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Synovial Cyst of the Elbow: An Exceptional Complication of Arteriovenous Fistula

Yassin El Mourabit (MD)[2*], Selma El Yazidi (MD)[1], Youssef Ettaoumi (MD)[1], Abderahmane El Bakkali (MD, PhD)[1]

[1]Faculty of Medicine and Pharmacy, HASSAN II University, Casablanca, Morocco
[2]Faculty of Medicine and Pharmacy, Mohammed V University, Rabat, Morocco

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***Corresponding author:** Yassin El Mourabit
Faculty of Medicine and Pharmacy, Mohammed V University, Rabat, Morocco

Abstract **Case Report**

Arteriovenous fistulas are known to be associated with various complications, especially thrombosis, stenosis, infection and pseudoaneurysms. Synovial cyst is an exceptional complication. We report a case of 71-year-old male who presented painful swelling at the left elbow two months after barchio-basilic arteriovenous fistula confection. The diagnosis of arteriovenous fistula aneurysm was made. Explotory surgey found a cystic mass which was completely resected. The pathologic examination of the specimen confirmed the diagnosis of a synovial cyst. This case highlights the possible occurrence of synovial cyst as an exceptional complication of arteriovenous fistula mimicking aneurysm clinical presentation.

Keywords: Arteriovenous Fistula, Synovial, Cyst, Elbow, Complication.

INTRODUCTION

Arteriovenous fistulas are known to be associated with various complications, such as steal syndrome, stenosis, arm oedema, thrombosis, poor cosmetic appearance, pseudoaneurysms and infection and rarely traumatic bleeding [1, 2]. Synovial cyst is an exceptional complication.

We present a case of synovial cyst in the elbow mimicking aneurysm of left barchio-basilic arteriovenous fistula.

The patient has provided consent to have his case and images published.

CASE REPORT

A 71-year-old male admitted in our unit for painful swelling in the left elbow. His past medical history included a chronic renal failure due to hypertensive nephrosclerosis, and a left brachio-basilic arteriovenous fistula (BBAVF) successfully constructed for hemodialysis two months ago. The patient complained of severe pain in the left forearm and hand. The pain was associated with paresthesia, numbness along the median nerve territory of the left hand.

Physical examination revealed a pulsatile swelling in the left antebrachial fossa with bruits and thrill. The arteriovenous fistula was patent with evident thrill along the basilic vein. Normal left brachial, radial and ulnar pulses were noted.

Passive and active range of motion of the elbow was limited from 20 to 90 degrees. Diagnoses of pseudoaneurysm of brachial artery or aneurysm of fistula were suspected. Ultrasound doppler showed cystic mass in B- mode without flow in doppler imaging.

The mass was explored under local anaesthesia. After cyst aspiration, which collected 50 ml of cloudy and yellowish fluid, the remain membrane, that was close to the barchio-basilic arteriovenous fistula and attached to the tendon sheath of the biceps brachii muscle, was carefully dissected and completely removed. (Figures 1,2).

Postoperative course was uneventful. Synovial fluid was sterile and histological examination of the removed cyst was indicative of synovial cyst.

Figure 1: operative view: cystic mass of the left elbow

Figure 2: The remain membrane completely removed after cyst aspiration

DISCUSSION

The most common complications of vascular accesses are: thrombosis, stenosis, pseudoaneurysms and infection [2].

To the best of our knowledge, our patient is the first documented case presented in the literature with synovial cyst secondary to arteriovenous fistula creation.

Synovial cysts are fluid-filled spaces lined by synovial membrane and arise from diarthrodial joints, bursae and tendon sheaths [3].

Although synovial cysts are most commonly associated with rheumatoid arthritis and osteoarthritis, they may occur in many other conditions of inflammation, degenerative and traumatic of the synovial membrane which, in turn, leads to increased production of synovial fluid in different parts of the musculoskeletal system, and may result in the formation of synovial cysts. Thus trauma of synovial membrane or tendon sheath may contribute to subsequent cyst formation [3-5].

The presence of these cysts in the elbow is uncommon; they occur most frequently in the popliteal space and are called Baker cysts. However, they are often observed in the shoulders, wrists, fingers and feet as well [4]. Others uncommon locations include the ankles, hips and apophyseal joints of the spine [6-8].

In our case we think that this synovial cyst has been occurred after iatrogenic trauma of the tendon sheath of the biceps brachii muscle.

The clinical manifestations of these cysts are numerous and may result from pressure, dissection or acute rupture. When synovial cysts occur as mass lesions they may mimic aneurysms or hematomas, adenopathies, or even tumors [3].

A confirmatory diagnosis can be made using plain radiographs, ultrasonography and magnetic resonance imaging (MRI). MRI is the investigation of choice for soft tissue lesions, as one can assess the site of origin of the cyst, its size and whether it is compressing on any nerve or vessel around the elbow [9, 10].

Treatment modalities of synovial cysts include conservative management by aspiration, injection of steroids, sclerosing agents and hyaluronidase. However, most of these modalities are associated with either high recurrence rates or complications [10].

Injection of steroids is often helpful and may relieve pain rapidly, but must be used cautiously because

of the risk of infection, subcutaneous fat atrophy and depigmentation of the skin [3-11]. Sclerotherapy is known to cause damage to the tendon from which the synovial cyst arises [12]. The most efficient modality for treating the synovial cyst is to excise the cyst in toto, which would reduce the rate of recurrence of the cyst [13].

CONCLUSION

Synovial cyst of the elbow is uncommon; furthermore it is an exceptional iatrogenic complication of arteriovenous fistulas. This uncommon presentation, masquerading as an aneurysm clinical presentation, requires raising awareness about the possible occurrence of a synovial cyst in the elbow in the postoperative course of arteriovenous fistulas creation.

Conflicts of Interest: The authors declare having no conflicts of interest related to this article.

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