

IMAGES IN EMERGENCY MEDICINE

Trauma

A young man with anterior chest pain

Hiroki Ito MD¹ | Shinsuke Takeda MD, PhD² | Hiroshi Takahashi MD¹ |
Makoto Kobayashi MD, PhD² | Shingo Kurahashi MD³ | Ryutarō Shibata MD¹

¹Department of Orthopedic Surgery, Toyohashi Municipal Hospital, Toyohashi, Japan

²Department of Orthopedic Surgery, Nagoya City University Graduate School of Medical Science, Nagoya, Japan

³Department of Orthopedic Surgery, Nagoya University Graduate School of Medicine, Nagoya, Japan

Correspondence

Shinsuke Takeda, MD, PhD, Department of Orthopedic Surgery, Nagoya City University Graduate School of Medical Science, 1 Kawasumi, Mizuhocho, Mizuho Ward, Nagoya, Aichi 467-8602, Japan.

Email: s7.takeda.jpn@gmail.com

1 | PATIENT PRESENTATION

A 17-year-old man presented to the emergency department due to sharp right anterior chest pain he developed after throwing a ball overhand while playing dodgeball. Frontal and oblique chest radiographs showed asymmetry of the clavicles with slight posterior displacement of the right clavicle (Figure 1). Computed tomography (CT) was performed for definitive diagnosis, and the three-dimensional images revealed right sternoclavicular joint dislocation, epiphyseal fracture of the right clavicle with posterior displacement, and a spicule on the sternum side (Figure 2). Closed reduction was performed, and a chest band and sling were placed for 1 month without signs of instability. The patient had no disability in daily life.

2 | DIAGNOSIS: POSTERIOR STERNOCLAVICULAR EPIPHYSEAL FRACTURE-DISLOCATION

Most sternoclavicular injuries result in anterior displacement of the clavicular fragment, whereas posterior displacement is rare. Diagnosing this injury can be challenging due to the subtle clinical findings.^{1,2} Medial clavicular injuries commonly occur during sports activities in young adults; therefore, growth plate or epiphyseal fractures should be considered in this population.^{1,2} As conventional radiographs may lead to missed or delayed diagnosis, CT is recommended for suspected medial clavicular injury because it can detect small bone fragments,

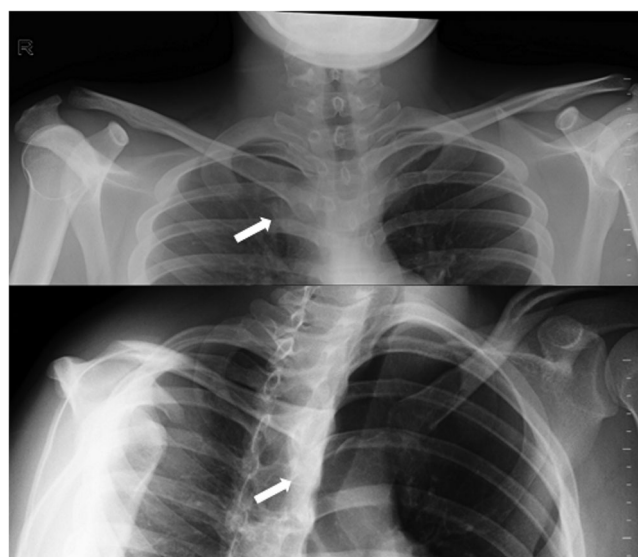


FIGURE 1 Plain chest radiographs, frontal and oblique views, showing asymmetric location of the right clavicle with slight posterior displacement.

displacement, and damage to surrounding tissues, such as the trachea, esophagus, or major blood vessels, which occurs in approximately 30% of cases.^{1,3,4} Because of its rarity, there is no standard treatment method for this fracture. It is important to assess for potential soft tissue injuries,¹ evaluate the range of motion limitation in the shoulder joint, and perform early reduction.⁴

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2023 The Authors. *JACEP Open* published by Wiley Periodicals LLC on behalf of American College of Emergency Physicians.

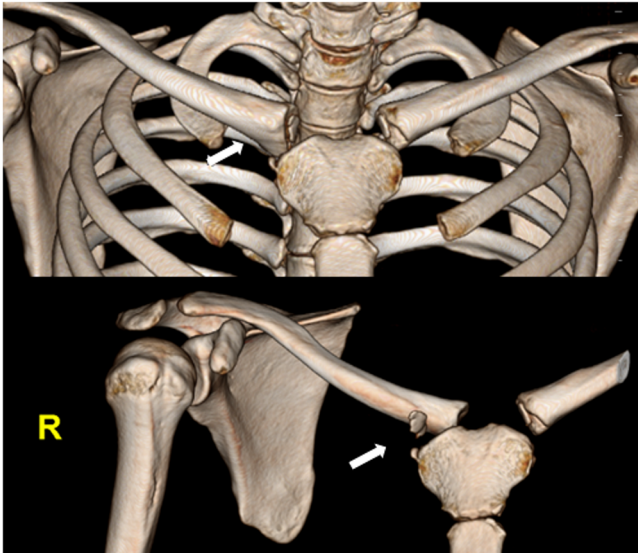


FIGURE 2 Three-dimensional computed tomography images showing dislocation of the right sternoclavicular joint and medial epiphyseal separation of the right clavicle.

ACKNOWLEDGMENTS

No financial support was received for this research.

CONFLICTS OF INTEREST STATEMENT

The authors declare no conflicts of interest.

REFERENCES

1. Carmichael KD, Longo A, Lick S, Swischuk L. Posterior sternoclavicular epiphyseal fracture-dislocation with delayed diagnosis. *Skelet Rad*. 2006;35(8):608-612. [10.1007/s00256-005-0076-y](https://doi.org/10.1007/s00256-005-0076-y)
2. Lee JT, Nasreddine AY, Black EM, Bae DS, Kocher MS. Posterior sternoclavicular joint injuries in skeletally immature patients. *J Pediatr Orthop*. 2014;34(4):369-375. [10.1097/BPO.0000000000000114](https://doi.org/10.1097/BPO.0000000000000114)
3. Beecroft M, Sherman SC. Posterior displacement of a proximal epiphyseal clavicle fracture. *J Emerg Med*. 2007;33(3):245-248. [10.1016/j.jemermed.2007.01.004](https://doi.org/10.1016/j.jemermed.2007.01.004)
4. Carius BM, Long B, Gottlieb M. Evaluation and management of sternoclavicular dislocation in the emergency department. *J Emerg Med*. 2021;61(5):499-506. [10.1016/j.jemermed.2021.07.038](https://doi.org/10.1016/j.jemermed.2021.07.038)

How to cite this article: Ito H, Takeda S, Takahashi H, Kobayashi M, Kurahashi S, Shibata R. A young man with anterior chest pain. *JACEP Open*. 2023;4:e13020. <https://doi.org/10.1002/emp2.13020>