

False Aneurysm of the Common Femoral Artery in an Infant after a Phlebotomy

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Abstract

False Aneurysms are uncommon in the pediatric population. We report a case of false aneurysm of the common femoral artery (CFA) after accidental arterial puncture, during a phlebotomy for blood sample. The lesion was surgically resected and arterial continuity restored by end to end anastomosis. The postoperative course was uneventful.

Key words: False Aneurysm, Femoral Artery, Iatrogenic Disease, Infant, Phlebotomy, Surgery.

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1- INTRODUCTION

False aneurysms of the femoral artery are uncommon in the pediatric population. They are usually secondary to invasive procedures such as diagnostic and therapeutic catheterization of the common femoral artery. They rarely complicate a femoral venipuncture.

We report a case of a false aneurysm of the common femoral artery in an infant following left femoral vein phlebotomy for blood sampling.

2- CASE REPORT

A 4- month old male infant was admitted at the third day of life for pneumonia and was treated medically in the pediatric ward. During his stay, blood sampling was performed via left femoral phlebotomy. Three weeks after, his parents consulted his primary physician for

swelling of his left groin (**Figure.1**) with no other clinical findings. After three months observation, he referred the infant for surgery because the mass volume increased and became pulsating with a palpable thrill. Distal left lower limb pulses were palpable. The location, the medical history, and the clinical findings strongly suggested that this mass was compatible with a CFA pseudo aneurysm. Color duplex ultrasound (**Figure.2**), and contrast-enhanced computed tomographic (CT) angiography (**Figure.3 and 4**) confirmed this diagnosis. We surgically resected the CFA pseudo aneurysm, and arterial continuity was restored by end to end anastomosis using 7-0 prolene (**Figure. 5**). The postoperative period was uneventful and so was the follow-up. Pathologic study of the lesion showed normal arterial wall with no evidence of inflammation, or infection.



Fig.1: Clinical presentation of the False Aneurysm.



Fig.2: Duplex ultrasound of the False Aneurysm.

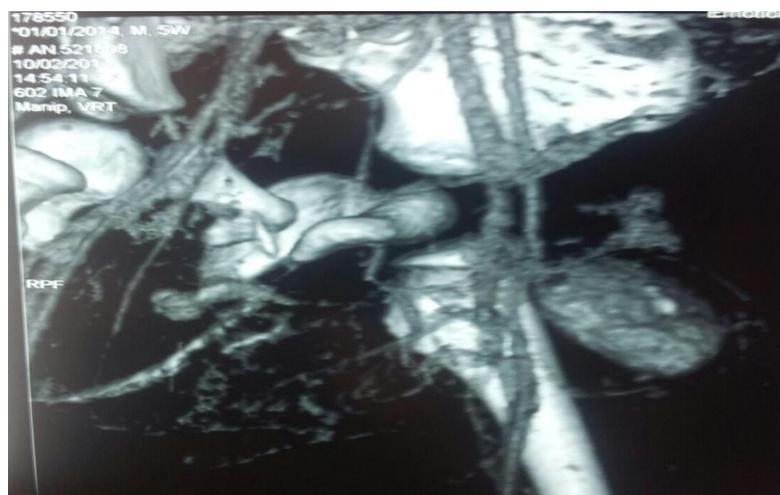
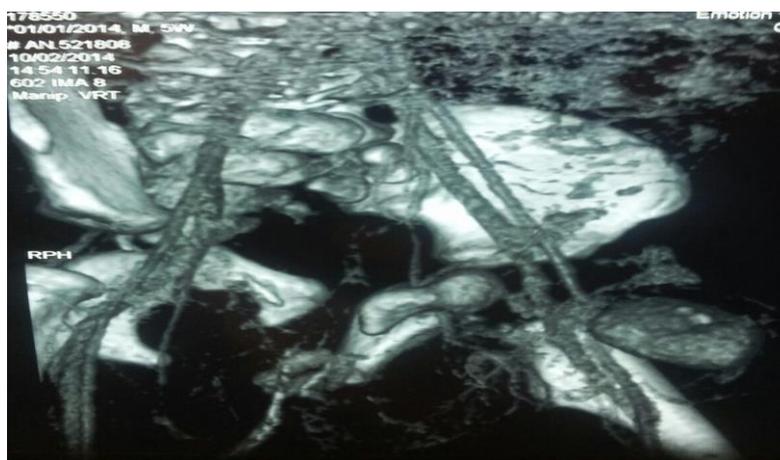


Fig.3 and 4: Computed tomographic angiography showing the false aneurysm.



Fig.5: Operative View of the False Aneurysm before its resection

3- DISCUSSION

False Aneurysms arise from a disruption in the arterial wall and blood dissecting into the tissues around the damaged artery creating a perfused sac that communicates with the arterial lumen. False Aneurysms, particularly femoral ones, are rare in neonates, and can be a complication of percutaneous puncture of the CFA, a procedure generally not recommended in these small patients.

False Aneurysms are uncommon in adults and even less common in children. They are usually the result of local arterial damage caused by diagnostic or therapeutic catheterization. Less often they develop at other vascular access puncture sites such as arterial lines and following trauma (1). They occur at a rate of about 0.05% after diagnostic catheterization and up to 1.2% after more complex procedures (2). Only a few cases have been reported in neonates, including two cases of aortic pseudo aneurysm secondary to umbilical catheterization (3, 4). Four Pseudo aneurysms of the brachial artery have been described in two young children: one in a 1month old baby and the other following

multiple venipunctures in the neonatal period (5). When a pseudo aneurysm has been diagnosed, surgical repair is indicated immediately because of possible complications: Limb ischemia, cutaneous erosions and false aneurysm rupture, nerve compression, deep vein thrombosis.

Clinical outcome depends on rapid diagnosis and repair of the injury. To diagnose arterial lesions such as pseudo aneurysms, color Doppler ultrasonography or CT angiography should be performed. CT angiography is a noninvasive, rapid imaging technique that shows high sensitivity and specificity in the detection of arterial injuries located in the extremities. Pediatric vascular injuries are particular compared to adult ones.

Vessel size is one of the most important consideration, as well as possible complication such as tissue loss and growth discrepancies due to arterial ischemia and arteriovenous fistulas. In recent years, the management of pediatric vascular injuries has changed from expectative, delaying operation until the child grows bigger, to prompt exploration and reconstruction. There are various

approaches to treat pseudo aneurysms, but in children there are two recommended surgical methods (6):

1. Resection of the pseudo aneurysm and involved part of the artery with restoration of arterial continuity by an end-to-end anastomosis,
2. Reconstruction using a venous interposition graft. Primary arterial repair and end-to-end anastomosis is the recommended technique. End-to-end anastomosis is preferable if it can be performed without tension or damage to the major collateral vessels.

Non-surgical therapeutic modalities are successful in adults, such as ultrasound-guided compression obliteration and intracavity thrombin injection, have been used less frequently in the pediatric population because unfavorable anatomy and reported complications (7). Early diagnosis before complications and microvascular reconstruction are most important in managing these injuries.

4- CONCLUSION

We conclude that percutaneous catheterization or venous and arterial punctures may lead to serious vascular complications such as pseudo aneurysm. This phenomenon needs to be readily recognized by neonatal caregivers performing invasive procedures for monitoring and treatment. Early diagnosis

and surgery of pseudo aneurysms is recommended to prevent complications.

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