Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Radiology

Xiphodynia and Xiphoid Process Prominence: Role of Xiphosternal Angle Measurement – A Case Report

A. Bouelhaz[1]*, A. Diani[1], M.R. Bouroumane[1], M. Benzalim[1], S. Alj[1]

[1]Department of Radiology, Ibn Tofail Hospital, Mohammed VI University Hospital Center, Marrakech, Morocco

DOI: https://doi.org/10.36347/sjmcr.2025.v13i07.025 | **Received:** 29.05.2025 | **Accepted:** 10.07.2025 | **Published:** 14.07.2025

***Corresponding author: A.** Bouelhaz
Department of Radiology, Ibn Tofail Hospital, Mohammed VI University Hospital Center, Marrakech, Morocco

Abstract | **Case Report**

Xiphodynia is an uncommon musculoskeletal disorder that can mimic various abdominal and thoracic conditions. It is often underdiagnosed due to its non-specific clinical presentation. We report a case of a patient presenting with localized pain and discomfort caused by a prominent xiphoid process, visible under the skin. The xiphosternal angle was measured at 150°. The pain was exacerbated by palpation and certain movements, leading to significant discomfort. This case highlights the importance of recognizing xiphodynia as a potential cause of anterior chest wall pain and considering the xiphosternal angle measurement in the diagnostic approach.

Keywords: Xiphodynia, Xiphoid process, Xiphosternal angle, Chest pain, Musculoskeletal disorder.

INTRODUCTION

Xiphodynia, also known as xiphoidalgia, is a rare musculoskeletal disorder characterized by pain and tenderness in the xiphoid process region. The term "xiphodynia" originates from the Greek words *xiphos* (sword), referring to the xiphoid process, and *odyne* (pain), often describing an acute and sudden discomfort. [1, 2] This condition was first described as early as 1712 and remains poorly recognized due to its ability to mimic various thoracic and abdominal pathologies. [3] Despite its clinical significance, very few data are available on this uncommon but bothersome disorder [4].

Patients with xiphodynia typically present with localized pain exacerbated by palpation, deep breathing, or certain movements, which can significantly impact their quality of life. Previous reports have attributed xiphodynia to an "inflammation" of the xiphoid process, although its exact pathophysiology remains unclear [2].

Anatomically, the xiphoid process is a cartilaginous structure that ossifies with age and may exhibit morphological variations, including increased prominence. The xiphosternal angle, which varies among individuals, may contribute to symptom development. Despite its benign nature, xiphodynia requires proper clinical recognition to prevent unnecessary diagnostic procedures and treatments. [4]

The aim of this study is to describe a case of xiphodynia associated with a prominent xiphoid process and to highlight the role of xiphosternal angle measurement in its assessment.

CASE REPORT

We present the case of a 39-year-old patient followed for multiple sclerosis, who developed xiphodynia associated with a readily palpable prominence of the xiphoid process. The patient had not previously noticed this prominence. He reported moderate localized pain that increased with palpation, deep breathing, and certain postures, particularly when lying prone. The discomfort progressively impacted his daily activities, prompting further investigation.

Computed tomography of the sternum confirmed the prominence of the xiphoid process with a xiphosternal angle of 134.3°. No signs of underlying bone pathology or inflammation were noted. The clinical presentation and imaging findings supported the diagnosis of xiphodynia related to an abnormal xiphoid process orientation. (Figure 1)

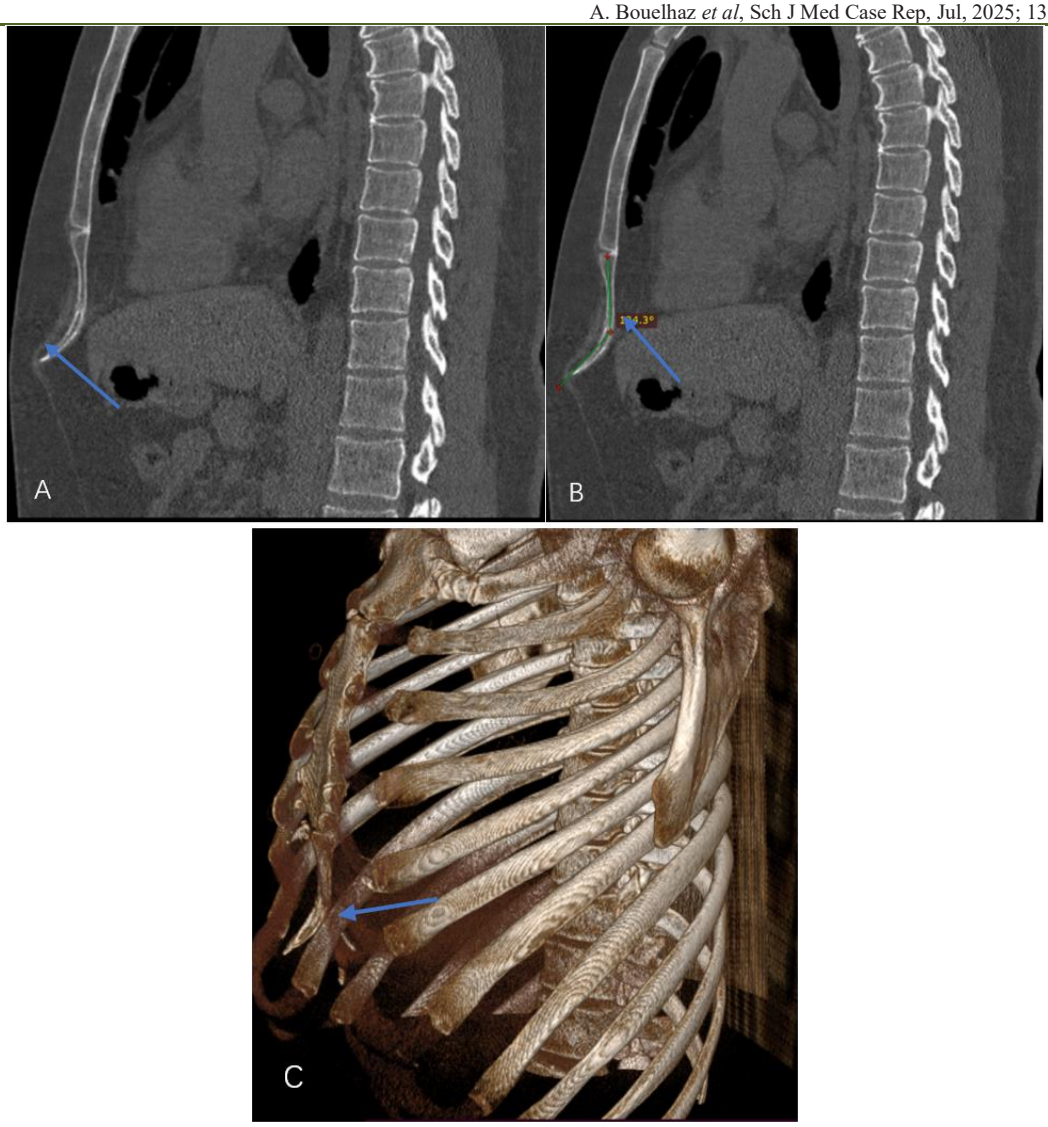

Figure 1: **Sagittal bone CT images (A and B) and 3D reconstruction (C) showing a prominent xiphoid process with a xiphosternal angle of 134.3°. (Blue arrow**)

DISCUSSION

The xiphoid process is an anatomical structure located at the distal end of the sternum, which can present several morphological variations, including bifidity, curvature, or retroversion [5]. Palpation is generally straightforward when the xiphoid process is superficial but can be more challenging in cases of retroversion or anatomical variations [5].

Xiphodynia is a rare and often underrecognized condition, with an unclear pathophysiology. Several mechanisms have been proposed, including perichondritis, "rheumatic apophysitis," and mechanical stress due to muscular insertions. It has been observed in individuals resuming heavy physical activity after a period of inactivity, which aligns with the muscular attachments of the xiphoid process. [3] Pain is typically located at the xiphisternal junction and may be exacerbated by exertion, meals, or certain postures, with relief often obtained in the supine position. [6]

The diagnosis is primarily clinical, based on the reproduction of pain with light pressure on the xiphoid process. Imaging, particularly computed tomography (CT) with 2D reconstructions, plays a key role in evaluating xiphoid prominence and variations in the xiphisternal angle, especially in cases where the process is curved or abnormally protruding.[6] A study evaluating the xiphisternal angle in a control group of 60 individuals (30 males and 30 females) without xiphodynia reported a mean angle of 169±14° in males and 174±15° in females, with no significant difference between sexes ($P < 0.05$). The overall mean xiphisternal angle in the control group was 172±14° (range: 140°–199°). In contrast, markedly lower values were observed in symptomatic patients, suggesting that a reduced xiphisternal angle may be associated with increased xiphoid prominence, potentially contributing to mechanical irritation and pain. These findings emphasize the importance of CT in quantifying the xiphisternal angle, aiding in the assessment of abnormal xiphoid positioning. [4]

Therapeutic management includes local anesthetic and corticosteroid injections, which have shown good efficacy in relieving symptoms. In cases of significant xiphoid prominence causing persistent mechanical discomfort, xiphoidectomy may be considered as a definitive treatment. [5, 7] However, surgical intervention remains exceptional and should be reserved for cases refractory to conservative measures. [8]

Recognizing xiphodynia is crucial, particularly in young patients without cardiovascular risk factors, as it can help prevent unnecessary and costly investigations for other causes of chest pain, such as myocardial ischemia or pulmonary embolism. Further studies are needed to better understand the pathophysiology and optimize treatment strategies for this rare but potentially debilitating condition.

CONCLUSION

1. Xiphodynia is an underrecognized cause of chest discomfort, often mimicking myocardial ischemia, leading to unnecessary investigations. The diagnosis is suggested by the reproduction of pain with light palpation of the xiphoid process. Imaging, particularly CT, plays a key role in assessing xiphoid morphology and variations in the xiphisternal angle. Treatment primarily involves local injections with anesthetic and corticosteroids, which provide significant relief. In refractory cases with persistent mechanical discomfort, surgical resection (xiphoidectomy) may be considered as a definitive treatment option.

Conflicts of Interest: The authors declare no conflicts of interest.

Contributions of the Authors: All authors contributed to the conduct of this work. They have read and approved the final version of the manuscript.

REFERENCES

1. Levine HJ. Difficult problems in the diagnosis of chest pain. *Am Heart J*. 1980;100:108.
2. Epstein SE, Gerber LH, Borer JS. Chest wall syndrome: a common cause of unexplained chest pain. *JAMA*. 1979;241:2793–7.
3. Lipkin M, Fulton LA, Wolfson EA. The syndrome of the hypersensitive xiphoid. *N Engl J Med*. 1955;253:591–7.
4. Maigne JY, Varelia M, Rousset P, Cornelis P. Xiphodynia and prominence of the xyphoid process. Value of xiphosternal angle measurement: three case reports. *Ann Phys Rehabil Med*. 2010.
5. Williams PL, Warwick R. *Grant's Anatomy*. 36th ed. Philadelphia: WB Saunders; 1980. p. 286–7.
6. Sklaroff HJ. Xiphoidynia—another cause of atypical chest pain: six case reports. *Mt Sinai J Med*. 1979;46:546–8.
7. Wehrmacher WH. The painful anterior chest wall syndromes. *Med Clin North Am*. 1958;38:111.
8. Hanlon CR, Miller MM. Deformity of the xiphoid cartilage associated with gastrointestinal symptoms. *JAMA*. 1954;12:992–3.