ABSTRACT

The olecranon aperture or the supratrochlear foramen is an aperture situated at the distal epyphys of the humerus. This aperture is situated between the olecranon fossae and the coronoid fossae. These fossae are usually separated by a thin bony plate or membrane. The olecranon aperture is an anatomical variant said to be present in at least 20% of the population, with regional and ethnic differences. Much has been known regarding its prevalence, however, its origin is still in debate. The supratrochlear foramen is said to cause an increased elbow extension and has been associated with fractures in the region due to the lack of bony mass. It can also mimic an ostelytic lesion or bone degradation, and, as such, we aim to report a case in which the olecranon aperture was found accidentally during a radiological evaluation of a shoulder and ulnar lesion.

Keywords: anatomy, supratrochlear foramen, humerus variation, olecranon aperture, septal aperture

INTRODUCTION

The olecranon aperture, known also as the septal aperture or supratrochlear foramen is a variation of the distal humerus between the olecranon fossa and the coronoid fossa [1, 2].

Much has been discussed regarding its prevalence, although there is no consensus regarding its origin, despite recent studies. Theories such as pressure during elbow extension and lack of ossification has been proposed.

According to a recent meta-analysis, the olecranon aperture is present in roughly 20% of the population, with regional differences, as studies showed a prevalence ranging from 0.3% [2] to 45% [3]. It is also more prevalent at the left side and in women [1].

Clinically, this variation can mimic osteolytic lesions and predispose the region to fracture, due to a lack of bony mass, while surgically, it has been observed that bones presenting this variation had a narrower medullary canal, which increased the difficulty in performing intramedullary nailing [1, 4-6].

We aim to report the presence of the olecranon aperture in a 25 year-old male found accidentally during routine radiography after fall and discuss its clinical aspects.

CASE REPORT

A 25 year-old male came to the emergency service with complaints of wrist pain. Wrist fracture was considered and radiographic images of the wrist, elbow and shoulder joints were taken as per institution protocols.

When observing the elbow radiography, it was noted a circular shaped radiolucent region in the distal epyphysis of the humerus, promptly identified as the olecranon aperture (Figure 1).

The patient was diagnosed with distal ulnar fracture and treated conservatively with cast and analgesics.

DISCUSSION

The olecranon aperture has a varying prevalence among different populations and regions of the same country. For instance, in North India it had a 24% [7] prevalence, while in South India it had a prevalence of 31% [8]. Only one study has been performed in Brazil and it showed a prevalence of 22.5% [6].
Supratrochlear foramen of the humerus

A recent meta-analysis observed over 20,000 humeri spread through sixty-one studies and showed an overall prevalence of the olecranon aperture as 21.9% and that the African continent showed the highest prevalence [1].

Regarding its origin, some authors state that the olecranon aperture arises due to the pressure of the olecranon during extension of the elbow, a fact is corroborated by Nayak et al. (2014) [9], as the autor states that the thin bony membrane that separates both fossae is always present until the age of seven.

Ndou also showed a significant correlation between bone robustly and the absence of the olecranon aperture, as larger bones were less prone to have this variation. This is in accordance with the fact that the olecranon aperture is more common in women, which possesses smaller and thinner bones [10, 11].

The name olecranon aperture, according to Pires et al. (2019) [1] suits better this variation, as it does not give passage to any vessel or nerve and it can be mistaken by the supratrochlear foramen of the orbit. Thus, olecranon aperture seems to be the most suitable name for this variation, although this can be further discussed.

Regarding its clinical aspect, knowledge of the olecranon aperture is essential to avoid misdiagnosis of this variant with an osteolytic lesion in x-rays, as it is a well circumscribed variant that usually possess this round shape [6].

Surgically, the presence of the olecranon aperture may possess relation with the size of the medullary canal of the humerus, which can increase the difficulty in performing intramedullary nailing, a procedure used to treat humeral fractures [12].

In short, the olecranon aperture possess anthropological, clinical and surgical significance, and as such, it should be further studied. Our report reiterates that it can be found by accident during radiological exams and should not be mistaken for an osteolytic lesion.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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None.

REFERENCES

RESUMO

Abertura do olécrano: um achado acidental

A abertura do olécrano ou o forame supratroclear é uma abertura situada na ephphis distal do úmero. Esta abertura está situada entre as fossas do olecrano e as fossas coronoides. Essas fossas são geralmente separadas por uma fina placa óssea ou membrana. A abertura do olécrano é uma variante anatômica dita estar presente em pelo menos 20% da população, com diferenças regionais e étnicas. Muito se sabe sobre sua prevalência, no entanto, sua origem ainda está em debate. O forame supratroclear é dito causar um aumento da extensão do cotovelo e tem sido associado com fraturas na região, devido à falta de massa óssea. Também pode mimetizar uma lesão osítica ou degradação óssea e, como tal, pretendemos relatar um caso em que a abertura do olécrano foi encontrada acidentalmente durante uma avaliação radiológica de uma lesão do ombro e ulnar.

Palavras-chave: anatomia, forame supratroclear, variação do úmero, abertura do olécrano, abertura septal