

**Title:** Arterio-venous fistula following a lumbar disc surgery  
**Author(s):** [Thanyani Mulaudzi](#) and [Mbokeleng Sikhosana](#)  
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Byline: Thanyani. Mulaudzi, Mbokeleng. Sikhosana

Vascular complications during posterior lumbar disc surgery are rare and its presentation with varicose veins is even rarer. A 23 year-old male patient presented with large varicose veins in right lower limb. He underwent a posterior lumbar spine discectomy surgery. He noticed mild swelling of the distal third right lower limb 3 months after index surgery and reported 6 months later when he developed varicose veins. Duplex Doppler confirmed varicose veins of the long saphenous vein and its tributaries with a patent deep venous system. A digital subtraction angiogram demonstrated a large right common iliac artery (CIA) false aneurysm with an arteriovenous fistula between right common iliac vessels. He had a right CIA covered stent insertion with good results. Varicose veins were later managed with sapheno-femoral junction ligation and a below knee long saphenous vein stripping. At six month follow-up the lower limb swelling had completely recovered and duplex ultrasound did not show any recurrence of varicose veins.

## Introduction

Vascular complications during posterior lumbar disc surgery are rare and its presentation with varicose veins is even rarer. This report describes a patient with an arterio-venous fistula (AVF) between the right common iliac artery (CIA) and vein following a posterior approach lumbar disc surgery. Patient presented with right lower limb varicose veins which to the best of our knowledge has not been reported before. The AVF was managed with an endovascular covered stent.

## Case Report

A 23 year-old male patient presented with large varicose veins in right lower limb. He underwent a posterior lumbar discectomy surgery 6 months ago for chronic lower back pain at another hospital. The preoperative imaging were not available for review. He gave a history of intraoperative blood loss needing post operative blood transfusion. There were no other immediate postoperative events and he was discharged from hospital with no further complications. He had noticed mild swelling of the distal third right lower limb 3 months after index surgery but reported later when he developed varicose veins.

On examination he had large varicose veins with a palpable thrill on the right groin. Popliteal, posterior tibial and dorsalis pedis pulses were palpable. He had bruit on the right inguinal and lower back area. Duplex Doppler confirmed varicose veins of the long saphenous vein and its tributaries with a patent deep venous system. A digital subtraction angiogram demonstrated a large right CIA false aneurysm with an AVF between right common iliac vessels. It also demonstrated a left-sided inferior vena cava crossing to the right at renal level [Figure 1]. An echocardiogram revealed an ejection fraction of 63% with no ventricular hypertrophy. {Figure 1}

Owing to extensive pelvic venous hypertension open repair was deemed too hazardous. Even though this was a young patient, and questionable durability of covered stent, endovascular intervention was thought to be the treatment of choice. He had a right CIA-covered stent insertion with good results [Figure 2]. Varicose veins were later managed with sapheno-femoral junction ligation and a below knee long saphenous vein stripping. At six months follow up the lower limb swelling had completely recovered and duplex ultrasound did not show any recurrence of varicose veins. {Figure 2}

Vascular complications during lumbar disc surgery are rare with a reported incidence of 0.016-0.17%. [sup][1], [2] Mortality rate from these injuries could be as high as 61%. [sup][1],[3] AVF as a complication of lumbar disc surgery has been reported before but these were managed with open surgical intervention. [sup][4] It is important for surgeons who operate in this area to familiarize themselves with anatomy of major abdominal vessels and their close relationship to the lumbar vertebrae. Vascular injuries might be due to inexperienced surgeons operating in this area or lack of knowledge of major vessels anatomy. Other causes of vascular injuries are surgeons who deviate from the surgical principles of lumbar disc surgery. This patient probably had direct trauma to both right CIA and vein. Of significance is for the vascular injuries to be identified early intraoperatively and managed accordingly. This can reduce the high mortality rate associated with these injuries.

[sup][4] Important signs that should not be ignored are hypotension and hemorrhage. [sup][4],[5] The anatomical awareness of vascular structures and a high index of suspicion for vascular injuries will reduce both the morbidity and mortality rate.

Long-term durability of covered stents is still unknown and follow up of this patient will assist in providing the answer.

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