A Case of Conservative Treatment of Postsurgical Aortic False Aneurysm

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Highlights

A 51-year-old male underwent replacement of the ascending aorta for acute type A dissection. The post-operative course was uncomplicated, and he was discharged home. Approximately a month later, control CT revealed an enlarging pseudoaneurysm of the proximal anastomosis. The patient was re-operated, and a Bentall operation with mechanical prosthesis was performed. Again, surgery was uncomplicated, but follow-up CT scan revealed a recurrent small pseudoaneurysm of the proximal suture line. He was managed with close observation, and control CT at four months showed complete resolution. Conservative treatment of small postsurgical pseudoaneurysms is discussed.

Keywords: acute aortic dissection; diagnostic techniques; surgical treatment


A false aneurysm or pseudoaneurysm develops whenever blood leaks from a large vessel and becomes walled off by the surrounding tissues. This rarely occurs after cardiac surgery, but when it does, re-operation is usually unavoidable. A case of recurrent pseudoaneurysm, successfully treated with conservative strategy, prompted this report.

A 51-year-old healthy male underwent ascending aorta and hemi-arch replacement for acute type A dissection. The postoperative course was uneventful, and he was discharged on postoperative day 9 (POD 9).

Follow-up CT revealed a large pseudoaneurysm of the proximal anastomosis (Figure 1). Owing to the frailty of the remaining bulbar tissues and the associated moderate aortic insufficiency, it was elected to perform a Bentall operation with mechanical prosthesis. The patient was discharged on POD 7.

Follow-up CT scan one month later showed recurrent small (17 x 15 mm) pseudoaneurysm from the proximal anastomosis (made with continuous technique reinforced with over-and-

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One hand, spontaneous closure in the presence of standard second operation posed an almost unsolvable dilemma. On recurrence of a smaller anastomotic pseudoaneurysm after the pseudoaneurysm was rapidly increasing in size. However, In our case, surgery was done urgently the first time, as the infections, sepsis, and cerebrovascular accidents. Such as excessive bleeding or tamponade, postoperative pseudoaneurysms of the ascending aorta are uncommon complications of cardiac surgery, occurring in fewer than 5% of all cardiac operations [1-4]. They can be located at any surgical site, and can result from infections, intrinsic aortic wall disease, poor anastomotic technique, and tissue necrosis due to excessive use of gelatin–resorcin–formol glue. In this case, while the first pseudoaneurysm was probably secondary to one of the factors above mentioned, the second was likely due to a small leak between sutures at the site of the conduit implant. The presence of a false aneurysm, independent of its size, has always been considered an indication for surgical repair. Indeed, the evolution of these lesions is unpredictable, as they can rupture or progress to compression of contiguous structures (e.g., superior vena cava, pulmonary artery) with fistulization and creation of intravascular shunt. They can become infected and lead to systemic sepsis. Therefore, re-operative surgery should always be considered, even in asymptomatic patients.

The mortality rate reported in the literature ranges from 7% to 17% 1-4 and, even in large series, morbidity remains high. Approximately 30% to 40% [3] of patients develop complications, such as excessive bleeding or tamponade, postoperative infections, sepsis, and cerebrovascular accidents. In our case, surgery was done urgently the first time, as the pseudoaneurysm was rapidly increasing in size. However, recurrence of a smaller anastomotic pseudoaneurysm after the second operation posed an almost unsolvable dilemma. On one hand, spontaneous closure in the presence of standard anticoagulation for the mechanical prosthesis seemed unlikely. On the other hand, a third re-operation with complete dismantling and re-implantation of the valved conduit, required by the peculiar location of the leak, represented a considerable operative risk and technical challenge.

Since the leak was small and the patient asymptomatic, a conservative approach was taken, leaving the surgical option as a second choice. As a result, despite anticoagulation, the leak closed over the course of four months.

A similar case of spontaneous resolution of multiple pseudoaneurysms after aortic valve and ascending aorta replacement for type A dissection is reported in the literature [5]. As in our patient, the pseudoaneurysms were small; however, anticoagulation was not required since a bioprosthesis had been implanted. Furthermore, other asymptomatic cases managed by close observation have been reported by Malvindi et al.[6]: three due to patient’s choice not to undergo further surgery, and one because of advanced age and high operative risk. All were alive at mean follow-up of 22 months, with modest enlargement (8 to 17 mm) of the pseudoaneurysms.

In summary, surgery remains the main indication for post-operative pseudoaneurysm, with the exception of few, select patients with small, asymptomatic lesions for whom an attempt at conservative treatment can be made, even in the presence of full anticoagulation.

Declarations of Interest
The authors declare no conflicts of interest.

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Figure 2. Thoracic CT Scan images (transverse sections) before (A) and after (B) the spontaneous closure of the pseudoaneurysm (arrows). 3D Volume Rendering CT scan reconstructions before (C) and after (D) the spontaneous closure of the pseudoaneurysm (arrows). Surgical pledgets (arrowheads).