Online Case Report

Bilateral congenital absence of internal iliac arteries, prominent lumbar arteries, and a ruptured mycotic aneurysm of the abdominal aorta

ZIAD HARB, SAMANTHA WILLIAMS, PETER RUTTER

Department of General and Vascular Surgery, Wexham Park Hospital, Slough, UK

A 46-year-old man was admitted for surgery on a ruptured mycotic abdominal aortic aneurysm. Emergency repair was performed, during which certain anomalies were noted. First, the bifurcation of the aorta was posterior to the left common iliac vein. Second there were no internal iliac arteries. Also, there were prominent lumbar arteries compensating for the absent internal iliac arteries bilaterally. This, we consider, is the first reported case of congenitally absent bilateral internal iliac arteries.

Keywords: Bilateral congenital absence of internal iliac arteries

Congenital anomalies of the iliac arteries are rare, and are usually discovered incidentally or infrequently by symptoms of chronic lower limb ischaemia. Most of the reported cases are unilateral, with only one report of aplasia of both external iliac arteries.¹ We report an incidental finding of bilateral congenital absence of the internal iliac arteries, in which there were also other anomalies.

Case report

A 46-year-old man was admitted with a 10-day history of left loin and back pain radiating to both groins. He also had symptoms of nausea and vomiting and a persistent low-grade fever. He had no urinary or bowel symptoms. Medical history was of type-2 diabetes only. On examination, he had abdominal tenderness in the left lower quadrant and was extremely tender over L3–L5 of the lumbar spine. His chest and abdominal X-rays were unremarkable, and urinalysis and intravenous urography

were negative. His back pain was investigated with an MRI scan of the lumbar spine which was also normal. He was started on broad-spectrum antibiotics and fluid resuscitation. His inflammatory markers remained consistently elevated, with CRP ~170 mg/l, and WBC $\sim 15 \times 10^9$.

Whilst awaiting CT imaging, the patient had a cardiovascular arrest, becoming severely hypotensive and tachycardic, pale and clammy, with a diminishing conscious level. He was taken to theatre for emergency repair of a presumed ruptured aortic aneurysm.

During laparotomy, he was found to have retroperitoneal bleeding from an infra-renal, left-sided saccular abdominal aneurysm. We noted that there were extensive amounts of pus in the peri-aortic and pelvic regions. Swabs were sent for microbiology, cultures and sensitivities (these later grew *Salmonella* spp., sensitive to gentamicin and ciprofloxacin). There was also a large haematoma around the left kidney, which itself had become compromised. A left nephrectomy and evacuation of haematoma were performed and the left renal artery and vein were ligated. An axillo-

Correspondence to: Dr Ziad Harb, Department of General and Vascular Surgery, Wexham Park Hospital, Wexham Street, Slough, Berkshire SL2 4HL, UK. E: ziadharb@doctors.org.uk

Figure 1 Schematic diagram of the patient's arteries.

bifemoral bypass graft was then performed to restore blood supply to the lower limbs after the ligation of the aorta (distal to the right renal artery) and common iliac arteries.

During this laparotomy, certain anatomical anomalies were observed: the bifurcation of the aorta was posterior to the inferior vena cava (IVC), with the right common iliac artery running behind the IVC. The lumbar arteries arising from the ruptured section of the aorta were highly prominent and, on closer inspection, there were absent internal iliac arteries bilaterally. The enlarged lumbar arteries were probably compensating for the congenital

absence of the internal iliac arteries, (see Fig. 1).

Postoperatively on ITU, the patient developed ischaemia and areas of necrosis around his buttocks, and his feet were cold and pulseless. He was taken back to theatre where he was found to have bleeding from the left common iliac artery, with a surrounding haematoma. The perforated vessel was repaired, and an aorto-ileal bypass graft was placed. Intra-operatively, good distal flow was confirmed with a hand-held Doppler.

Following these multiple vascular reconstructions, the areas of necrosis around the buttocks did not improve; the patient had multisystem organ failure and severe acidosis,

and required high levels of inotropic and respiratory support. It was then decided that the degree of tissue necrosis was not salvageable and was so extensive that it was incompatible with life. The patient died on ITU following withdrawal of active treatment.

Discussion

Congenital malformations of the iliofemoral arteries are extremely rare, with the exact incidence not being known. However, in a series of 8000 angiograms, there were only 6 reported cases,² and this may indeed be an overestimate as all these angiograms were on symptomatic patients only. We report a case of congenital aplasia of the internal iliac arteries with other associated anomalies. We report it for its rarity, and consider it a unique incidence, being the first, to our knowledge, to describe this anomaly. A review of the literature did not reveal any previous reports of bilateral absent internal iliac arteries. There were reports of other anomalies, including agenesis of an external iliac artery,³ congenital bilateral aplasia of external iliac arteries,¹ congenital absence of common iliac artery,⁴ absence of a unilateral internal iliac artery,⁵ quadrifurcation of the terminal aorta where all four iliac arteries arose separately from the aorta,² and a report of congenital absence of common iliac artery with lower limb blood supply arising from the ipsilateral renal artery.² Most of these cases were either symptomatic or had other congenital abnormalities.

In contrast with cases of symptomatic patients with congenital absence or hypoplasia of the iliofemoral arteries, our patient presented with another rare condition that is

probably not directly linked to his congenital absent internal iliac arteries. Diagnosis of mycotic aneurysms is frequently delayed because the early clinical manifestations are non-specific. They are more common in intravenous drug users, and individuals with depressed immune systems, such as those with diabetes or malignancy. The most common causative organisms are salmonella (~30–50%), and *Staphylococcus aureus* (~50%). Often, the mycotic aneurysm is saccular and arising eccentrically from the aortic wall, as was the case with our patient. Mycotic aneurysms often cause adjacent vertebral osteomyelitis, and this probably explains our patient's severe back pain and tenderness over the vertebrae. It is very difficult to predict whether our patient would have ever presented with symptoms secondary to his absent internal iliac arteries, especially as his lumbar arteries were compensating for this anomaly; so we report that this malformation was an incidental finding, only discovered during laparotomy for a ruptured mycotic aneurysm. Due to the nature of this presentation and the rapidity of events postoperatively, we were unable to obtain imaging of the vascular anomalies.

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