

Case Reports

ABDOMINAL AORTIC ANEURYSM IN AN INFANT

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Abdominal aortic aneurysm (AAA) is rare in infants and children, with only 35 cases previously reported in the world literature. A few may be congenital in origin but most of them are mycotic, arising from septic complications following umbilical artery catheterization. With prompt diagnosis and surgical repair, excellent results can be achieved.

Case Report

A male child aged seven months presented with a pulsatile mass in the lower abdomen. He was premature at birth and required treatment for respiratory distress syndrome that included umbilical artery catheterization. He otherwise appeared normal, and apart from the abdomen, physical examination was unremarkable. The abdominal mass measured approximately 6 cm in diameter and extended from the mid-abdomen into the pelvis. Abdominal ultrasound demonstrated infrarenal abdominal aortic aneurysm measuring 3.5 cm anteroposteriorly and 6.5 cm in length.

Angiogram confirmed the presence of a large saccular aneurysm of the distal aorta extending down into the pelvis and partially filled with clot. Severe stenosis of proximal iliac vessels and distal aortic aneurysm, but apparently normal external iliac and femoral arteries, were demonstrated on CT angiogram (Figure 1). Other investigations including cardiac echo and blood cultures, CBC, ESR, renal and hepatic profiles were normal.

The abdomen was opened through a transverse incision. The saccular aneurysm was resected and the aorta was patched with polytetrafluorethylene (PTFE). The left common iliac artery was very small and underdeveloped, while the right common iliac appeared to be normal. The patient's postoperative recovery was uneventful, and he was discharged home. A postoperative CT angiogram demonstrated excellent blood flow through the iliac vessels, and the appearance of the aorta revealed no residual aneurysm (Figure 2). Long-term follow-up of

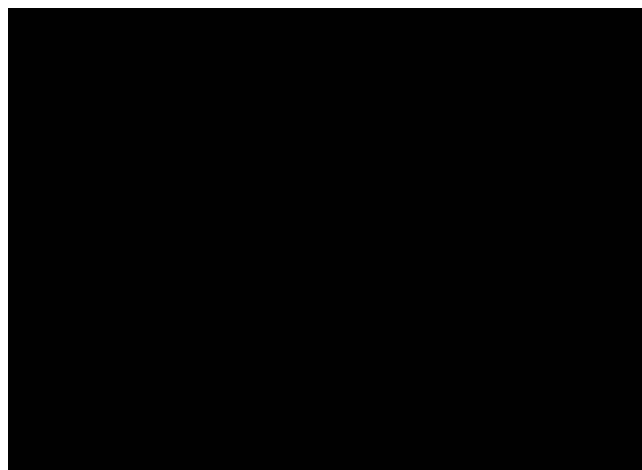


FIGURE 1. CT angiogram showing abdominal aortic aneurysm pressing the distal aorta and proximal iliac.

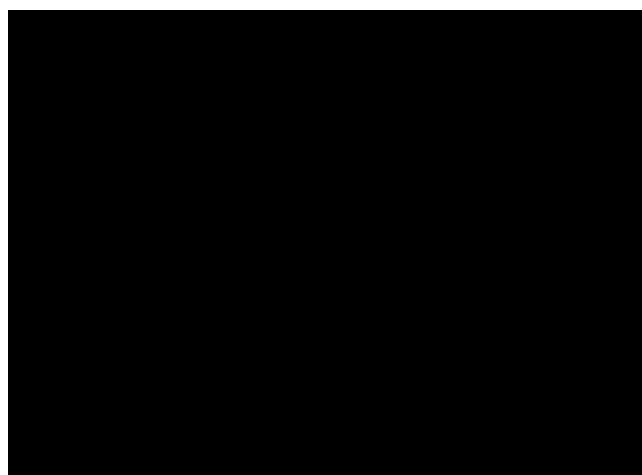


FIGURE 2. Postoperative CT angiogram showing no residual aneurysm (open arrow) and good blood flow to iliac artery (closed arrow).

about three years showed good blood flow to both legs and no recurrence of the aneurysm.

Histopathological studies of the excised aneurysm showed laminated thrombus in the lumen with calcification (Figure 3). Multiple section and staining on the aneurysmal wall for infection or foreign bodies all yielded negative results. Cultures of the surgical specimen were negative.

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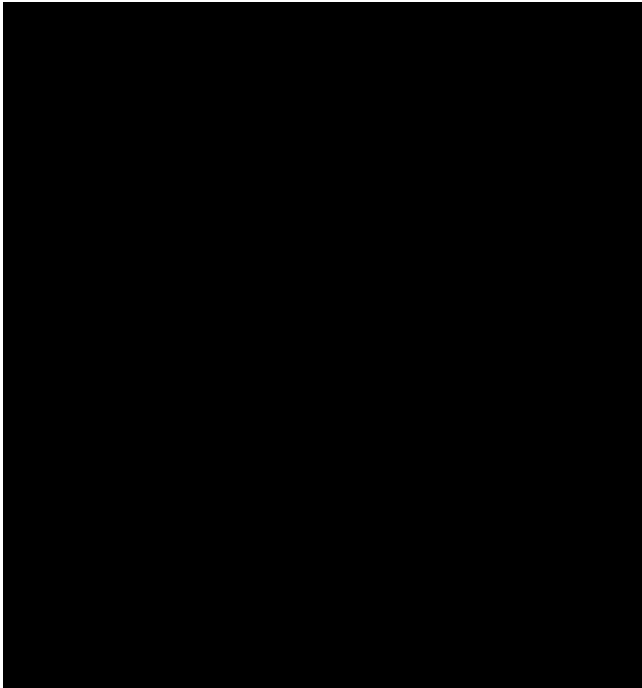


FIGURE 3. Histopathology of excised aneurysm shows laminated thrombus in the lumen with calcification.

Discussion

Abdominal aortic aneurysm is exceedingly rare in infants and children. To date, only 35 cases have been reported in the world literature.^{1,5} Two were congenital and were diagnosed *in utero* by ultrasound.^{6,13} Congenital aneurysms have been associated with the connective tissue disorders of Ehlers-Danlos and Marfan syndromes.^{3,6,11} By far the most common etiologic factor is umbilical catheterization, especially with septic complications.^{1,2,7,8,14}

Staphylococcus aureus is the organism most frequently cited in association with the development of an aneurysm. The septic episode and the development of an aneurysm may be separated in time from as little as a few days to as long as five years.^{5,13} Other presenting signs include embolic phenomena, hypertension, renal failure, unexplained anemia and thrombocytopenia.^{12,13} The diagnosis can usually be confirmed with ultrasound or CT.

Aneurysms of the abdominal aorta in children carry a very high mortality rate.⁴ If they are diagnosed while an

umbilical catheter is in place, the catheter should be removed and antibiotic therapy against *S. aureus* should be instituted. Thrombus in the aorta at the site of catheter irritation can be lysed using urokinase.^{12,13}

Surgical therapy may include resection and 1) primary anastomosis or grafting; 2) ligation of the distal aorta with possible later reconstruction or extra-anatomic revascularization; or 3) patch angioplasty.

The presence of pulsatile abdominal mass in a child should prompt the clinician to inquire particularly for a history of umbilical catheterization. In this context, a high index of suspicion will lead to early diagnosis and treatment.

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