

Peer Reviewed Case Report

INCIDENTAL FINDINGS OF ATYPICAL SCHEUERMANN'S DISEASE AT RADIOGRAPHY OF THE LUMBAR SPINE: A CASE REPORT

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ABSTRACT

A 35-year-old male presented with non-specific chronic lumbago. A radiographic examination of the lumbar spine indicated incidental findings of atypical Scheuermann's disease, namely a Schmorl node at lumbar vertebra 2 (L2) and a limbus vertebra at lumbar vertebra 3 (L3). Degenerative changes were also noted at the fourth and fifth lumbar vertebrae.

Keywords: Schmorl nodes, plain-film radiography, adult

LAY ABSTRACT

An adult male patient had a lower back x-ray. The examination demonstrated evidence of developmental abnormalities which could be an explanation for his longstanding lower back pain.

CASE REPORT

A 35 year-old male presented to a private radiography practice with a history of chronic lumbago. The referring physician requested thoracic and lumbar spine radiographic examinations. Antero-posterior (AP) and lateral projections were done.

The lateral lumbar spine projection (Figure 1) demonstrates radiographic features in keeping with atypical Scheuermann's disease. The findings were the presence of a Schmorl node formation that involved the antero-superior endplate of lumbar vertebra 2 (L2) as well as a limbus vertebra involving the antero-superior corner of lumbar vertebra 3 (L3). Early signs of osteophyte formation were noted on the anterior vertebral body margins. Lumbar vertebra 5 (L5) had a notched appearance of the antero-superior corner with associated osteosclerosis. The intervertebral disc space between L4 and L5 appeared narrowed. The radiographic appearances at L4 and L5 are in keeping with degenerative changes. No scoliosis was seen; normal lumbar lordosis was maintained.

DISCUSSION

Patients are usually referred for plain-film radiographic examinations of the lumbar region as a baseline radiographic investigation for lower back pain. This examination can demonstrate early features of vertebral disease like lumbar disc herniation.^[1] The lateral lumbar spine radiographic projection in this case demonstrated features suggestive of atypical Scheuermann's disease (Figure 1).

Scheuermann's disease is also known as osteochondritis

deformans juvenalis dorsi, as described by Holger Werfel Scheuermann circa 1920/1921.^[2-3] The exact pathogenesis of Scheuermann's disease is not known. It is believed that the underlying pathophysiological mechanism is considered to be an adolescent growth disturbance of the thoracic spine due to osteonecrosis of the vertebral apophyseal rings.^[2,4-5] Scheuermann's disease is slightly more prevalent in males and affects adolescents between the ages of 12 and 18 years. It also affects approximately 4% to 8% of the general population.^[2-3,6] Scheuermann's disease is also a common cause of back pain for adolescent patients.^[6-7]

Scheuermann's disease can be classified as typical and atypical. The former affects the thoracic region of the vertebral column.^[8] It is characterised by rigid, thoracic kyphosis greater than 40° - 45° measured from thoracic vertebra 3 (T3) to thoracic vertebra 12 (T12) and anterior wedging greater than 5° in at least three consecutive vertebrae.^[3-4,6] In some cases, only one or two vertebrae may demonstrate anterior wedging.^[4] There is also evidence of Schmorl nodes, which are disc herniations through one or both vertebral endplates, intervertebral disc space narrowing, and vertebral endplate irregularities.^[4,7,9]

The atypical variant of Scheuermann's disease affects the thoracolumbar and lumbar regions of the vertebral column, between thoracic vertebra 10 (T10) and L4 but L5 involvement has been noted too.^[3,7] It is characterised by normal kyphosis of the thoracic region and can affect patients of any age. Atypical Scheuermann's disease usually only affects one or two vertebrae with evidence of Schmorl nodes, changes in the endplates, and intervertebral disc space narrowing.^[7] In some cases a limbus vertebra may also be

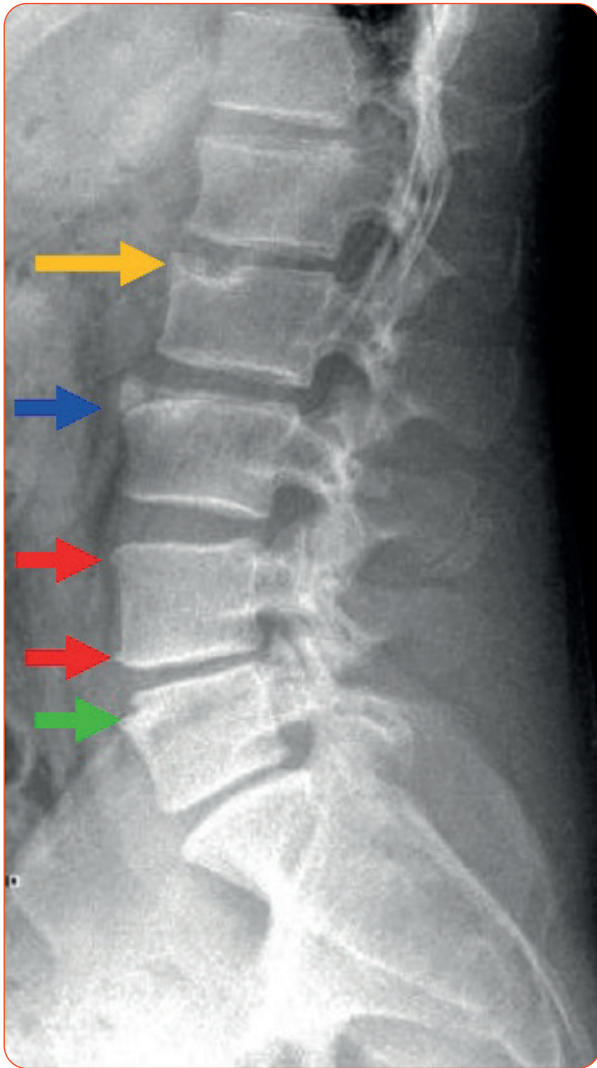


Figure 1. Lateral lumbar spine projection demonstrating the Schmorl node at L2 (yellow arrow), the limbus vertebra at L3 (blue arrow), osteophytes at L4 (red arrows) and notched L5 vertebral body (green arrow).

present. A limbus vertebra is a condition where the nucleus pulposus of the intervertebral disc herniates through the vertebral ring apophysis in young patients. This results in a segment of the antero-superior vertebral body margin in the lumbar region becoming isolated.^[9-11] The chief symptom that patients present with is lower back pain.^[12] This may be explained by the irritation and activation of the nociceptive pathways caused by the disc herniation.^[13-14]

Considering the literature this case of a 35-year old male demonstrates features of atypical lumbar Scheuermann's disease. He presented with longstanding, non-specific lower back pain. His clinical presentation was consistent with the atypical variant of Scheuermann's disease.^[7] A Schmorl node was evident at L2 (Figure 1), which is characteristic of this type of Scheuermann's disease, since Schmorl nodes tend to affect the upper and lower lumbar vertebrae due to excessive mechanical stress in the thoracolumbar and lumbosacral regions of the vertebral column.^[14] This case demonstrates other characteristic features, discussed

above, of atypical lumbar Scheuermann's disease, namely, a limbus vertebra at the antero-superior margin of L3 (Figure 1) and intervertebral disc space narrowing at L4–L5 (Figure 1). In some instance other signs of degenerative disease can be present.^[15] In this case early osteophyte formation was present on L4 (Figure 1). Although abnormal lordosis and scoliosis are associated with Scheuermann's disease due to the associated intervertebral disc degeneration,^[4,6] these conditions were not evident in this case.

In terms of appropriate imaging modalities of Scheuermann's disease, plain-film radiography and magnetic resonance imaging (MRI) of the thoracic and lumbar vertebral regions are indicated as adjuvant imaging modalities. This is to assess both skeletal and spinal cord abnormalities (like syringomyelia and disc herniation) that may be associated with this disease, especially of atypical form.^[1,15] However, due to the non-specific back pain that the patient presented with thoracic and lumbar projections were performed. Incidental findings of atypical Scheuermann's disease were visualised.

CONCLUSION

Incidental findings suggesting the presence of atypical Scheuermann's disease on a lumbar spine radiographic examination were visualised in an adult male with non-specific chronic back pain. Radiography of the thoracic and lumbar spine regions and MRI of the spine are recommended as complementary imaging modalities in the investigation of Scheuermann's disease and lower back pain to assess both skeletal and spinal cord abnormalities accurately.

CONFLICT OF INTEREST

None to declare.

INFORMED CONSENT TO PUBLISH

Informed consent was obtained from the patient in keeping with ethical standards for records for publication purposes.

CONTRIBUTIONS OF AUTHORS

DAES and RvdV conceptualised and contributed to writing of this case report.

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