

Dacron Graft Axillary Infection after Aortic Dissection Surgery

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Abstract

Peripheral cannulation is required to have an adequate perfusion in patients undergoing cardiac surgery due to an aortic dissection. Many surgeons use the axillary artery to perfuse the patient using a tube graft sutured to the axillary artery. The purpose of this technique is to have more control of the surgical field. We described the case of a patient who developed a decubitus of the axillary Dacron graft six month after surgery.

Keywords: Peripheral cannulation; Axillary artery; Computed tomography

Introduction

An eighty years old male patient with no medical history of interest was referred to the Emergency department due to severe chest pain. After a normal EKG and no response to intravenous nitroglycerine a computed tomography scan was performed showing an aortic dissection starting in the aortic root and reaching both iliac arteries. An echocardiogram confirmed the aortic dissection with no significant aortic regurgitation and with a normal left ventricle ejection fraction. Patient was in good hemodynamic conditions, with controlled arterial pressure and in 85 beats per minute sinus rhythm. Perfusion of labetalol to keep a low arterial pressure and was initiated along with 3 mg of morphine to control pain.

Emergency surgery was scheduled. For artery cannulation an 8 mm diameter Dacron tube graft was sutured to the right axillary artery. When exploring the aorta no entry tear was found either in the ascending aorta or the arch. A supracoronary ascending aorta and hemiarch replacement was performed using a 30 mm diameter Dacron tube graft. After weaning from bypass we cut the Dacron graft close to the axillary artery and closed it with a 5/0 monoflament running suture. Surgery was uneventful and patient was extubated 14 hours after surgery and discharged from the Intensive Care Unit two days later. Patient was discharged from hospital ten days after the procedure with no complications. Six months after surgery patient came back to the Emergency department due swelling, redness and decubitus of the Dacron graft which was protruding from the axillary wound (Figure 1). Patients had no fever and no systemic infections signs. Antibiotic treatment with clavulanic-amoxiclin was initiated and patient was scheduled for local debridement and cleaning of the wound. Under local anaesthesia and moderate sedation wound was cleaned and debrided. We found that the remaining of the Dacron graft was left too long in the previous surgery. Therefore, we removed most of the remaining tube Dacron graft but due to the high adhesion of tissue and the high risk of bleeding we decided not to de-attach the graft from the axillary artery.

Microbiological culture was positive to methicillin sensitive Staphylococcus Aureus in both wound exudation and Dacron graft.

Antibiotics were completed for 3 weeks. Patient went well with no further complications and he is free from any event regarding both the axillary wound and the aortic dissection surgery so far.



Figure 1: Axillary wound

Discussion

Aortic dissection is one of the most dreaded emergencies in cardiac surgery. Once the diagnosis is made it is crucial to control arterial hypertension, have a good control of the heart rate and reduce the pain. A maximum effort should be considered to obtain a good ventricular-vascular coupling. Different drugs are used for this purpose and some others are being investigated [1,2]. Particularly challenging is to achieve an adequate perfusion in a dissecting aorta. Different perfusion strategies have been proposed specially to avoid brain damage [3]. One of the most used perfusion technique in the aortic dissection surgery is to use the axillary artery to perfuse the patient. The aortic cannula can be placed directly trough the axillary artery or connected to a tube graft previously sutured to the axillary artery. This second option gives more control of the surgical field to surgeons. After weaning from bypass, the aortic cannula is removed and the tube graft is closed using a running suture or a ligature. In our patient, whose completion was quite thin, a decubitus of the Dacron

graft appeared six months after surgery. Although there was not sign of systemic infection immediate antibiotic treatment was initiated and debridement surgery was planned. The traditional management of infected prosthetic arterial grafts includes total graft excision, oversewing or ligation of the involved arteries, debridement of infected tissue, and revascularization when necessary to achieve limb salvage [4]. There is universal agreement that the optimal strategy to ensure that recurrent or persistent infection does not occur is total excision of all infected prosthetic material. There is also general agreement that the safest method of managing the involved artery in an infected field after graft excision is ligation or oversewing of the artery proximal and distal to the previous anastomosis. Leaving oversewn prosthetic patch remnants to treat infected prosthetic arterial grafts is a controversial strategy for several reasons. Patients with infected arterial grafts are often elderly and have multiple medical problems. A quicker, less morbid procedure is advantageous.

A second advantage of leaving an oversewn prosthetic patch remnant is that the difficult and time consuming dissection of the underlying artery in densely scarred wounds can usually be avoided. Placing a new patch usually requires complete dissection of the artery with proximal and distal control, although balloon control may, in some cases, obviate the need for such dissection or full arterial mobilization in these infected wounds [5,6]. These manoeuvres can be associated with nerve, venous, or arterial injury and can result in permanent neuropathy or major arterial or venous bleeding. In our patient, a graft decubitus was present with local infection signs but with no systemic infections data. In an eighty years old patient with a previous aortic dissection surgery we tried a non invasive procedure. We thought that trying to remove the whole graft from the axillary artery would have been a very challenging surgery. The axillary artery can be anatomically quite deep behind the axillary vein and the clavicle. That is the reason why most of surgeons prefer to suture a tube graft to the axillary artery to make the perfusion in aortic dissection surgery instead of doing direct axillary artery cannulation. A lack of control in this area can lead into serious bleeding problems. We decided then to remove most of the remaining Dacron graft without de-attaching the suture from the artery. We completed the treatment with a three week antibiotic period. Other authors have previously reported success with a controversial strategy to treat focal infections of prosthetic arterial grafts, complete graft preservation [7,8]. There is an agreement that this treatment should only be considered when the patient is not septic because of the graft infection, the anastomosis is

intact, only a small segment of the graft is infected, and the graft is patent.

As far as we know this is the first reported case of a graft decubitus after an aortic dissection. The remaining graft left after surgery was too long in a thin patient leading to a decubitus six months after surgery. A conservative local surgery and a three weeks antibiotics treatment solved the problem. A positive culture for *Staphylococcus Aureus* was obtained and confirmed the diagnosis of graft infection.

Conclusion

In conclusion, in our patient, a local infection of a prosthesis graft for axillary cannulation after aortic dissection surgery could be solved with a non aggressive local surgery and a three weeks period time of antibiotics. We recommend this management particularly in old patients with no systemic signs of infections.

References

1. Scicchitano P, Carbonara S, Ricci G, Mandurino C, Locorotondo M, et al. (2012) HCN channels and heart rate. *Molecules* 17: 4225-4235.
2. Saba PS, Cameli M, Casalnuovo G, Ciccone MM, Ganau A, et al. (2014) Ventricular-vascular coupling in hypertension: methodological considerations and clinical implications. *J Cardiovasc Med (Hagerstown)* 15: 773-787.
3. Clough RE, Nienaber CA (2015) Management of acute aortic syndrome. *Nat Rev Cardiol* 12: 103-114.
4. Calligaro KD, Veith FJ, Valladares JA, McKay J, Schindler N, et al. (2000) Prosthetic patch remnants to treat infected arterial grafts. *J Vasc Surg* 31: 245-252.
5. Geary K, Tomkiewicz ZM, Harrison HN, Fiore WM, Geary JE, et al. (1990) Differential effects of a gram-negative and a gram-positive infection on autogenous and prosthetic grafts. *J Vasc Surg* 11: 339-345.
6. Veith FJ, Sanchez LA, Ohki T (1998) Technique for obtaining proximal intraluminal control when arteries are inaccessible or unclampable because of disease or calcification. *J Vasc Surg* 27: 582-586.
7. Calligaro KD, Veith FJ, Schwartz ML, Goldsmith J, Savarese RP, et al. (1994) Selective preservation of infected prosthetic arterial grafts: analysis of a 20-year experience with 120 extracavitary-infected grafts. *Ann Surg* 220: 461-471.
8. Cherry KJ Jr, Roland CF, Pairolero PC, Hallett JW Jr, Meland NB, et al. (1992) Infected femorodistal bypass: is graft removal mandatory? *J Vasc Surg* 15: 295-303.