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## CASE REPORT

# MYCOTIC ANEURYSM OF SAPHENOUS VEIN GRAFT 14 YEARS AFTER CORONARY ARTERY BYPASS GRAFT – A CASE REPORT AND OUR EXPERIENCE

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### ABSTRACT

Mycotic aneurysms of saphenous vein grafts in coronary artery bypass grafts remain a rare entity with the bulk of global literature being case reports and small series. There is high morbidity and mortality associated with this condition in the peri-operative period. We present our experience with the surgical management of a mycotic aneurysm of a saphenous vein graft 14 years after the original operation.

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## INTRODUCTION

Mycotic aneurysms of saphenous vein grafts in coronary artery bypass grafts remain a rare entity with the bulk of global literature being case reports and small series. We present our experience with the surgical management of a mycotic aneurysm of a saphenous vein graft 14 years after the original operation.

## CASE REPORT

A 63 year old man presented to our institution with a large painful mass in the right groin and pain around the right knee joint. His past history was significant for ischaemic heart disease for which a CABG was performed in 2004. After an initial workup including routine bloodwork, ultrasonography of the right groin and aspirate from the right knee, a pseudoaneurysm of the right femoral artery was diagnosed and a repair of the femoral artery was performed along with concomitant washout of the knee. The offending organism was a methicillin sensitive staphylococcus aureus (MSSA) at both sites. A workup for infective endocarditis was also performed due to disseminated nature of the infection and the high risk organism. A transoesophageal echocardiogram revealed trace mitral regurgitation but did not diagnose any vegetations. However, a coronary angiogram picked up the presence of a large aneurysm in the 'skip' segment of the saphenous vein graft in between the PDA and PLV. A cardiothoracic surgeon was not consulted at this stage.

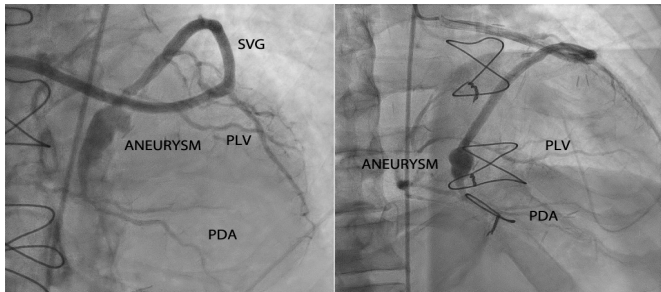
The patient was discharged home with IV flucloxacilin for further outpatient follow up. Unfortunately, the patient returned to the hospital with symptoms of unstable angina – and was found to have a large inferior STEMI which developed into heart failure and severe mitral regurgitation. The cardiothoracic team were consulted at this stage and a decision was made for an urgent repair of the aneurysmal segment.

A redo sternotomy was performed and the heart put on cardiopulmonary bypass. The mycotic aneurysm was identified and drained of a large amount of purulent material. The two ends of the graft were tied off. A new saphenous vein graft was anastomosed to the PDA from the aorta. Due to troublesome coagulopathy, the chest was packed and the patient returned to the ICU. Once haemodynamics and the coagulopathy stabilised, he was taken back to theatre for closure of the sternotomy in the standard fashion. The patient had an uneventful course in hospital after this was discharged home to complete his course of antibiotics. At routine post operative follow up at six weeks, our patient's heart function had recovered from an ejection fraction of 30% to 50%.

## DISCUSSION

An aneurysm is defined as a pathological focal dilation of a blood vessel. The term mycotic aneurysm was introduced by Osler in the late 1800s for an infected aneurysm as the appearance was likened to a fungal vegetation (Osler, 1885). It is important to note that the term is now loosely utilised for all

infectious aneurysms irrespective of microbiology. While the etiology of a mycotic aneurysm is varied, it can broadly be divided into direct inoculation, embolization and contiguous extension (Müller *et al.*, 2001). The offending organisms are usually gram positive species (commonly *Staphylococcus* sp) followed by *Salmonella* sp. amongst gram negatives (Brossier *et al.*, 2010). Global literature contains various case reports and small series highlighting the rarity of aortocoronary saphenous vein mycotic aneurysms (Ramirez *et al.*, 2012).



**Figure 1. Coronary angiogram demonstrating SVG aneurysm**

The most common diagnostic modalities described in literature include coronary angiograms, trans-oesophageal echocardiograms and CT scans. Diagnostic tests must include an assessment of the patency of the affected conduit along with other indications for cardiac surgery (Ramirez *et al.*, 2012; Memon *et al.*, 2003). Our standard workup for a redo cardiac surgery includes a coronary angiogram including graft studies, trans-thoracic echocardiogram and a CT chest. Surgical revascularisation is the mainstay of management with excision of the affected segment and complete removal of the abscess cavity followed by coronary artery bypass grafting. Percutaneous options also exist including coil embolization, Amplatzer device occlusion or stent placement especially in high risk patients (Ramirez *et al.*, 2012; Memon *et al.*, 2003; Sareyyupoglu *et al.*, 2009). Our approach consists of a 'no-touch' technique -i.e. not manipulating the aneurysm until the heart is on bypass and arrested. This is to prevent troublesome bleeding and offer myocardial protection, both which are key issues to address if the graft is tied off without establishing cardiopulmonary bypass with arrest.

Mortality, irrespective of methodology chosen remains high, with 13.9% quoted for surgical management, 6.1% for percutaneous options and 23.8% for conservative management by Ramirez *et al.* We are pleased to report that our patient is still alive at the time of writing this report.

In conclusion, we recommend the following:

1. Prompt surgical consultation and revascularisation is preferred over conservative management.
2. Diagnostic tests should include a coronary angiogram, CT scan of the chest and echocardiogram.
3. In high risk patients amenable to percutaneous intervention, there may be a mortality benefit over surgical revascularisation.

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