CASE REPORT

Repair of Ruptured Giant Renal Artery Aneurysm with Kidney Salvage

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Introduction

Renal artery aneurysms remain a relatively uncommon problem. The reported incidence has varied with the population described and ranges from 0.3% in patients undergoing angiography to 1% in patients being investigated for renal disease. Solitary giant renal artery aneurysms (at least 5 cm in diameter) are even more unusual with only eleven reported cases in the literature. To our knowledge there is only one previous published report describing treatment of a ruptured giant renal artery aneurysm and this resulted in nephrectomy. The following is a report of a male patient with a ruptured giant renal artery aneurysm and a congenital solitary kidney. Successful repair with renal salvage was achieved by aneurysm excision and primary arterial repair.

Case Report

A 75-year-old male presented with a sudden onset of left abdominal and flank discomfort and hypotension. He suffered from a long history of hypertension and an element of chronic renal failure which had been worsening over the last six months. He was known to have a congenital solitary left kidney. A subsequent CT scan revealed a contained rupture of a 6 cm solitary left renal artery aneurysm. The aneurysm appeared saccular with a calcified neck (Fig. 1) and was compressing the ureter resulting in significant hydronephrosis (Fig. 2).

At laparotomy a large left-sided haematoma was encountered extending to the midline. It was possible to explore the infrarenal aorta and to identify and clamp the origin of the left renal artery. The descending colon was reflected medially allowing visualisation of the anterior aspect of the left kidney, the collecting system, ureter, the renal vein and the large saccular aneurysm.

The aneurysm was located at the first branching of the main renal artery. With mobilisation of the renal vein and careful dissection of the hydronephrotic ureter the proximal renal artery and the common origin of three branches exiting the aneurysm were identified. The

Fig. 1. CT scan of ruptured left renal artery aneurysm with large perinephric haematoma. Aorta is small and non-aneurysmal and neck of the aneurysm appears calcified (arrow).

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secondary to compression of the renal artery, an under-
lying renal artery stenosis or segmental parenchymal
ischaemia due to microembolisation. Hydronephrosis
from compression, as with this case, may contribute
to renal dysfunction. Rupture outside of pregnancy is
rare with an incidence as low as 5%.4

Ruptured renal artery aneurysms are most often
treated with nephrectomy. In the elective situation
surgical intervention needs to be individualised for
each patient depending on the extent and anatomy of
the aneurysm. Endovascular techniques using stent
grafts or coil embolisation are now possible.4 Bypass
grafting, patch angioplasty and ex vivo reconstruction
have also been used in the elective situation.5

With this case all attempts were made to salvage
the patient’s solitary kidney. This was achieved with
excision of the neck of the saccular aneurysm and
primary repair of the main renal artery. If primary
repair had not been possible a short interposition
of saphenous vein would have been chosen as an
alternative. This case illustrates that kidney pre-
servation is possible with a ruptured renal artery
aneurysm and nephrectomy is not necessarily in-
evitable.

References

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Discussion

Solitary renal artery aneurysms can present with
a number of complications. Hypertension may occur

neck of the aneurysm was excised and from the inside
of the aneurysm the perforation could be visualised.
The renal artery was repaired primarily with a spat-
ulated end to end anastomosis. Following 45 min of
warm ischaemic time the patient began to produce
urine and haemodynamic parameters stabilised. Post-
operatively the patient’s renal function continued to
improve and he did not require haemodialysis.

Fig. 2. CT reveals large noncalcified ruptured left renal artery
aneurysm (large arrow) and hydronephrosis (small arrow) sec-
ondary to compression by the aneurysm.

Eur J Vasc Endovasc Surg Vol 22, September 2001