Iatrogenic Pseudoaneurysm of the Brachial Artery in an Infant

S. J. Crankson, B. J. Ericsson


Aneurysms of the peripheral vessels are uncommon in children and are usually caused by iatrogenic vascular trauma. We report a rare case of pseudoaneurysm of the brachial artery following a ‘venipuncture’ in a 4-month-old infant. The pseudoaneurysm was successfully repaired with no long-term complications.

Case Report

A 4-month-old Saudi infant was referred from her local hospital with a 2-month history of progressive swelling on the medial aspect of the left arm. The parents gave a history of a venipuncture 10 days prior to the first appearance of the mass. There were no other symptoms. Examination revealed a 5×3 cm pulsatile mass over the left brachial artery (Fig. 1). There was no thrill or bruit and all the peripheral pulses were normal. Left subclavian angiography through a right femoral arterial puncture showed a pseudoaneurysm of the left brachial artery (Fig. 2). And echocardiogram showed no evidence of Kawasaki disease. The pseudoaneurysm was exposed through an S-shaped incision across the antecubital fossa. It was dissected free anteriorly and aneurysmotomy was performed with removal of clots. The hole in the brachial artery was then repaired with 5/0 interrupted Prolene (Ethicon, Edinburgh, Scotland, UK) suture without narrowing the vessel. Postoperative recovery and follow-up were satisfactory with no obvious vascular complications.

Discussion

An aneurysm is a sac formed by the dilatation of the wall of an artery, a vein or the heart. An arterial aneurysm may be true or false (pseudoaneurysm). In a true aneurysm, the dilatation involves all the layers of the arterial wall. In a pseudoaneurysm, there is a tear in the intimal and medial layers of the artery but the adventitia remains intact resulting in a local haematoma with a direct communication with the lumen of the vessel. Subsequently, there is fibrosis in the surrounding tissue together with recanalization so creating a new lumen in the false sac.

The commonest clinical presentation of a peripheral aneurysm is a rounded pulsatile mass in the vicinity of an artery with progressive enlargement. There may be a systolic bruit but no thrill with the distal pulses palpable and normal. Although it was not thought to be necessary in our case, ultrasound has been found to be accurate in establishing the diagnosis. Angiography nevertheless is useful in defining the extent of the mass, the distal vessels and the communication of the aneurysm with the artery. Since arterial cannulation has its inherent complications especially in small infants, intravenous digital subtraction angiography is now highly recommended.

Surgical repair of aneurysm is the only advisable treatment in order to prevent complications of thrombosis, infection, embolization and rupture. In addition to the above complications, there is a significant risk of nerve injury from the pressure...
effect of the enlarging aneurysm. It is important to have control of the artery proximal and distal to the aneurysm during the repair before the aneurysm is incised. The choice of technique for repair depends on the location and size of the aneurysm. In our case, it was possible partially to resect the sac and repair the opening in the brachial artery. If it is impossible to repair the opening in the artery without narrowing the vessel, then a vein patch could be used. However, for small, single peripheral false aneurysms in the ulnar, radial or tibial arteries, simple ligation of the artery may suffice if dissection is difficult, and if there is no risk of distal ischaemia. The occurrence of a pseudoaneurysm in our patient after a simple venipuncture emphasizes that vascular punctures in infants and children are not without risk and must be performed with caution and the indications evaluated critically.

References