True aneurysm of non-functional renal allograft artery

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Introduction

True aneurysm arising from renal allograft artery is extremely rare, with very few documented cases in English literature. We report a case of true aneurysm arising from renal allograft arterial patch presenting with acute abdominal pain due to sudden expansion.

Case report

A 30-year-old woman presented to the Emergency Department with a 2-day history of lower abdominal pain. Previously, in 1983, she had had a left iliac fossa cadaveric renal transplant, which had failed in 1986 from graft glomerulopathy, with possibility of recurrent membranous glomerulonephritis. Later, in 1988, she had right iliac fossa cadaveric renal transplant from a 50-year-old donor who had died of head injuries. When this graft failed in 1990 the patient was started on haemodialysis.

On examination she was afebrile, blood pressure 130/90. Abdominal examination revealed tenderness over right iliac fossa graft, no other signs of acute abdomen. Plain X-ray of the abdomen showed eggshell calcification over right sacroiliac joint. Ultrasound scan showed 4.5 x 5 cm aneurysm arising from right iliac vessels in the region of renal transplant, with calcified wall and thrombus within it. Colour Doppler study confirmed flow in the aneurysmal sac (Figure 1). Urgent CT scan with contrast enhancement was carried out, which confirmed the anatomical site of the aneurysm and delineated the proximal and distal vessels. (Figure 2).

Emergency laparotomy was performed and a large dumb-bell-shaped aneurysm arising from renal allograft arterial anastomosis was confirmed. No evidence of leak or rupture was noted. Right common iliac, internal iliac, and external iliac arteries were dissected, and control obtained. The aneurysm was excised along with renal allograft. The defect on the anterior wall of the iliac arteries at the bifurcation was repaired by PTFE patch. On looking inside the aneurysm the prolene sutures used for the anastomosis could be clearly seen, confirming that this was a true aneurysm of the donor vessels and the patch. The patient was discharged with no postoperative complications and is now well 6 months after surgery.

Discussion

Vascular complications following renal transplantation occur in about 3.5–14% of cases [1–5]. Incidence of aneurysm formation at the site of arterial anastomosis is approximately 0.95% [1]. They may be extrarenal or intrarenal. But true aneurysm arising from transplant renal arterial anastomosis has been described only once before [6].

Several aetiological factors are thought to be involved in the development of this complication. These include faulty suture technique, kinking of the renal artery, instrumental injury during perfusion, excessive dissection of vasovasorum, immunological mechanisms, hyperlipidaemia, and hypertension [6]. Clinical presentation of this potentially life-threatening condition is usually deterioration in the graft function and hypertension. Our patient had neither of these. Spontaneous haemorrhage has been reported following rupture in a pseudoaneurysm or mycotic aneurysms [1,7]. Rupture of transplant renal artery aneurysm during pregnancy has also been described in the literature [8]. This may be due to the effect of oestrogen on the arterial wall causing intimal hyperplasia and collagen deposition, leading to aneurysmal formation. The arteriogram is considered to be the gold standard investigation for the diagnosis of vascular complications following renal transplantation. But this invasive investigation is being slowly replaced by other non-invasive techniques like duplex scanning, CT scan, or radioisotope scintiscan.

In our case duplex scan was very helpful in identifying the condition, and the exact anatomical relations were confirmed by contrast-enhanced CT scan.

Patients having aneurysm of the transplant renal artery have a very high mortality rate (20–50%),
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Fig. 1. Doppler ultrasound scan showing the lesion and blood flow within it.

especially if it is mycotic, and in those who survive the incidence of graft loss is high [1,9,10] unless the condition is diagnosed early. The treatment of choice is surgical resection of aneurysm and reconstruction either in the form of repair or reanastomosis. If the identification and dissection is difficult saphenous vein interposition graft could be performed. The management of our case was simplified as the patient had non-functioning graft.

A small distal aneurysm can be occluded by percu-
taneous transluminal embolization. The incidence of asymptomatic renal-artery aneurysm in patients undergoing arteriogram varies between 0.09 and 0.3% [11]. Sometimes these kidneys may be transplanted without noticing the aneurysm, and this may represent considerable risk to both the patient and the graft.

Conclusion

Even though aneurysm formation at the site of allograft anastomosis is a rare complication patients presenting with pain at the graft site should always have immediate imaging so as not to miss this lifethreatening condition.

References


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