

Case Report

Retrieval of a Ruptured PTMC Balloon

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Keywords

- Percutaneous transluminal mitral commissurotomy
- Mitral stenosis
- New York heart association

Summary

Rupture of a PTMC (Percutaneous Transluminal Mitral Commissurotomy) balloon during the procedure with complications like embolism have been described in literature. Most of these complications used to occur with reused and sterilized balloons and there were no difficulty in taking out these balloons. Here we describe a case of severe mitral stenosis because of rheumatic heart disease that underwent PTMC with reused sterilized PTMC balloon (Syn Company, CE mark). The PTMC procedure was successful with single inflation of balloon. However, while the PTMC balloon was being withdrawn, firstly the coiled guide wire and then the inner metal tube perforated the PTMC balloon. This whole assembly was now unable to be taken out of the right groin because the distal tip of the balloon folded on itself. In an attempt to straighten the distal tip, a tug was provided by catching the distal tip of PTMC balloon with the help of a snare inserted from the left femoral vein. With this technique, whole of the PTMC balloon assembly with snare came out of the right groin without injuring the right femoral vein. .

LEARNING OBJECTIVE

- Perforation of PTMC balloon with coiled guide wire and inner metal tube can occur (particularly with reused sterilized balloons).
- If the balloon cannot be brought out of the groin, the use of snare to straighten the balloon can be helpful in retrieval.

INTRODUCTION

PTMC for rheumatic mitral stenosis is a time tested well described modality of intervention. There are certain well known acute complications associated with the procedure like balloon rupture, cardiac tamponade, mitral regurgitation and stroke. Problem of balloon rupture usually occur with reused sterilized balloons. PTMC balloon ruptures have been described with Inoue [1] and Accura [2] balloons. Usually a ruptured PTMC balloon presents no difficulty in retrieval [3]. Here in this case when the ruptured PTMC balloon was not coming out of the right groin, we used snare for its retrieval.

CASE REPORT

A 35 years old male presented to us with NYHA class III dyspnoea on exertion for the past 6 months. There was also history of paroxysmal nocturnal dyspnoea. There was past history of rheumatic fever in adolescence. His examination revealed blood pressure of 92/60 mm of Hg, pulse rate of 90 beats /mints regular. First heart sound was loud and there was a palpable P2. There was a mid diastolic murmur at apex with pre systolic accentuation. A2-OS interval was narrow. Echocardiography revealed severe rheumatic mitral stenosis (0.7 cm² mitral valve

area by planimetry with 20 mm Hg mean gradient across mitral valve) suitable for PTMC.

PTMC procedure was done through right femoral vein approach using Sym PTMC balloon (CE mark). After successful completion of a PTMC procedure, when the PTMC balloon was being withdrawn; firstly the coiled guide wire perforated the balloon (both inner and outer layers) and then the inner tube perforated the balloon (both inner and outer layers) in an attempt to slenderize the balloon (Figure 1). The distal portion of coiled

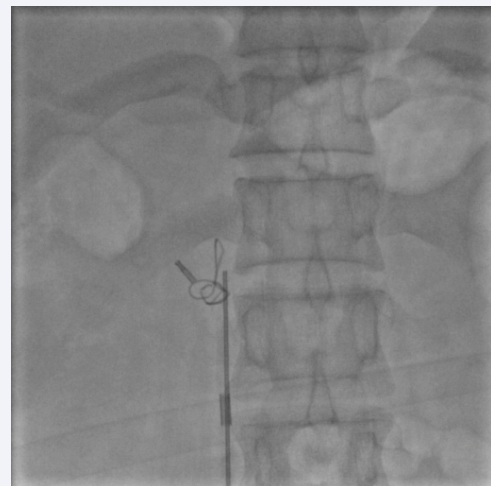


Figure 1 Fluoroscopic image showing PTMC balloon ruptured by distal tip of coiled guide wire and inner metal tube.

guide wire was stucked in the PTMC balloon after perforating it and it cannot be moved either back or forth because it was now connected to the rest of the coiled guide wire with only a few springs elongated inside the inner metal tube of the PTMC balloon with distal end of the round wire moving freely. When the whole assembly of PTMC balloon was tried to bring down through the right femoral vein, the distal most portion of the balloon was not coming out because it folded on itself. Then the whole assembly was again taken up to the inferior vena cava below the right atrium. Then a snare was inserted from the left femoral vein in the view of catching the tip of the balloon to make it straight with the tug of the snare from the left side (Figure 2). Then the straighten balloon along with the snare were taken out of the right femoral vein (Figure 3a, Online video 1). After detaching the snare from the balloon tip, snare was taken out of the left femoral vein (Online video 2). The broken elongated spring wire is shown in the (Figure 3b).

DISCUSSION

Reused and sterilized PTMC balloons always have some inherent risk of rupture. But because of the cost constraints in the developing countries, reuse of these balloons after sterilization is very common. In most of the cases, the ruptured balloons are taken out safely and completing the procedure with another balloon. This is the first time we are reporting a reused and

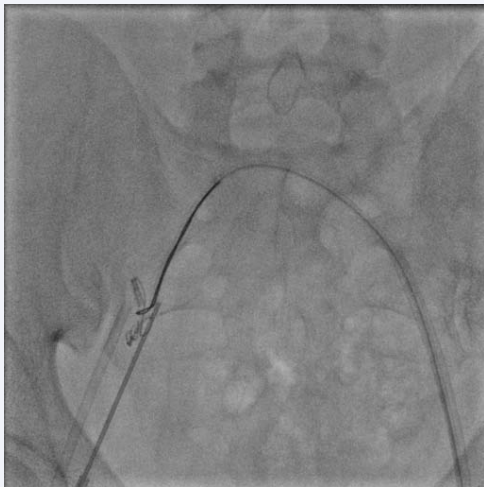


Figure 2 Snare from the left femoral vein catching the tip of balloon in an attempt to straighten the balloon while it is being taken down through the right femoral vein.



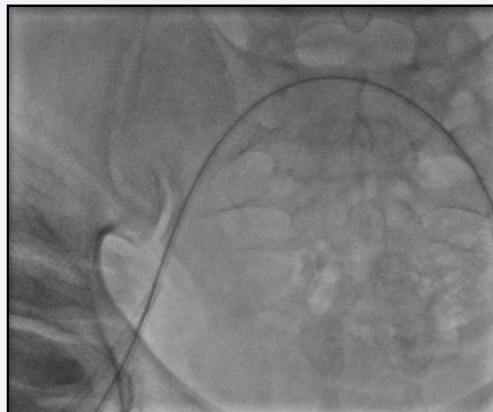
Figure 3a Perforated PTMC balloon out of the body.



Figure 3b Broken coiled guide wire.



Video 1 Snared PTMC balloon being taken out through right femoral vein.



Video 2 Snare being taken out through left femoral vein.

sterilized balloon getting ruptured by the round guide wire and inner metal tube after successful completion of the procedure. Inability to take out this balloon through the right groin because of folding of distal tip of balloon and associated risk of tearing of femoral vein lead to the use of snare from the contra lateral femoral vein to hold the tip of the balloon with snare to provide a tug to straighten the distal tip of the balloon, so that it can be taken out of the right femoral vein. This is the novel technique first time described in the literature with successful result.

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