

FALSE ANEURYSM OF THE BRACHIAL ARTERY IN AN INFANT FOLLOWING ATTEMPTED VENIPUNCTURE*

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SUMMARY: Demircin M, Peker O, Tok M, Özen H. (Department of Thoracic and Cardiovascular Surgery, and Gastroenterology Unit, Department of Pediatrics, Hacettepe University Faculty of Medicine, Ankara, Turkey). False aneurysm of the brachial artery in an infant following attempted venipuncture. Turk J Pediatr 1996; 38: 389-391.

False aneurysms have rarely been described in the pediatric age-group. Here a case of false aneurysm of the brachial artery following accidental arterial puncture at the site of attempted venipuncture is reported. Having obtained vascular control with digital compression, the arterial repair was performed by direct suture technique. The characteristics and differential diagnosis of false aneurysms are described. The majority of false aneurysms occur as complications of percutaneous catheterization. *Key words:* false aneurysm, brachial artery, venipuncture, infant.

An aneurysm is classified as "true" or "false" according to its cause and the composition of its surrounding wall. A false or pseudoaneurysm is bounded only by fibrous tissue and lacks muscular layers¹⁻⁴. False aneurysms are most frequently the result of penetrating or blunt trauma. They are usually at the site of puncture as a complication of percutaneous arterial catheterization. A pulsating, encapsulated hematoma is in communication with a ruptured artery in a false aneurysm^{1,2}.

False aneurysms have rarely been described in infants. We report here a case of false aneurysm involving the brachial artery of an infant following accidental puncture during attempted venipuncture.

Case Report

A two-month-old male infant was first sent to the pediatric gastroenterology department with jaundice, ascites, a mass in the left antecubital fossa, and hepatosplenomegaly. At the site of venipuncture performed at another hospital,

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there were signs of prolonged bleeding. Probably due to iatrogenic arterial puncture at that time, a pulsatile mass had developed over a three-week period. The prothrombin time was 17 seconds and continuing bleeding was observed at the site of bone marrow aspiration. The patient was diagnosed with Niemann-Pick disease.

Examination revealed a pulsatile mass, 5 cm in diameter, in the left antecubital fossa. No bruit was present. A diagnosis of false aneurysm of the brachial artery was considered (Fig. 1).

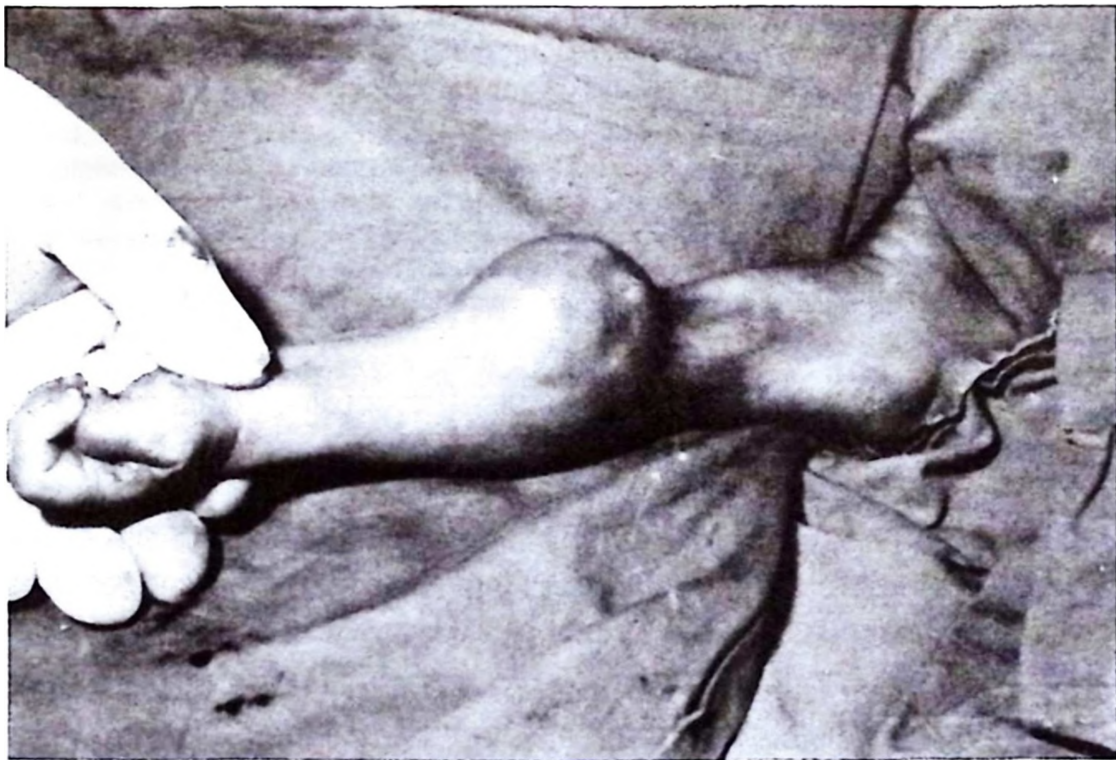


Fig. 1: False aneurysm of the left brachial artery.

Exploration was performed under general anesthesia. Vascular control was obtained with digital compression. The false aneurysm sac was evacuated, and a 1.5 mm defect in the arterial wall was repaired by three interrupted direct sutures with 7-0 prolene. Culture of the clot was sterile, and the postoperative course was uncomplicated. The radial pulse remained palpable. The wound healed satisfactorily and the patient was discharged on the third postoperative day.

Discussion

Arterial false aneurysm is a rare complication of iatrogenic arterial puncture and is manifested most frequently as a rapidly growing pulsatile mass^{1, 2}. The majority of false aneurysms requiring surgery occur as complications of percutaneous catheterization, and faulty technique has been blamed. Peripheral arteries are more commonly injured than truncal arteries because they are more superficial.

False aneurysms typically present weeks to months after blunt or penetrating trauma^{1-3,5}. In our patient, false aneurysm developed approximately three weeks after prolonged bleeding from the vascular puncture site.

False aneurysms complicate 0.6 percent of diagnostic cardiac catheterizations and 11.5 percent of intra-aortic balloon placements². A review of the literature revealed very few cases of false aneurysms in the pediatric age-range¹. Our case is the youngest patient with a false aneurysm according to previously reported literature findings.

The presenting signs and symptoms of false aneurysms may include neuropathy from pressure on an adjacent nerve, rupture and hemorrhage, and distal vascular insufficiency¹. Other causes of a mass in an area of previous trauma include a retained foreign body, abscess formation, or an infected hematoma^{1,2}. The diagnosis of brachial artery false aneurysm is suggested by a history of vascular puncture followed by pain and the appearance of a mass with poorly defined borders.

Attempted drainage or biopsy is strongly contraindicated. Preoperative arteriography may confirm the diagnosis and localizes the lesion. Ultrasonography also demonstrates these lesions accurately.

The risk of pressure to adjacent structures and that of external rupture necessitates an urgent surgical approach to false aneurysms of the brachial artery. Having obtained vascular control, the false aneurysm sac is evacuated and arterial repair is performed by direct suture, end-to-end anastomosis or insertion of a patch or tubular graft of autologous vein, depending on the size of the defect. We performed direct suture technique in our patient^{1,4,6}.

Exploration for a retained foreign body must be done at the time of repair of a false aneurysm caused by a penetrating injury. An abscess or infected hematoma produces a slow-growing, warm, tender but nonpulsatile mass¹. Although unusual in children, a false aneurysm must be considered when a pulsatile mass develops in an area of recent trauma.

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