Post-traumatic aneurysm of the radial artery: A case report

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KEYWORDS

Ultrasound;
Aneurysm of the
radial artery;
Blunt trauma.

Abstract An aneurysm is defined as a permanent localized dilation of an artery with a diameter increased by more than 50% compared to the normal diameter. An aneurysm arising from the radial artery of the wrist is a rare injury and it usually occurs after a blunt trauma or as an iatrogenic injury. This paper presents the case of a 47-year-old patient with a pulsating swelling at the volar surface of the right wrist. Clinical diagnosis of aneurysm of the radial artery was confirmed by ultrasound (US) imaging. This case is reported because of the rarity of the pathology and to highlight the effectiveness of US as an important tool for further investigation and confirmation of clinical diagnosis.

Sommario L'aneurisma è una dilatazione permanente e localizzata di un'arteria con un aumento del diametro di oltre il 50% rispetto al normale. Quella che si origina dall'arteria radiale al polso è una lesione rara generalmente secondaria a un trauma penetrante o a una manovra iatrogena. Si riporta di seguito il caso di un paziente di 47 anni con una tumefazione pulsante sulla superficie volare del polso destro.

La diagnosi, scaturita dall'esame obiettivo, è stata confermata da un'indagine ecografica. Si ritiene opportuno segnalare il caso per la rarità della patologia e per l'efficacia dell'indagine ecografica come supporto importante dell'esame fisico.

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Introduction

The word aneurysm comes from the Greek word *aneurismòs* and denotes a pathological, localized progressive dilation

of an arterial segment caused by a structural alteration of the vessel wall due to partial interruption of its elastic and muscular components. An aneurysm arising in the distal radial artery is a rare lesion usually caused by a blunt trauma or as an iatrogenic injury [1,2].

This paper presents a case in which the patient developed aneurysm of the radial artery in his right wrist after a blunt trauma. Sometimes aneurysm of the radial artery is misdiagnosed as a mucous cyst or ganglion, but US imaging can provide an accurate diagnosis [3].

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Figure 1 Post-traumatic aneurysm of the radial artery: US and color-Doppler examination shows an aneurysmal sac and turbulent flow within the sac.

Presentation of the case

A 47-year-old man was referred to the emergency room of the author's institution for a US examination because of a suspected mucous cyst at the radial side of the right wrist.

The clinical history had started a month earlier when the patient was subject to an accidental injury: a pair of scissors penetrated the volar surface of the right wrist causing a deep wound. However, no apparent damage to the artery or radial nerve was found, so only penicillin antibiotics and surgical suture of the wound were administered.

Four days later the patient presented a painful swelling at the volar surface of the right wrist with paresthesia of the first, second and third fingers. Physical examination showed a large swelling at the volar surface of the right wrist without signs of inflammation, and palpation revealed a pulsating mass measuring about 23 mm in diameter.

US examination was carried using Power Vision Toshiba equipment and a linear 6 MHz transducer. The probe was placed at the radial styloid process to evaluate the extensor tendons of the first compartment (abductor pollicis longus and extensor pollicis brevis) and the radial artery which is situated underneath.

US showed a large saccular aneurysm (about 20.4 × 23.5 mm) that originated from the artery wall in which color-Doppler detected a turbulent blood flow (Fig. 1). The patient was referred to urgent vascular surgery.

Written informed consent was obtained from the patient for the publication of this case report and accompanying image.

Discussion

Aneurysm of the distal radial artery is a rare vascular lesion that is usually the result of a blunt trauma or iatrogenic injury. In the absence of a history of blunt trauma or the possibility of an iatrogenic injury the lesion may be misdiagnosed as an unvascularized tumor mass, wrist synovitis or a ganglion [4]. US investigation is important as it can differentiate these lesions. An aneurysm causes a focal saccular or fusiform expansion which is vascularized at color-Doppler and characterized by a turbulent blood flow, whereas a ganglion appears as a hypoechoic-anechoic swelling near the joint [5]. US examination is particularly useful in this pathology as it is a noninvasive, repeatable, inexpensive and diagnostic method which shows a good correlation with physical examination [3–5].

Conflict of interests

The author has no conflict of interests to disclose.

Appendix A. Supplementary material

Supplementary material related to this article can be found online at <http://dx.doi.org/10.1016/j.jus.2012.06.006>.

References

- [1] Turowski GA, Amjadi N, Sterling A, Thomson JG. Aneurysm of the radial artery following blunt trauma to the wrist. *Ann Plast Surg* 1997;38(5):527–30.
- [2] Gooding GA. Sonography of the radial artery at the wrist. *AJR Am J Roentgenol* 1988;150:629–31.
- [3] Pero T, Herrick J. Pseudoaneurysm of the radial artery diagnosed by bedside ultrasound. *West J Emerg Med* 2009 May; 10(2):89–91.
- [4] Narsete EM. Traumatic aneurysm of the radial artery. A report of three cases. *Am J Surg* 1964 Sep;108:424–7.
- [5] Draghi F, Bianchi S, Gervasio A, Fachinetti C, Gaignot C, de Gautard R. L'ecografia nella valutazione della patologia traumatica del polso e della mano. *Giornale It di Ecografia* 2006; 9(3):218–26.