

Arteriovenous Fistula Simulating Deep Vein Thrombosis as a Complication of Lumbar Disc Surgery

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Summary

Acquired arteriovenous fistula is an unusual complication of lumbar disc surgery. Diagnosis is often late because of the lack of awareness of this complication and also because it may simulate other vascular diseases. A case diagnosed initially as deep vein thrombosis of the leg is described.

Key words: Arteriovenous fistula, Lumbar disc surgery.

Introduction

Arteriovenous fistula between the right common iliac artery and the inferior vena cava following lumbar disc surgery was first reported by Linton and White in 1945¹. Since then, there has only been about 90 cases reported in the English literature. Our patient presented with leg swelling following surgery for lumbar disc prolapse and was diagnosed initially as having deep vein thrombosis. We discuss the mechanism whereby this complication develops and briefly review the literature. It is hoped that with this case report, we would create awareness of this unusual complication of lumbar disc surgery.

Case History

The patient, a 40 year old Indian woman, presented with swelling of the right leg for one year. She began to notice the painless swelling of the right leg a week following laminectomy and lumbar discectomy of the L5-S1 intervertebral disc. There was no fever present at that time. A diagnosis of deep vein thrombosis was made at another hospital and she was started on anticoagulation. A venogram was attempted but however was unsuccessful. Despite adequate anticoagulation the right leg swelling persisted and about eight months later she began to notice exertional dyspnoea with no haemoptysis or pleuritic chest pain. At this stage she was referred to the University Hospital, Kuala Lumpur for further management.

On examination, the blood pressure was 120/70 and pulse rate 90 per minute, regular. Her right leg was grossly enlarged, warm and oedematous when compared to the left (Figure 1). Small dilated superficial veins were present over the entire right leg and abdominal wall. A loud systolic bruit could

be heard over the entire abdomen as well. She was in right heart failure with cardiomegaly, an elevated jugular venous pressure and hepatomegaly. The lungs were clear and there was no evidence of pulmonary hypertension. A surgical scar was present over the lumbosacral spine and there was no neurological deficit. She was diagnosed as having a large intra-abdominal arteriovenous fistula and high output cardiac failure.

The chest X-ray confirmed cardiomegaly and a 2D echocardiogram showed a left ventricular ejection fraction of 66% and only slightly elevated pulmonary arterial pressures.

An abdominal aortogram was subsequently performed and this demonstrated a grossly dilated inferior vena cava and a smaller abdominal aorta, the probable site of the fistula being between the right common iliac artery and the inferior vena cava (Figure 2).

She was then referred for surgical correction of the fistula which was performed by ligation of the fistula. The intra-operative course was stormy, being complicated by massive bleeding, but she survived. Post-operatively, the heart failure and cardiomegaly resolved. Unfortunately she required an amputation of the right leg because of ischaemia about three weeks after ligation of the fistula.



Fig. 1: View of patient demonstrating grossly enlarged right leg. Dilated superficial veins are present over the entire right leg.

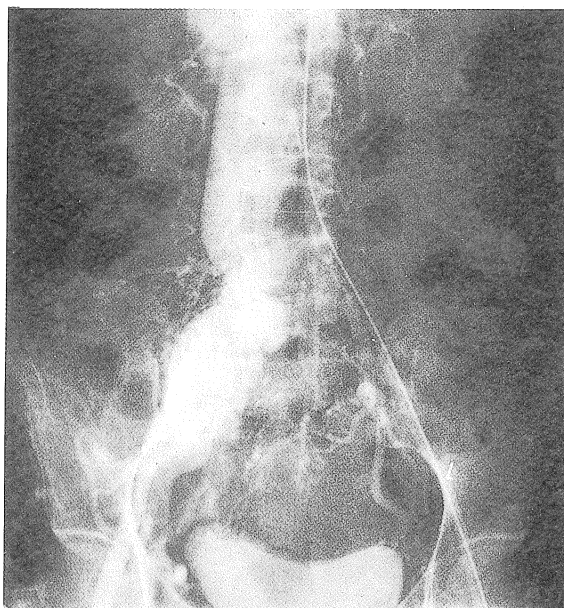


Fig. 2: Abdominal aortogram demonstrating a grossly dilated inferior vena cava and a smaller abdominal aorta. The fistula is probably between the right common iliac artery and the inferior vena cava.

Discussion

The close proximity of the great vessels in the abdomen to the vertebral column posteriorly predisposes the vessels to injury during intervertebral disc surgery. Arteriovenous fistula formation is most often associated with L4-5 intervertebral disc removal, and less frequently with L5-S1 disc removal². Due to the lack of external blood loss from the vascular compartment, the typical signs of shock are often absent and the diagnosis is thus overlooked at the outset. In fact more often than not, the diagnosis is not made until months or even up to five years after the initial injury². The majority of patients present with high output heart failure due to the large, proximal arteriovenous fistulas. Occasionally they may be misdiagnosed as deep venous thrombosis³. Earlier diagnosis may be made if there is a high index of suspicion, especially when there is unexplained haemodynamic alteration such as tachycardia or even mild cardiomegaly in the post-operative period following lumbar disc surgery. Certainly, as in this case, careful physical examination often reveals a tell-tale abdominal bruit due to the arteriovenous fistula. The recognition of this relatively uncommon complication of lumbar disc surgery is all the more important as it has a definite mortality (9-11%)². This condition is furthermore eminently correctable by surgery, and in experienced hands has a low post-operative mortality and morbidity.

References

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