

Large Sternal Foramen : Case Report

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ABSTRACT

Introduction: The sternal foramen is a relatively frequent anatomical variant of the sternum, resulting from incomplete fusion of the ossification centers and is more common in the lower portion of the sternum body.

The aim: of this paper is to draw the physician's attention to its existence, as it can be easily confused with a gunshot wound.

Clinical Case: we describe the case of a sternum found in the Anatomy Museum of the Faculty of Medicine of Eduardo Mondlane University.

Discussion: its presence is usually asymptomatic and an accidental imaging finding. In sternal biopsies and acupuncture, its probable existence must be taken into account to avoid catastrophic complications.

Conclusion: it is very important to suspect the possible presence of the sternal foramen so as not to misinterpret an image similar to a gunshot wound on chest X-ray.

Keywords: Case report; Sternum; Sternal Foramen; Anatomical Variation; Clinical Anatomy.

Introduction

The sternum or breastbone is an odd, flat and median bone, shaped like a small sword, measuring about 17 cm in length, located in the anterior part of the rib cage, consisting, in the adult, of three portions: the manubrium, body and xiphoid process^{1,2,3}.

The sternum bone results from the fusion of two sternal plates formed on each side of the midline in the craniocaudal direction³. Due to incomplete ossification of parts of the sternum between the 3rd and 6th intrauterine month, anatomical variations such as the sternal foramen may arise⁴ which results from incomplete midline fusion of the lower 2-3 sternebrae, which commonly ossify from bilateral centers, rather than a single median center, as with the superior sternebra⁵.

Incomplete fusion of fetal sternal plates can lead to the appearance of a sternal foramen in the sternal body that is not clinically significant and can be a radiological finding or be evident during anthropometric or anatomical studies.

Case Report

During practical osteology classes for undergraduate students of the Anatomy Service, Department of Morphological Sciences at Eduardo Mondlane University in Mozambique, we observed a 161.2 mm long sternum, in an axial skeleton deposited at the Anatomy Museum, with a large round foramen located in the lower third of the body, measuring 13.3 mm in length and 10 mm in width, measured with a digital caliper. The distance between the foramen and the xiphoid process is 16.2 mm and from the foramen to the

angle is 84.6 mm and from the foramen to the sternal fork is 131.7 mm. The skeleton was photographed in the anatomical position, with the aid of a Samsung mobile phone camera with a resolution greater than 8MP (Figure 1).

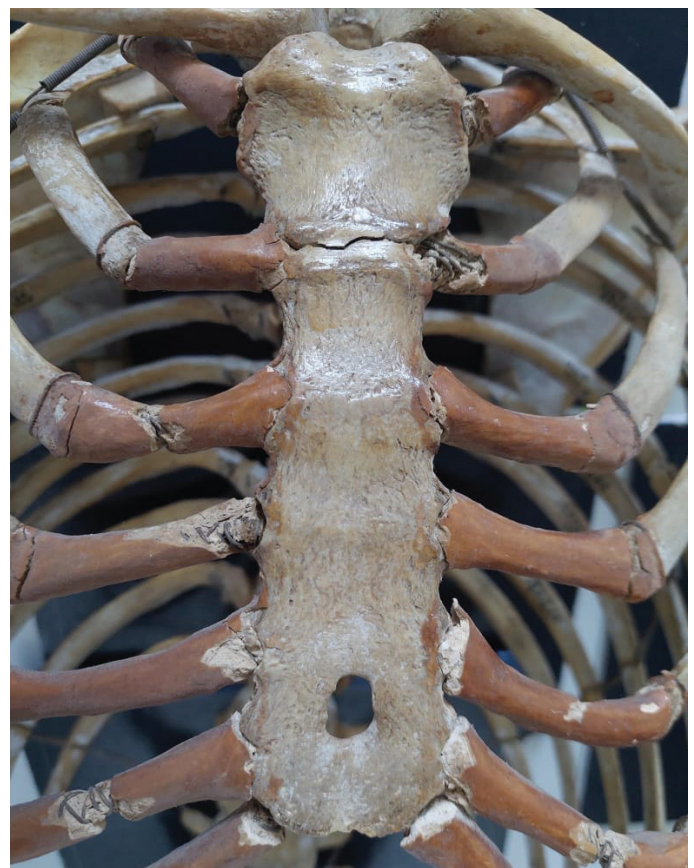


Figure 1. Sternal foramen located in the lower portion of the body of the sternum.

Discussion

The sternal foramen can be mistakenly confused with a gunshot wound, traumatic fissure or fracture and osteolytic lesions on computed tomography scans and can have a fatal outcome during the realization of invasive technical procedures at the level of the anterior region of the thoracic cage, such as biopsy of the body of the sternum to collect bone marrow samples for transplants, to detect metastases and for diagnosis of hematological pathology and acupuncture and the knowledge and understanding of its presence

can prevent accidents and complications^{6,7} such as cardiac tamponade and pneumothorax and be a confounding factor for the radiologist and forensic physician.

The CARE 2013 CARE Checklist of information to consider when writing this case report was used⁸.

Conclusion

It is very important to suspect the possible presence of the sternal foramen so as not to misinterpret an image similar to a gunshot wound on chest X-ray.

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Mini Curriculum and Author's Contribution

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