

# Saphenous Vein Graft Pseudoaneurysm: A Case for Medical Management

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## ABSTRACT

Saphenous vein bypass pseudoaneurysm is rare but fatal complication after coronary bypass surgery. Pseudoaneurysm is managed either with a surgical or percutaneous approach. This patient underwent quadruple coronary artery bypass grafting 10 years earlier and was referred for recurrence of angina. Coronary and graft angiography revealed a pseudoaneurysm in the saphenous vein graft supplying the intermediate coronary artery. After discussion with the cardiothoracic surgeons, the patient was managed conservatively. He was continued on Aspirin, beta-blockers, statins, nitrates and angiotensin converting enzyme inhibitors. He was followed-up regularly in outpatient clinic with a planned repeat coronary and graft angiography. The patient's symptoms remain stable and repeat angiography 24 months later did not show any significant deterioration of the graft pseudoaneurysm. He remains stable at 12 months after the repeated angiography.

**Key Words:** Saphenous vein grafts. Pseudoaneurysm. Medical management. Coronary bypass graft. Complication. Angina.

## INTRODUCTION

Pseudoaneurysm and aneurysm of Saphenous Vein Graft (SVG) is a rare but known complication after Coronary Artery Bypass Grafting (CABG) surgery. Native coronary arteries aneurysms are in the range of 1% to 5% of patients undergoing coronary angiography.<sup>1</sup> Riahi first reported Coronary SVG dilatation in 1975.<sup>2</sup> Many cases have been reported thereafter, which were either treated with surgical or percutaneous interventions. We are reporting a case of saphenous bypass pseudoaneurysm that was managed conservatively without any surgical or percutaneous interventions.

## CASE REPORT

A 68 year-old man with a history of quadruple CABG ten years earlier presented with recurrent angina. His previous medical history included hypertension, rheumatoid arthritis, severe peripheral vascular disease and chronic atrial fibrillation. The bypass procedure included a pedicled Left Internal Mammary Artery (LIMA) graft to the Left Anterior Descending Artery (LAD) and saphenous vein grafts to the Right Coronary Artery (RCA), first diagonal (D1) and intermediate artery.

The patient underwent coronary and graft angiography. This revealed patent grafts including LIMA to LAD, SVG to D1 and RCA. SVG supplying the intermediate coronary artery revealed pseudoaneurysm, (Figure 1) without further extravasations into the surrounding

tissue. A consensus decision was made for a conservative approach after a multidisciplinary team discussion as patient was high risk for re-do CABG.

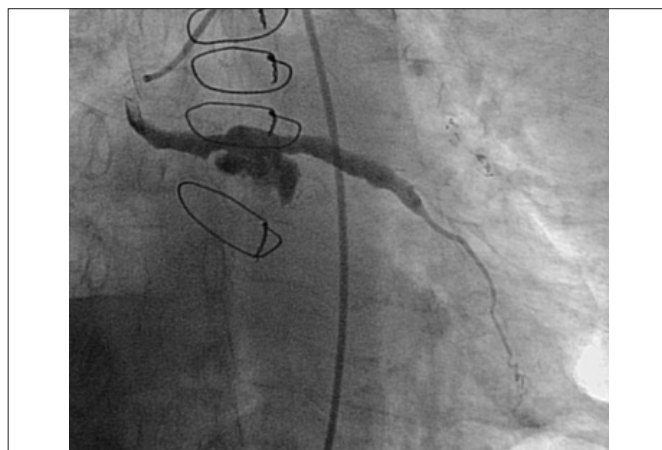


Figure 1: SVG supplying the intermediate coronary artery revealed pseudoaneurysm.



Figure 2: Repeat (2 years later). Graft study showed no leak of SVG pseudoaneurysm.

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Repeat coronary and graft angiography was performed 24 months after the initial procedure which revealed that the SVG pseudoaneurysm was essentially unchanged (Figure 2). The patient remained clinical stable at 12 months following the repeated angiography. He was continued on medical therapy including Aspirin, beta-blockers, statins, nitrates and angiotensin converting enzyme inhibitors.

## DISCUSSION

Pseudoaneurysm of SVG remains a very rare but recognized complication. True aneurysms (involving all three vessel wall layers) should be distinguished from pseudoaneurysms, which involve disruption of 1 or more layers of the vessel wall with a well-defined collection of blood. Currently there are no established guidelines for the management of saphenous vein graft aneurysms/pseudoaneurysms due to limited data consisting of case reports.

There are various known approaches to manage such cases including, endovascular repair with endografts, coil embolization, deployment of covered coronary stents, use of Amplatzer vascular plug, treatment of SVG stump with percutaneous thrombin injection and spontaneous regression has been reported.<sup>3-8</sup> The optimal timing of intervention is difficult to judge pre-empt; but has been considered in larger sizes pseudoaneurysms and associated symptoms. The type of therapy should be based on the fitness for surgery (co-morbidities), percutaneous options based on technical experts availability.

This case demonstrated that selected cases of saphenous vein bypass pseudoaneurysm and aneurysm can be managed medically (closed clinical follow-ups), without any clinical consequences. In this case, in view of the significant co-morbidities and the fact that the main grafts (i.e. LIMA and RCA) were patent, an interventional approach (percutaneous or re-do CABG) was considered risky and hazardous. In this case a conventional repair was not performed and only close observation was opted. In the medium term, and with

close monitoring, such management is not unreasonable. We postulate that the changes that potentiate pseudoaneurysm formation occur mostly in the period (i.e. weeks to months) after surgery. Thereafter, the rate of progression or expansion of the pseudoaneurysm is very slow and might not offer severe risks or consequences, unless there is evidence of any continuous leak. Such cases could, therefore, be considered suitable for conservative management (optimization of medications), but needs close clinical follow-ups.

Although intervention has been recommended as the first choice but in selected cases, in the short to medium term, a conservative management with close observation could be offered safely.

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