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Case Report

Repair of A recurrent upper extremity pseudoaneurysm secondary to glass laceration in a 4 years old girl

4 yaşında bir kız çocuğunda cam kesisi sonrası oluşan rekürren üst ekstremite psödoanevrizmasının onarımı

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Abstract

Pseudoaneurysm (PA) of radial artery is rare especially in the children. The real incidence is unknown, probably because these lesions are seldom reported, especially in children. In this case report, we aimed to share our experience on this subject.

Keywords: pseudoaneurysm; false aneurysm; radial artery injury

ÖZ

Radyal arter psödoanevrizması çocuk yaş gruplarında nadir rastlanan bir durumdur. Gerçek insidans bilinmemektedir çünkü özellikle çocuk yaş grubunda rapor edilen olgu sayısı oldukça azdır. Bu olgu sunumda konu ile ilgili tecrübemizi paylaşmak istedik

Anahtar kelimeler: psödoanevrizma; yalancı anevrizma; radyal arter hasarı

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Introduction

In childhood, pseudoaneurysm (PA) of upper ekstremity is rare and even less common in radial artery.[1] The most common causes of radial PA in children are penetrating trauma and iatrogenic arterial injury.[2] Symptoms and signs of a PA are almost always associated with its size and localization.[3] Diagnosis can be confirmed by color Doppler utrasonography. Early intervention is recommended when it is diagnosed. [4,5] Conservative or Surgical/Endovascular treatments should be performed as soon as possible to prevent possible complications, such as rupture, hemorrhage, thromboembolism, ischemia, venous compression, neurologic complications, and cutaneous erosions.[6] In children, the treatment that protects the blood flow of the hand should be chosen primarily, so as not to disrupt the development of the limb.

Case

A 4 year old girl presented with sudden onset of a swelling in her left wrist. Five days before the appearance of this lump, she sustained a glass laceration of her left wrist which was sutured in an other hospital's emergency room. Two days after that, pseudoaneurysm was diagnosed and treated with ultrasound guided compression therapy in the same hospital. 3 days after that, she admited our hospital with increased pain and swelling . On examination, a 11x7,5 mm diameter expansile mass at the radial aspect of the volar surface of the left wrist was found. (Figure I) The lesion was tender, round shaped, and semicontiguous to the wound site A thrill was palpable and auscultation revealed a bruit. Motor and sensory examinations were unremarkable. The patient underwent to colour duplex ultrasound that showed the presence of PA arising from the main left radial artery, continuous bidirectional blood flow in the neck of the pseudoaneurysm and a turbulent blood flow within the lesion and in the radial artery which was patent. Ulnar artery and palmar arch integrity were also confirmed. Therefore, we decided to perform a surgical exploration of the radial artery. under sedation and local anesthesia. Longitidunal disection was made. Radial artery was reached and secured proximaly and distally. After that, aneurismatic sac was opened. (Figure-II). After the sac had extracted, both ends of the radial artery were identified and oversaw. End to end reconstruction was performed via 8-0 prolene sutures (Figure-III) The child was discharged from the hospital on day 2, with no postoperative complications. Asetilsalisilic asit 3mg/kg/day was recommended.

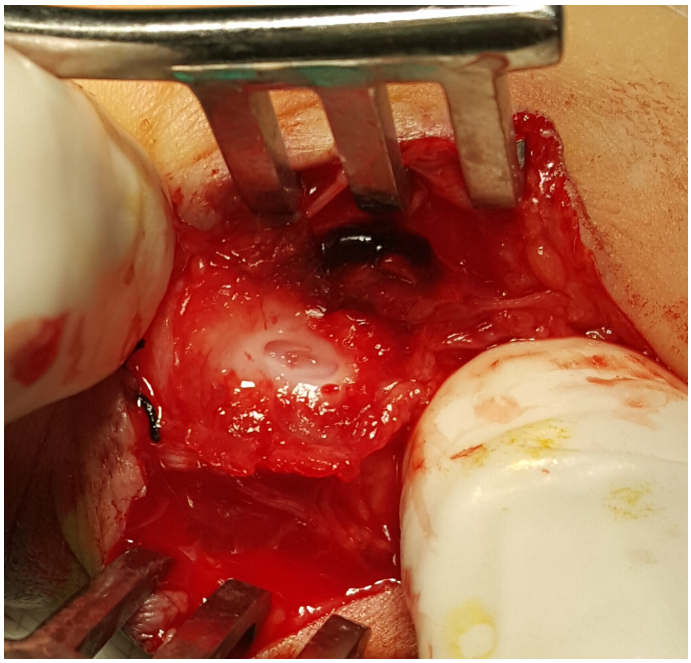

Figure: I

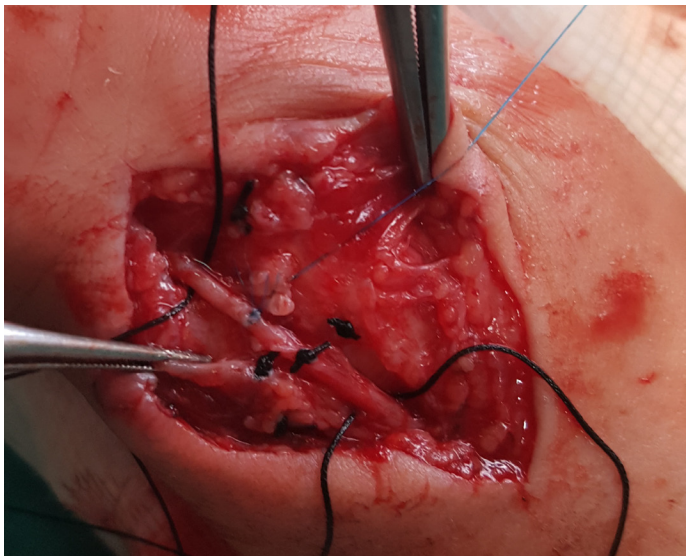

Figure: II

Figure: III

In the repeated follow-ups in the 3rd and 6th months, 1st and 3rd years Doppler usg performed while applying pressure to the ulnar artery did not show any deterioration in the radial artery flow. However, the child hand's development delay and loss of function were not observed.

Discussion

A review of the literature from 2000 to 2018 undertaken on PubMed showed that overall incidence of upper extremity PA was about less than 0.04% in all age.[7] Most common localization of upper extremity PA's is brachial artery.[3] In addition, PA of the distal upper extremity may mimic many other soft tissue masses in the children.[8] Therefore, true incidence of distal radial artery PA are not known, precisely.

Early identification and prompt treatment of radial PA are crucial because they have severe potential complications, such as upper limb, hand and finger losses.[3]

There are various treatment options in the treatment of brachial artery pseudoaneurysms including ultrasound-guided compression, percutaneous thrombin injection, endovascular stenting, aneurysmectomy, surgical repair, and artery ligation.[9]

Ultrasound-guided compression therapy is a non-invasive treatment option. Ceccanti et al. It recommends compression therapy as the first option for upper limb distal pseudoaneurysms, regardless of the the size of the aneurysms. If the pseudoaneurysm is not thrombosed after 4 weeks of compression treatment and / or aneurysm grows, interventional treatments are recommended.[8]

thrombin injection is another recommended treatment. It has been shown to be used effectively in radial and brachial artery pseudoaneurysms. It can be applied safely in all age groups. A disadvantage of the procedure is that it requires experienced hands. Nerve damage due to the procedure has been reported. Hematoma, new pseudoaneurysm and intravascular thrombosis may develop at the sheat intervention site placed during the procedure.[10]

Surgical intervention is needed in complicated situations; such as symptomatic, expanding, and with large haematomas, and in patients with failed conservative management. such as ultrasound-guided compression, percutaneous, thrombin injection.[11]

Prompt surgical treatment options which is include ligation of the artery if distal circulation is not compromised, excision of the pseudoaneurysm, and anastomosis using patch graft or end to end anastomosis are asociated with satisfactory results. However, current operative management after excision of radial pseudoaneurysm remains controversial, with some authors advising vascular reconstruction, and others opting for arterial ligation.[11]

In order to prevent delay in limb growth with complete restoration of hand blood circulation in children, we chosen the method including pseudoaneurysm excision and radial artery reconstruction.[3]

Conclusion

Pseudoaneurysm of radial artery in the childhood is rare. The real incidence is unknown. Prompt treatment ıs mandatory. Surgical treatment is the most prefered option for patient with distal upper ekstremity pseudoaneurysm. Long term results of surgical or non-surgical treatments is not clear. Our case is very rare due to its location. The method to be used in the treatment of recurrent pseudoaneurysms is still controversial. we believe that; Surgical treatment should be the first choice in recurrent pseudoaneurysms. The technique to be chosen, if possible, is vascular repair, especially for the purpose of preserving limb development in pediatric patients.

*Local Ethical Committee reviewed and approved the research protocol of our study. Informed constent was obtained from parents of the patient and the principles of the Helsinki Declaration were followed.

Declaration of conflict of interest

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