



(CASE REPORT)



SCHEUERMANN'S DISEASE IN A YOUNG ADULT: A CASE REPORT AND LITERATURE REVIEW

Y. Mhamdi Alaoui ^{1,*}, I. Chaouche ¹, H. Ouazzani ², A. Akammar ², N. El Bouardi ¹, M. Haloua ², B. Alami ¹, My. Y. Alaoui Lamrani ¹, M. Boubbou ² and M. Maaroufi ¹

¹ Department of Radiology, Hassan II University Hospital, Sidi Mohamed Ben Abdellah University, Fez, Morocco.

² Department of Mother and Child Radiology, Hassan II University Hospital, Sidi Mohamed Ben Abdellah University, Fez, Morocco.

* Corresponding Author

ORCID Details

Y. Mhamdi Alaoui: <https://orcid.org/0009-0000-7185-7608>

World Journal of Advanced Research and Reviews, 2026, 31(03), 459–463

Publication history: Received on 31 July 2026; revised on 07 September 2026; accepted on 09 September 2026

Article DOI: <https://doi.org/10.30574/wjarr.2026.31.3.2266>

Copyright © 2026 Author(s) retain the copyright of this article. This article is published under the terms of the Creative Commons Attribution License 4.0

ABSTRACT

Scheuermann disease is the most common cause of structural hyperkyphosis in adolescents and is usually diagnosed during the growth period. However, delayed diagnosis may occur when symptoms are mild or initially overlooked. We report the case of a 20-year-old man presenting with chronic mechanical back pain and rigid thoracic hyperkyphosis. Magnetic resonance imaging demonstrated exaggerated thoracic kyphosis, mild anterior wedging of consecutive thoracic vertebral bodies, vertebral endplate irregularity, Schmorl's nodes, and intervertebral disc degeneration. These findings were consistent with typical Scheuermann disease. This case highlights the diagnostic value of recognizing the characteristic imaging pattern of Scheuermann disease, even when first identified in early adulthood. Awareness of these radiologic features may help avoid misdiagnosis and support appropriate management.

Keywords: Scheuermann Disease; Juvenile Kyphosis; Thoracic Kyphosis; MRI; Schmorl's Nodes; Vertebral Wedging

1 INTRODUCTION

Scheuermann disease, also known as juvenile kyphosis, is the leading cause of structural hyperkyphosis in adolescents. It is a developmental disorder of the spine characterized by vertebral body wedging, endplate irregularity, Schmorl's nodes, and disc degeneration. The classic form primarily affects the thoracic spine, whereas atypical forms may involve the thoracolumbar or lumbar segments.

Diagnosis is usually established during adolescence, when spinal deformity becomes clinically apparent. However, delayed diagnosis may occur in patients with mild symptoms or slowly progressive deformity. Imaging plays a central role in confirming the diagnosis. The classic radiographic criteria described by Sorensen include anterior wedging greater than 5 degrees in at least three consecutive vertebral bodies [1,2]. Additional features such as irregular vertebral endplates, disc space narrowing, and Schmorl's nodes further support the diagnosis [3-5].

We report a case of typical Scheuermann disease diagnosed in a young adult, with emphasis on the imaging findings and the practical diagnostic value of recognizing this pattern in routine radiologic assessment.

2 CASE PRESENTATION

A 20-year-old man presented with chronic dorsal back pain associated with a progressive curved-back deformity. There was no recent trauma, no history of congenital spinal abnormality, and no significant prior medical history. The pain was mechanical in nature, with no inflammatory symptoms and no neurologic complaints.

Physical examination revealed rigid thoracic hyperkyphosis. No motor deficit, sensory disturbance, or sphincter dysfunction was found. Laboratory investigations were unremarkable.

Magnetic resonance imaging of the whole spine was performed, including sagittal T2-weighted sequences. Imaging demonstrated exaggerated thoracic kyphosis, with a Cobb angle measured at 46 degrees. Mild anterior wedging of the T5 to T7 vertebral bodies was identified. Associated findings included irregular vertebral endplates, multiple Schmorl's nodes, disc dehydration, and reduced disc height at the affected levels. These features are characteristic imaging findings of Scheuermann disease [4,5].

Taken together, these findings were consistent with typical Scheuermann disease.

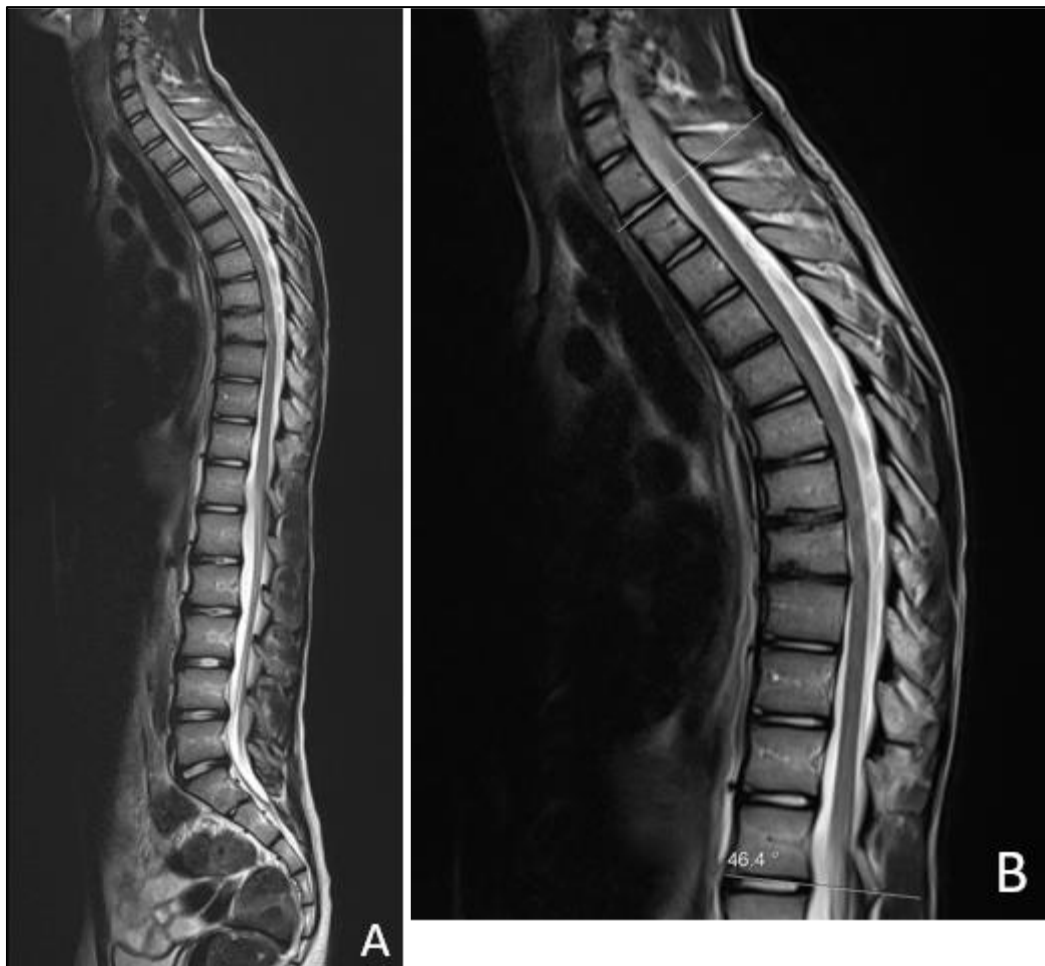


Figure 1: Sagittal T2-weighted images of the thoracic and lumbar spine. (A) Exaggerated thoracic kyphosis. (B) The Cobb angle is measured at 46 degrees; intersecting vectors are drawn from the superior endplate of T1 to the inferior endplate of T12, representing the boundaries of the kyphotic curve.



Figure 2: Sagittal T2-weighted image of the thoracic spine demonstrating mild anterior wedging of the T5 through T7 vertebral bodies.

The patient was referred for orthopedic evaluation, and conservative management was considered because of the moderate deformity and absence of neurologic complications. At follow-up, the patient reported partial improvement in symptoms after physiotherapy and analgesic treatment.

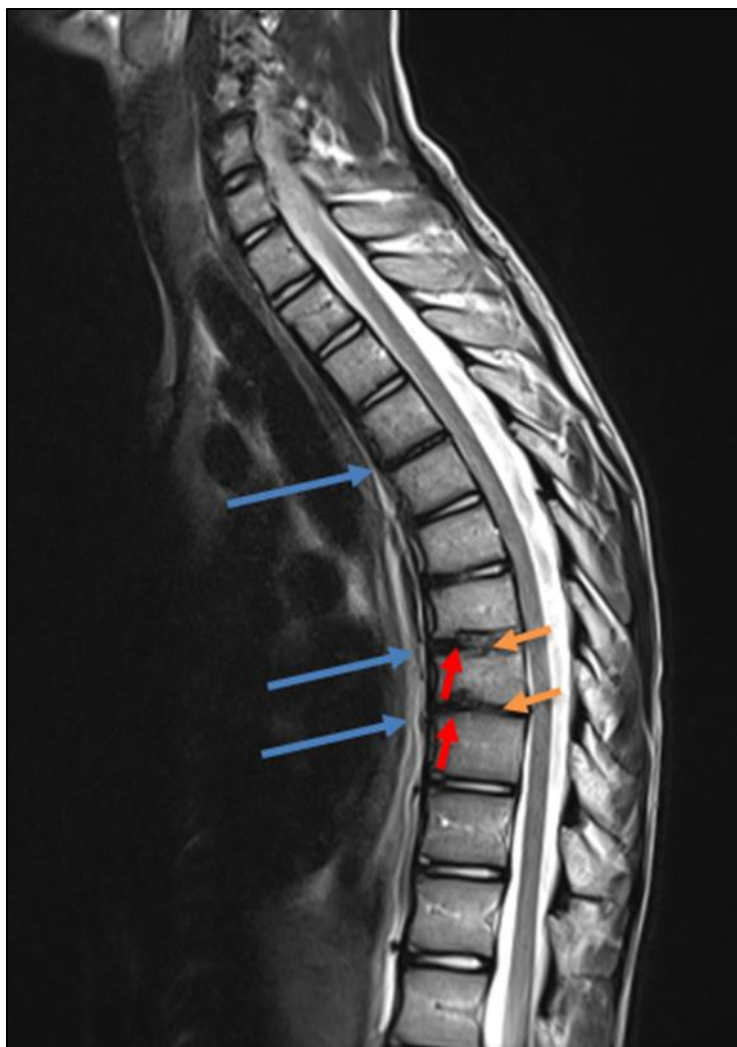


Figure 3: Sagittal T2-weighted image of the thoracic spine demonstrating signal loss in multiple intervertebral discs (blue arrows) with associated endplate irregularity (orange arrows) and Schmorl's nodes (red arrows).

3 DISCUSSION

Scheuermann disease is the most frequent cause of rigid structural hyperkyphosis in adolescents and young adults [3,6]. Reported prevalence varies depending on the diagnostic criteria used, but the condition is generally considered relatively common. It usually becomes apparent during the growth period, most often between early adolescence and skeletal maturity. Nevertheless, delayed diagnosis can occur, particularly in patients with mild symptoms, limited access to imaging, or deformity that is initially mistaken for postural kyphosis [4,6].

The exact pathophysiology remains incompletely understood. Both genetic predisposition and mechanical factors have been implicated. Repetitive anterior spinal loading may contribute to endplate damage and vertebral growth disturbance, promoting progressive anterior vertebral wedging and kyphotic deformity. Familial clustering and twin studies also support a hereditary component [7,8].

Two main patterns are commonly described. The typical form predominantly involves the thoracic spine and is associated with thoracic hyperkyphosis and wedging of consecutive vertebral bodies. The atypical form affects the thoracolumbar or lumbar spine and may show less obvious thoracic deformity but similar disc and endplate changes [4,9].

Imaging is central to diagnosis. Standing lateral radiographs remain the reference standard for evaluating kyphotic curvature and vertebral wedging [1,2,4]. However, MRI is particularly useful for demonstrating associated structural abnormalities such as endplate irregularity, Schmorl's nodes, disc dehydration, and disc space narrowing, while also helping exclude other causes of spinal pain or deformity [5,9,10]. In the present case, MRI clearly showed the characteristic imaging pattern of typical Scheuermann disease.

The differential diagnosis includes postural kyphosis, congenital kyphosis, post-traumatic deformity, inflammatory spondyloarthropathy, and metabolic or dysplastic vertebral disorders. Unlike postural kyphosis, Scheuermann disease is characterized by a rigid deformity associated with structural vertebral abnormalities on imaging [4,6].

This case is educational rather than exceptional. Its interest lies in the delayed diagnosis in early adulthood and in the clear demonstration of typical imaging features. Recognizing this pattern is important for radiologists and clinicians, as early identification may prevent diagnostic delay and improve management planning. A similar adult presentation has been previously reported in the literature, supporting the relevance of this diagnostic situation beyond adolescence [11].

Treatment depends on symptom severity, degree of deformity, skeletal maturity, and progression. Conservative treatment, including physical therapy, posture correction, and analgesics, is appropriate in many symptomatic patients with mild or moderate deformity. Bracing is mainly useful in skeletally immature patients with progressive kyphosis. Surgical treatment is generally reserved for severe deformity, persistent pain refractory to conservative measures, progression, or neurologic compromise [4,6].

4 CONCLUSION

Scheuermann disease should be considered in young patients presenting with chronic mechanical back pain and rigid thoracic hyperkyphosis, even when diagnosis is delayed until early adulthood. Recognition of the characteristic imaging findings, including vertebral wedging, endplate irregularity, Schmorl's nodes, and disc degeneration, is essential for establishing the diagnosis and guiding management.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The authors have declared that no competing interests exist.

Statement of informed consent

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

REFERENCES

- [1] Sorensen KH. Scheuermann's Juvenile Kyphosis: Clinical Appearances, Radiography, Aetiology, and Prognosis. Copenhagen: Munksgaard; 1964.
- [2] Bradford DS. Vertebral osteochondrosis (Scheuermann's kyphosis). Clin Orthop Relat Res. 1981;(158):83-90.
- [3] Ali RM, Green DW, Patel TC. Scheuermann's kyphosis. Curr Opin Pediatr. 1999;11(1):70-75.
- [4] Tomé-Bermejo F, Tsirikos AI. Current concepts on Scheuermann kyphosis: clinical presentation, diagnosis and controversies around treatment. Rev Esp Cir Ortop Traumatol. 2012;56(6):491-505.
- [5] Gokce E, Beyhan M. Radiological imaging findings of Scheuermann disease. World J Radiol. 2016;8(11):895-901.
- [6] Palazzo C, Sailhan F, Revel M. Scheuermann's disease: an update. Joint Bone Spine. 2014;81(3):209-214.
- [7] Damborg F, Engell V, Andersen M, Kyvik KO, Thomsen K. Prevalence, concordance, and heritability of Scheuermann kyphosis based on a study of twins. J Bone Joint Surg Am. 2006;88(10):2133-2136.
- [8] Damborg F, Engell V, Nielsen J, Kyvik KO, Andersen M, Thomsen K. Genetic epidemiology of Scheuermann's disease. Acta Orthop. 2011;82(5):602-605.
- [9] Blumenthal SL, Roach J, Herring JA. Lumbar Scheuermann's: a clinical series and classification. Spine (Phila Pa 1976). 1987;12(9):929-932.
- [10] Heithoff KB, Gundry CR, Burton CV, Winter RB. Juvenile discogenic disease. Spine (Phila Pa 1976). 1994;19(3):335-340.
- [11] Jain A, Saoji A. Scheuermann's disease in young adults: a case report. Cureus. 2022;14(11):e31803.