Diffuse Idiopathic Skeletal Hyperostosis

Jeanine Jensen MD, Habib ur Rehman MBBS

About the Authors

Jeanine Jensen is in her first year of a family residency program at the University of Alberta, in Calgary, Alberta. Habib Rehman is a clinical associate professor in the Department of Medicine, Regina Qu'Appelle Health Region, Regina General Hospital, in Regina, Saskatchewan. Correspondence may be directed to habib31@sasktel.net.

Summary

An 82-year-old man with history of type 2 diabetes mellitus and primary hyperparathyroidism developed severe neck pain, worse on any movement of the cervical spine. Radiography and computed tomography were performed, revealing diffuse idiopathic skeletal hyperostosis (DISH), a condition that is characterized by calcification and ossification of soft tissues.

Résumé

Un homme de 82 ans avec des antécédents de diabète de type 2 et d'hyperparathyroïdie primitive a développé une douleur sévère au cou, qui empire lors de tout mouvement de la colonne cervicale. Une radiographie et une tomographie par ordinateur furent réalisées et révélèrent une mélorhéostose vertébrale, une affection caractérisée par la calcification et l'ossification des tissus mous.

Case

An 82-year-old man with history of type 2 diabetes mellitus and primary hyperparathyroidism developed severe neck pain, worse on any movement of the cervical spine. Radiography of the thoracic spine showed multilevel flowing hyperostosis and linear lucencies between the ossification and the anterior vertebral body wall, predominantly on the right side (Figure 1). A computed tomography scan of the neck showed extensive degenerative change at the C6/7 level with complete obliteration of the disc space and anterior flowing calcification (Figure 2). Diffuse idiopathic skeletal hyperostosis (DISH) was diagnosed.

Discussion

DISH is characterized by calcification and ossification of soft tissues, mainly ligaments and entheses. A prominent feature is calcification of the anterolateral longitudinal ligament of the thoracic spine producing flowing enthesophytes. Paravertebral ossification almost always involves the right side of the spine, the left side being protected by the aortic pulsation. A lucent cleavage between the ossification and the anterior vertebral body wall is considered characteristic.¹

DISH affects mostly older subjects. The prevalence rates

range from 2.9% in Koreans to 27.3% in Caucasian men.² Although any part of the spine may be involved, thoracic spine involvement is characteristic, occurring in 95% of patients. Extra-spinal manifestations include ossifying enthesopathies at the insertions of iliolumbar, iliolumbar, and sacrotuberous ligaments, the calcaneal insertions of the plantar fascia, the insertions of the long plantar ligament and the Achilles tendon, and the insertions on the navicular bone, medial cuneiform, and the base of the fifth metatarsal bones. Other sites commonly involved are the coxofemoral joints, patella, and olecranon. "Flowing" ossification extending over four contiguous vertebrae, relative preservation of intervertebral disc height in relation to age, and the absence of apophyseal joint ankylosis or sacroiliac changes have been proposed as differentiating criteria from ankylosing spondylitis.³ DISH is also differentiated from ankylosing spondylitis by the age of onset and clinical and radiological features.

Men are more likely to develop DISH, which is most common in people older than 50 years. People with type 2 diabetes, insulin resistance and hyperinsulinemia, and obesity may be more likely to develop DISH. Long-term use of retinoids, such as isotretinoin, can also increase the risk of developing DISH. However, it is not clear whether a high intake

Figure 1. Flowing hyperostosis involving the right side of the spine (*arrows*). Note sparing of the left side.

Figure 2. Lateral computed tomography scan of thoracic spine, with flowing hyperostosis along the anterior aspect of the vertebral bodies (*thin arrow*). Linear lucencies are seen along the anterior vertebral body margins (*thick arrow*).

of vitamin A increases the risk. DISH may be asymptomatic or cause mild to moderate pain and stiffness in the upper thoracic spine. It may also occasionally cause dysphagia or hoarse voice due to the pressure of bone spurs on the esophagus or larynx.

Treatment is usually aimed at relieving pain. This can usually be achieved with nonsteroidal anti-inflammatory medications or acetaminophen. Occasionally, surgery may be required for complications such as dysphagia.

References

1. Cammisia M, De Serio A, Guglielmi G. Diffuse idiopathic skeletal hyperostosis. *Eur J Radiol* 1998;27:S7–11.
2. Olivieri I, D'Angelo S, Palazzi C, et al. Diffuse idiopathic skeletal hyperostosis: differentiation from ankylosing spondylitis. *Curr Rheumatol Rep* 2009;11:321–8.
3. Resnick D, Niwayama G. Radiographic and pathologic features of spinal involvement in diffuse idiopathic skeletal hyperostosis (DISH). *Radiology* 1976;119:559–68.