



A Case of Conservative Treatment of Postsurgical Aortic False Aneurysm

Fabrizio Follis¹, Giuseppe M Raffa¹, Giuseppe Montalbano¹, Giuseppe Mamone², Marco Follis³

1. Cardiac Surgery and Heart Transplantation Unit, Department for the Treatment and Study of Cardiothoracic Diseases and Cardiothoracic Transplantation.
2. Department of Diagnostic and Therapeutic Services, IRCCS-ISMETT (Mediterranean Institute for Advanced and Specialized Therapies), 90127, Palermo, Italy
3. Department of Thoracic and Cardiovascular Surgery, Klinikum Braunschweig, Germany

Corresponding author:

Giuseppe Raffa,
IRCCS – ISMETT (Mediterranean Institute for Transplantation and Advanced Specialized Therapies)
Via Tricomi 5
90127 Palermo, Italy
E-mail: giuseppe.raffa78@gmail.com

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

Citation: Follis F, Raffa GM, Montalbano G, Mamone G, Follis M. A Case of Conservative Treatment of Postsurgical Aortic False Aneurysm. International Cardiovascular Forum Journal 2016;9:46-47 DOI: 10.17987/icfj.v9i0.347

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-



Figure 1. Thoracic CT Scan shows a large pseudoaneurysm (arrow) of the proximal anastomosis. Surgical pledgets (arrowheads)

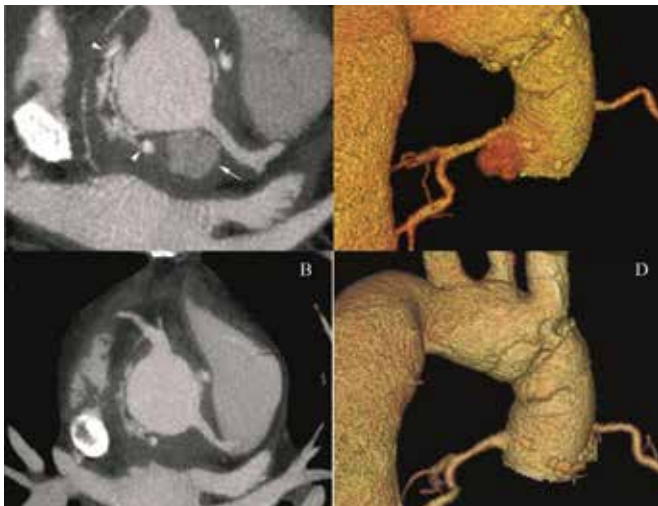


Figure 2. Thoracic CT Scan images (transverse sections) before (A) and after (B) the spontaneous closure of the pseudoaneurysm (arrows). 3D Volume Rendering CT scan reconstructions before (C) and after (D) the spontaneous closure of the pseudoaneurysm (arrows). Surgical pledgets (arrowheads).

over suture) just next to the left coronary button: while the axial sections could not differentiate between the conduit suture and the left coronary button implant, 3D reconstructions clearly identified the site of the leak in the former. The patient was treated conservatively, and CT scan at 4 months showed complete resolution. (Figure 2A-D).

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 been always 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.

Acknowledgements

The authors state that they abide by the "Requirements for Ethical Publishing in Biomedical Journals" [7].

References

- Atik FA, Navia JL, Svensson LG, et al. Surgical treatment of pseudoaneurysm of the thoracic aorta. *J Thorac Cardiovasc Surg* 2006;132:379-385. DOI: 10.1016/j.jtcvs.2006.03.052
- Settepani F, Muretti M, Barbone A, et al. Reoperation for aortic false aneurysm: our experience and strategy for safe re-sternotomy. *J Card Surg* 2008; 23:216-220. DOI: 10.1111/j.1540-8191.2008.00597.x
- Malvindi PG, van Putte BP, Heijmen RH, Schepens MA, Morshuis WJ. Reoperations for Aortic False Aneurysms After Cardiac Surgery *Ann Thorac Surg* 2010;90:1437-43. DOI: 10.1016/j.athoracsur.2010.06.103
- Raffa GM, Malvindi PG, Ornaghi D, et al. Postsurgical aortic false aneurysm: pathogenesis, clinical presentation and surgical strategy. *J Cardiovasc Med (Hagerstown)* 2013;14:593-6. DOI: 10.2459/JCM.0b013e32835369f2
- Agrifoglio M, Pontone G, Andreini D, Biglioli P, Cheema FH, Barili F. Conservative management of the pseudoaneurysms of ascending aortic graft: a case of spontaneous regression at follow-up. *J Cardiovasc Med (Hagerstown)* 2011;12:586. DOI: 10.2459/JCM.0b013e3283474e71
- Malvindi PG, Cappai A, Raffa GM, et al. Analysis of Postsurgical Aortic False Aneurysm in 27 Patients. *Tex Heart Inst J* 2013;40:274-80.
- Shewan LG, Coats AJS, Henein M. Requirements for ethical publishing in biomedical journals. *International Cardiovascular Forum Journal* 2015;2:2 DOI: 10.17987/icfj.v2i1.4