during echocardiography. On further investigation, it was learned that the catheter had been inserted 9 years earlier during surgery and had probably been broken during removal. The patient did not experience any symptoms during this period. The catheter was removed percutaneously without any complications using a system similar to the loopsnare catheter. (Jpn Heart J **34**: 117–119, 1993.)

Key Words:
Percutaneous extraction Catheter fragment

MANY patients receive intravascular catheters, and infrequently, complications due to their use are seen in clinical practice. Catheter breakage is one of the complications seen, and may be associated with serious consequences in 71% of these patients.[4]

Since the removal of the catheter usually requires major surgery, there have been attempts to remove intravascular catheters by alternative methods. The first case of nonsurgical removal of an intravascular catheter was described in 1984, and since then, several different techniques have emerged and have been utilized safely.[1),6)]

CASE REPORT

A 52-year-old man underwent subtotal gastrectomy, gastrojejunostomy and partial omentectomy for gastric lymphoma in 1982. He received chemotherapy and radiotherapy after the operation. An intravascular catheter was placed dur-

From the Department of Cardiology, Hacettepe University, Faculty of Medicine, Hacettepe, Ankara.
* Professor of Cardiology.
** Associate Professor of Cardiology.
*** Cardiology Resident.
Mailing address: S. Lale Tokgozoglu, M.D., Guven sok. No. 9, Kavaklidere, Ankara 06100, Turkey.
Received for publication January 20, 1992.
Accepted August 17, 1992.

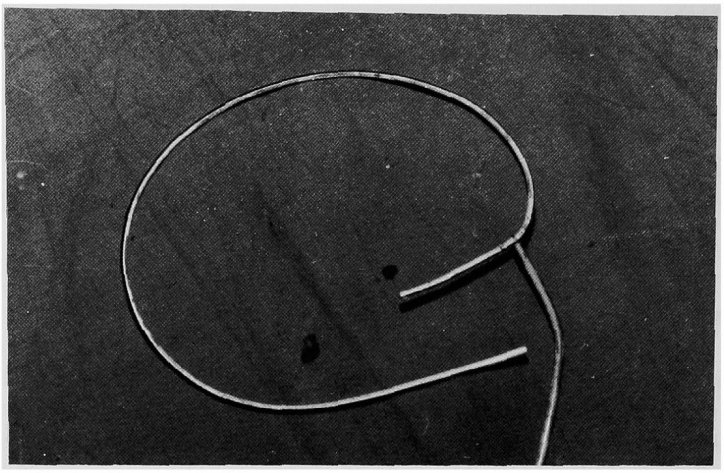

Fig. 1. Photograph of the broken catheter after being removed percutaneously. It can be seen attached to the wire loop following removal from the heart.

ing these procedures which was presumably later removed.

In 1991, he started having abdominal pain and was being reevaluated in our hospital when, during echocardiography, a mobile catheter in the right atrium and protruding from the tricuspid valve was noted. Fluoroscopy done at the time confirmed the echocardiographic findings, showing a long catheter with both free ends dangling at the inferior vena cava. The middle portion of the catheter was forming a loop in the right atrium, moving to and fro out of the tricuspid valve.

On further questioning the patient denied symptoms of pulmonary embolism and a ventilation perfusion scan was negative.

Because of the poor general condition of the patient it was decided to attempt to remove the catheter percutaneously. A 16.5F femoral sheet for balloon valvuloplasty with a 7F Judkins coronary artery catheter was introduced through the right femoral vein percutaneously. Inside the catheter, a 0.25 inch guide wire was doubled over and a loop formed. This fashioned device was advanced until the foreign body was reached. The loop was tightened once the foreign body was inside it. With this approach one of the ends of the catheter was caught. Following this, the whole catheter was pulled out via the femoral vein without any force or difficulty. The foreign body turned out to be a 36 cm cutdown catheter (Fig. 1). There were no thrombi around the catheter and the procedure was terminated without any complications.

Discussion

Failure to remove broken catheters from the vascular system has been

associated with serious complications such as pulmonary embolism, sepsis, arrhythmia, and perforation of a cardiac chamber.[3] Most of these complications occur within a year.[8] Later complications have not been extensively reported and the feasibility of late removal has not been published.

Since the alternative to percutaneous removal is extensive surgery, various techniques have been devised for removal of catheters percutaneously, including the use of loopsnare catheters, forceps catheters, and ureteral stone baskets.[2),5),9),10]

Here, we created a device very similar to the loopsnare catheter. The advantage of this system is that it is made up of equipment readily available in every catheterization laboratory. Sophisticated catheters specially designed to remove intracardiac foreign bodies may not be uniformly and readily available in all catheterization laboratories. Using this system we were able to remove the catheter fragment successfully.

It is interesting that the patient experienced no symptoms from the catheter for 9 years and that we were able to retrieve the catheter without difficulty, since it had not formed any adhesions. Percutaneous removal of an intracardiac catheter fragment 2 years after its loss in the cardiac chambers has been reported.[7] However, to our knowledge, percutaneous removal without complications of an intracardiac catheter fragment as late as 9 years after its implantation has not been described previously in the literature.

This report confirms the belief that surgery should only be contemplated when percutaneous techniques have failed.

REFERENCES

1. Cho SR, Tisnado J, Beachley MC, Vines FS, Alford WL: Percutaneous unknotting of intravascular catheters and retrieval of catheter fragments. Am J Radiol **141**: 397, 1983
2. Curry JL: Recovery of detached intravascular catheter or guide wire fragments. Am J Radiol **105**: 894, 1996
3. Dotter CT, Rosch J, Bilbao M: Transluminal extraction of catheter and guide fragments from the heart and great vessels: 29 collected cases. Am J Radiol **111**: 467, 1971
4. Fisher RG, Ferreyro R: Evaluation of current trechniques for nonsurgical removal of intravascular iatrogenic foreign bodies. Am J Radiol **130**: 541, 1977
5. Kumar PK, Yans J, Kwatra M, Loesch DM, Viturawong V: Removal of a knotted flow-directed catheter by a nonsurgical method. Ann Int Med **92**: 635, 1980
6. Randell PA: Percutaneous removal of an iatrogenic intracardiac foreign body. Radiology **102**: 591, 1972
7. Reidy JF, Deverall PB, Sowton E: Successful late nonsurgical removal of intracardiac fragment. Br Heart J **48**: 407, 1982
8. Richardson JD, Grover FL, Trinkle JK: Intravenous catheter emboli: Experience with 20 cases and collective review. Am J Surg **128**: 722, 1974
9. Rossi P: "Hook catheter" technique for transfemoral removal of a foreign body from the right side of the heart. Am J Radiol **109**: 101, 1970
10. Stein HL: Successful nonsurgical removal of a knotted preshaped coronary artery catheter. Radiology **109**: 469, 1973