

## Post-catheterization giant pseudoaneurysm of the femoral artery: an delayed clinical presentation

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### ABSTRACT

Post-catheterization pseudoaneurysm is most common vascular complications of cardiac and peripheral angiographic procedures. We report a 67-year-old female patient with giant (25 cmx25 cm) femoral artery pseudoaneurysm which gradually enlarged without rupture developed after catheterization in the periods of three years. She electively underwent to operation. Pseudoaneurysm pouch was evacuated and the bleeding focus from possible catheterization site was primarily repaired with polypropylene suture. Intraoperative or postoperative course was uncomplicated. The patient was discharged on postoperative day 5. The interesting aspect of the presented case is that despite a wide pseudoaneurysm, it remains unruptured for several years.

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**Keywords:** Post-catheterization pseudoaneurysm, femoral artery, vascular complication, angiographic procedure, surgery

### Introduction

Incidence of femoral artery pseudoaneurysm depending on catheterization is less than 0.5% in some cases; on the other hand it is shown more than 5% in other cases. Using of larger-sized cannulas, multiple attempts and long procedures are main reasons for development of femoral pseudoaneurysm [1].

Arterial thrombosis, arterial embolism, hemorrhagia and pseudoaneurysm can be seen as complications of interventional catheterization. Furthermore pseudoaneurysm can cause pain, tenderness and local skin ischemias depending on pressure [2]. Rupture is the most severe complication of pseudoaneurysm. Risk of rupture increases in big

hematomas, larger than 3 cm pseudoaneurysms and permanently growing pouches [3].

In this case, we would like to present a giant femoral artery pseudoaneurysm which gradually enlarged without rupture developed after catheterization in the periods of three years.

### Case Presentation

A 67-year-old women underwent a diagnostic coronary angiography from right femoral artery about 3 years ago and was discharged in healthy condition.

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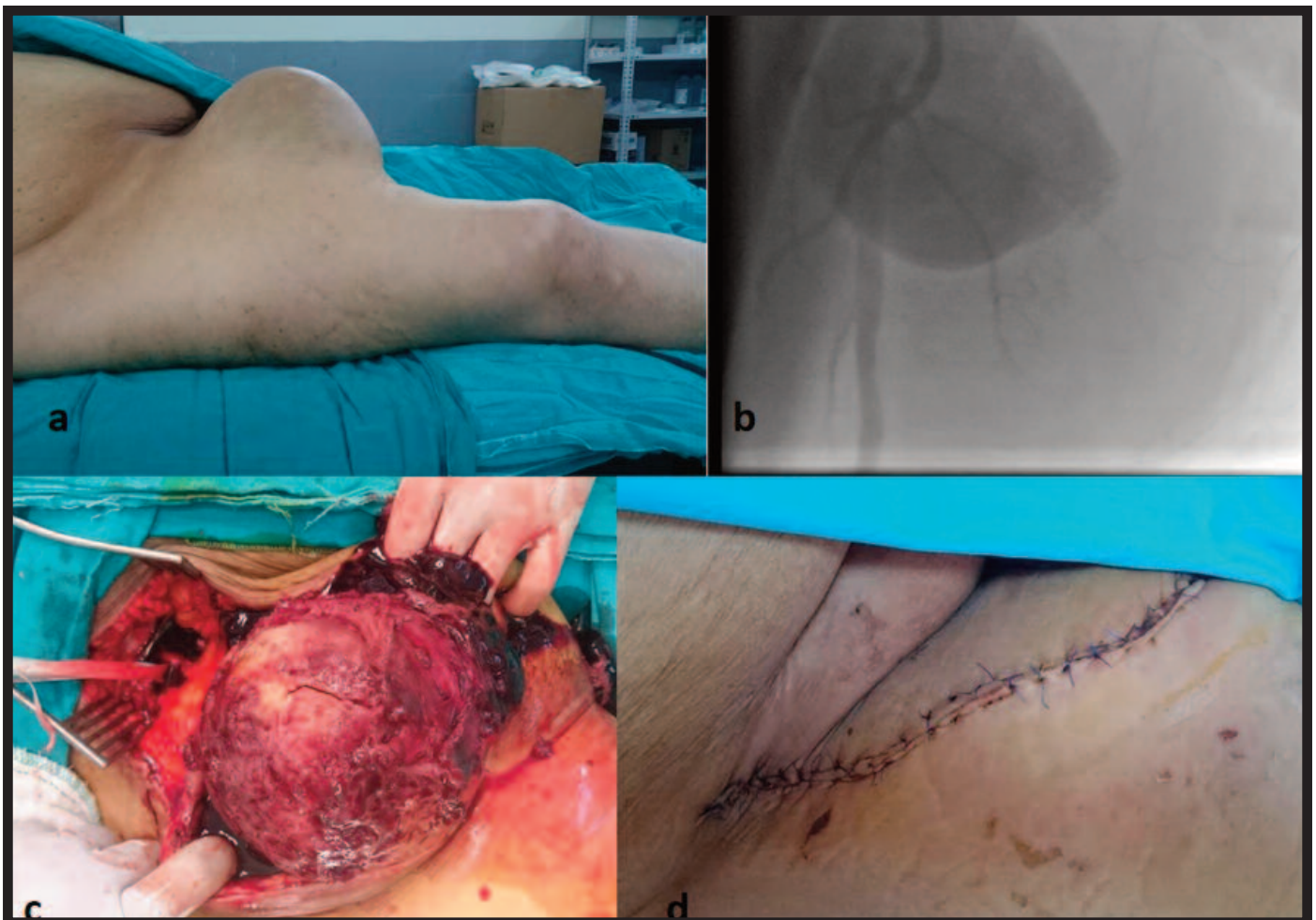
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But after a short time of discharge, a pulsatile groin mass have occurred in the procedure area and grew day by day. A surgical procedure was offered for her hematoma but the patient didn't accept operation. After the 3 years from catheterization, the patient admitted to our clinic because of severe pain and difficulty on walking. Her vital signs were close to normal on our physical examination. There was a big pulsatile mass (25x25 cm) on her right inguinal area (Figure 1a). There were no neurological symptoms on her related extremity. Furthermore, angiographic and echocardiographic examination showed that she had atherosclerotic coronary artery disease and mild mitral regurgitation. Duplex ultrasonography and conventional peripheral angiography confirmed the diagnosis (Figure 1b). The patient was operated on elective condition (Figures 1c and d). After general anesthesia, an ilioinguinal groin incision was made, the right iliac artery, common, deep, and superficial femoral arteries were explored in the retroperitoneal and femoral regions, encircled with elastic loops and controlled. Heparinization was performed by

maintaining the activated clotting time of over 200 seconds in the case when it is necessary to clamp the artery in order to repair the arterial defect. Pseudoaneurysm pouch was accessed through a place close to the possible intervention site, and the bleeding focus was detected. Intervention site on the artery was primarily repaired with 6/0 polypropylene suture. After bleeding control and a small Hemovac drain was placed, tissues were closed in layers and the procedure was ended. No intra operative or postoperative complication was observed. The patient was discharged on postoperative day 5 in healthy condition.

## Discussion

Most common symptoms of post-catheterization pseudoaneurysm are inguinal pain, tenderness and protuberance. Rupture is the most severe complication of post-catheterization pseudoaneurysm. Furthermore, neuropathy, venous thrombosis, local skin ischemia,



**Figure 1.** Preoperative picture of the femoral pseudoaneurysm in the right groin of the patient (a), angiographic imaging (b), intraoperative appearance of the lesion (c), and completed surgery (d)

infection and rarely critical extremity ischemia depending on pressure of post-catheterization pseudoaneurysm are other complications. Post-catheterization pseudoaneurysm can be detected incidentally on radiologic examinations and can stay asymptomatic [4].

Post-catheterization pseudoaneurysms usually develop 5-6 days after catheterization with symptoms of severe pain, pulsatile hematoma and new thrill on intervention site. But there are a few cases in the literature which is shown that post-catheterization pseudoaneurysms can develop after 12 days from intervention [5].

Angiography is the gold standard method in peripheral vascular diseases. In addition to angiography, Duplex Doppler ultrasonography has high sensitivity and specificity for diagnosis [6]. There are some cases on literature which is urgently operated with Duplex Doppler ultrasonography without performing an angiography [7].

There are a lot of studies in literature that shows surgical treatment is more effective in big aneurysms [8]. In presented case, a diagnostic angiography had been performed to the patient from right femoral artery 3 years ago. A small hematoma after intervention progressed a giant post-catheterization pseudoaneurysm after years and became a life threatening lesion. Because of patient's surgery fear; the patient lived a long time nearly 3 years with a post-catheterization pseudoaneurysm. Patient applied our clinic because of severe leg pain and discomfort in walking. It was not appropriate to use minimal invasive methods because the size of post-catheterization pseudoaneurysm.

We were able to find a case report series of a delayed stage post-catheterization pseudoaneurysm which is diagnosed and treated after 60 days in our literature scan. And the diameter of post-catheterization pseudoaneurysm average size was 4.4 cm in this case series [9]. We found that there were 2 cases that which are termed as giant and the diameters were 55x30 mm and 45x30x50 mm, respectively in literature [10, 11].

In our case, pseudoaneurysm developed after cardiac catheterization. But because of patient's surgical fear, pseudoaneurysm became giant as 25x25 cm within three years. The interesting parts of our case were there were no severe complications even though the post-catheterization pseudoaneurysm was really big and post-catheterization pseudoaneurysm was treated surgically after 3 years.

## Conclusion

Post-catheterization pseudoaneurysm is one of the most common vascular complications of cardiac and peripheral angiographic procedures. In these patients, early diagnosis and treatment prevents the development of many complications. Surgical aneurysmectomy and primary repair is a suitable approach as an effective treatment for giant sized and delayed post-catheterization pseudoaneurysms.

### *Informed consent*

Written informed consent was obtained from the patient for the publication of this case report.

### *Conflict of interest*

The authors declared that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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