Successful Endovascular Repair of Ruptured Isolated Bilateral Internal Iliac Artery Aneurysms

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Introduction: Due to their anatomic location, internal iliac artery aneurysms are difficult to treat surgically. An endovascular approach can be helpful, even in ruptured cases.

Report: We report a 71-year-old male with ruptured isolated bilateral internal iliac artery aneurysms. The aneurysms were treated with embolisation of the branching arteries of the bilateral internal iliac arteries followed by placement of a stent graft covering the orifice of the bilateral internal iliac arteries. The patient tolerated this procedure well.

Discussion: Even in patients with ruptured aneurysms, endovascular treatment for internal iliac artery aneurysms can be a good treatment option.

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Isolated iliac artery aneurysms (IIAAs) in the absence of abdominal aortic aneurysms (AAAs) are rare and represent 2—7% of cases of aortoiliac aneurysms.1 Isolated internal iliac artery aneurysms (IIIAAs) are even more unusual. These aneurysms are frequently asymptomatic and are found either during imaging examinations for aortic aneurysms or other conditions or at the time of rupture.

Surgical treatment for IIAAs traditionally has been considered the gold-standard treatment.2 However, surgery is often technically challenging given the pelvic location of iliac aneurysms. Transluminal stent grafting has rapidly evolved as an alternative to open repair for the elective repair of IIIAAs, although this option has been fairly limited.3 This article describes the successful treatment of ruptured bilateral IIIAAs using an endovascular technique, representing another option for selected patients.

CASE REPORT

A 71-year-old male presented with sudden lower abdominal pain and was admitted to our hospital. On physical examination, abdominal tenderness was observed, primarily in the lower abdomen. The vital signs were stable. Contrast-enhanced computed tomography (CT) scanning showed an isolated right internal iliac artery aneurysm (IIAA) measuring 70 mm and an isolated left IIAA measuring 40 mm (Fig. 1A) with a massive haematoma mainly in the right side of the retroperitoneal space (Fig. 1B). In this case, we decided to attempt endovascular treatment. After administering general anaesthesia, arteriography showed the bilateral IIAs without contrast outside of the aneurysm, representing a contained rupture of the aneurysm. Then, the side branches of bilateral internal iliac artery (IIA) were selectively catheterised, and coil embolisations were performed, using seven coils for the right-side branches and five coils for the left side. The length of both sides of common iliac artery (CIA) was <2 cm; therefore, to cover the orifice of the IIA, endovascular aneurysm repair (EVAR) was performed using the standard technique extending the bilateral endograft limbs into the external iliac artery (EIA) at least 2 cm distally to the iliac bifurcations. Complete angiography showed a patent stent graft without endoleaks or enhancement of either IIAA (Fig. 2). The operation lasted up to 155 min and the intra-operative blood loss measured 1000 ml. The patient remained in the intensive care unit for 2 days without exhibiting any signs of abdominal compartment syndrome. The patient’s postoperative course was uneventful without colonic ischaemia and buttock claudication, and he was discharged from the hospital 8 days after surgery. A follow-up CT scan performed 3 months after the repair showed 5 mm of shrinkage of the aneurysm diameter of the right IIAA, 3 mm of shrinkage of the aneurysm diameter of the left IIAA and no evidence of any endoleaks. At 6 months post-procedure, the patient remained well.

DISCUSSION

For ruptured IIIAAs, endovascular stent grafting is promising. The aneurysm can be approached endoluminally by remote access through a femoral artery, thus avoiding the need for laparotomy. Furthermore, the advantages of endovascular treatment include fast haemostasis and limited blood loss during the procedure.

The endovascular treatment must consist of two parts: first, the branching vessels of the IIA must be embolised using coils, and, second, a covered stent must be placed in
the CIA and the EIA covering the ostium of the IIA. Bilateral IIAA embolisation carries risks of ischaemic complications such as buttock claudication and erectile dysfunction as well as colonic and spinal cord ischaemia. Many authors prefer bypass procedures to contralateral preserved IIA. However, Bratby et al. reported that severe ischaemic complications after bilateral IIAA embolisation are limited. In that study, spinal cord ischaemia occurred in 3% of patients who developed paraparesis, and no other severe ischaemic complications such as buttock necrosis or bowel ischaemia were observed. Therefore, in our ruptured bilateral IIAA case, we performed EVAR procedure with bilateral IIA embolisation.

In conclusion, IIAAs are rare and challenging complications associated with a high mortality rate if rupture occurs. Endovascular treatment is minimally invasive and effective and can be an alternative option to traditional open repair. It is important to be aware of the possibility of ischaemic complications such as buttock claudication, colonic and spinal cord ischaemia and abdominal compartment syndrome.

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REFERENCES