International Journal of Anatomy and Research,
Int J Anat Res 2014, Vol 2(4):727-29. ISSN 2321- 4287
DOI: 10.16965/ijar.2014.519

Case Report

OSSIFICATION OF THE ANTERIOR LONGITUDINAL LIGAMENT OF THE THORACIC SPINE

Vivek Singh Malik [1], Gargi Soni *[2].

[1] Associate Professor, Department of Anatomy, Pandit BD Sharma University of health Sciences, Rohtak, India.
*[2] Head of the Unit, Department of Anatomy, Management and Science University, Malaysia.

ABSTRACT

The ossification of the anterior longitudinal ligament may be a part of diffuse idiopathic skeletal hyperostosis (DISH), also known as Forestier's disease. We are describing a case of ossification of the anterior longitudinal ligament in the region of thoracic spine, found on routine examination of dry bones.
KEY WORDS: DISH, Forestier's Disease, Diffuse, Idiopathic, Skeletal, Hyperostosis, Thoracic spine.

Address for Correspondence: Dr. Gargi Soni, Head of the Unit, Department of Anatomy, International Medical School, Management and Science University, Malaysia.
E-Mail: bhasingargi@rediffmail.com

Access this Article online

Quick Response code

DOI: 10.16965/ijar.2014.519

Web site: International Journal of Anatomy and Research
ISSN 2321-4287
www.ijmhr.org/ijar.htm

Received: 24 Oct 2014
Peer Review: 24 Oct 2014 Published (O):31 Dec 2014
Accepted: 10 Nov 2014 Published (P):31 Dec 2014

INTRODUCTION

The anterior longitudinal ligament is one of the important ligaments in the spinal column that provides stability to the spine. The anterior longitudinal ligament runs along the front of each vertebral body and disc extending from the base of skull to the sacral promontory. Forestier's disease, also known as diffuse idiopathic skeletal hyperostosis (DISH), is an idiopathic abnormality in which exuberant ossification occurs along ligaments throughout the body, but most notably the anterior longitudinal ligament of the spine[1]. It usually affects males over 60 years of age. The disease is usually asymptomatic; however, dyspnea, dysphagia, spinal cord compression, and peripheral nerve entrapment have all been documented in association with the disorder [1].

CASE REPORT

During the routine examination of dry and processed bones in the department of Anatomy, we observed that the bodies of upper twelve thoracic vertebrae were fused due to ossification of anterior longitudinal ligament on the right side. On the left side the ossification involved T2-T3, T8-T9 and T9 to T11. The vertebral coloumn belonged to an elderly male. The intervertebral disc space was preserved. Zygoapophyseal joints were not involved. The intervertebral foraminae and vertebral canal appeared normal. The posterior longitudinal ligament and the ligament flavum appeared to be normal.

DISCUSSION

Resnick et al [2] and Resnick, Shaul and Robins[3] coined the term diffuse idiopathic skeletal hyperostosis for Forestier's disease and ossification of the spinal ligaments has been considered as a part of this entity [4]. They

defined diffuse idiopathic skeletal hyperostosis as showing calcification or ossification along the anterior to anterolateral aspect of four contiguous vertebral bodies with relative preservation of the height of the intervertebral disc in the affected areas [5], distinguishing it from degenerative discogenic disease. The prevelance rates of DISH ranges from 2.9% in Koreans to 27.3% in Caucasian men in a European population [6-10]. The disease is observed mostly in the elderly with a higher incidence in males. However, due to paucity of literature, its incidence in Indian population is not clear.

DISH may affect all the parts of Spine i.e cervical, thoracic, lumbar and may also involve peripheral joints. The portion of the spine that is classically involved in DISH is the thoracic spine [3].Resnickand Niwayama found that thoracic abnormalities were more common in the 7th to 10th thoracic vertebra, a lower incidence in the upper thoracic vertebrae [11]. In the present case we found the ossification of the anterior longitudinal ligament from T1 to T12 on the right side and usually the left side is spared but we found the ossification in some parts on the left side as well.

DISH needs to be distinguished from ankylosing spondylitis. Diffuse idiopathic skeletal hyperostosis (DISH) and ankylosing spondylitis (AS) are the two most common diseases that are characterized by ossification of the ligaments in both the axial skeleton and peripheral sites [12, 13, 14]. Both diseases produce bone proliferations in the later phases of their course and in advanced stages cause the same limitations of spinal mobility and postural abnormalities. However, the radiologic spinal findings for both the conditions are very different and the changes in each of them can be easily identified.

Fig. 1: Showing the ossification of the anterior longitudinal ligament.

A. Anterior view

B. Right lateral view

C. Left lateral view

CONCLUSION

The present case highlights the ossification of anterior longitudinal ligament in the region of thoracic spine as a part of diffuse idiopathic skeletal hyperostosis (DISH), the knowledge of which will be important to the clinicians in correct diagnosis and treatment of patients suffering from this clinical entity. Further we suggest to study the incidence of diffuse idiopathic skeletal hyperostosis (DISH), in the Indian population.

Conflicts of Interests: None

REFERENCES

[1]. Randall R. McCafferty, Michael J. Harrison, Laszlo B. Tamas, Mark V. Larkins, Ossification of the anterior longitudinal ligament and Forestier's disease: an analysis of seven cases Journal of Neurosurgery, 1995;83:13-17.

[2]. Resnick D, Shapiro RF, Wiesner KB, et al. Diffuse idiopathic skeletal hyperostosis (DISH) (ankylosing hyperostosis of Forester and Rotes-Querol). Semin Arthritis Rheum 1978; 7:153–87.

[3]. Resnick D, Shaul SR, Robins JM. Diffuse idiopathic skeletal hyperostosis (DISH): Forestier's disease with extraspinal manifestations. Radiology 1975;115:513–24.

[4]. Mizuno J, Nakagawa H. Anterior decompression for cervical spondylosis associated with an early form of cervical ossification of the posterior longitudinal ligament. Neurosurg Focus 2002; 12.

[5]. Mizuno J, Nakagawa H. Outcome analysis of anterior decompressive surgery and fusion for cervical ossification of the posterior longitudinal ligament: report of 107 cases and review of the literature. Neurosurg Focus 2001; 10.

[6]. Kim SK, Choi BR, Kim CG, et al.: The prevalence of diffuse idiopathic skeletal hyperostosis in Korea. J Rheumatol 2004, 31:2032–2035. 9.

[7]. Weinfeld RM, Olson PN, Maki DD, Griffiths HJ: The prevalence of diffuse idiopathic skeletal hyperostosis (DISH) in two large American Midwest metropolitan hospital populations. Skeletal Radiol 1997, 26:222–225.

[8]. Pappone N, Lubrano E, Esposito-del Puente A, et al. Preva- lence of diffuse idiopathic skeletal hyperostosis in a female Italian population. Clin Exp Rheumatol 2005, 23:123–124. 11.

[9]. Westerveld LA, van Ufford HM, Verlaan JJ, Oner FC: The prevalence of diffuse idiopathic skeletal hyperostosis in an outpatient population in the Netherlands. J Rheumatol 2008, 35:1635–1638.

[10]. Kiss C, O'Neill TW, Mituszova M, et al.: The prevalence of diffuse idiopathic skeletal hyperostosis in a popula- tion-based study in Hungary. Scand J Rheumatol 2002, 31:226–229.

[11]. Resnick D, Niwayama G. Radiographic and pathologic features of spinal involvement in diffuse idiopathic skeletal hyperostosis.(DISH).Radiology 1976,119:559-568.

[12]. Olivieri I, D'Angelo S, Palazzi C, Padula A, Mader R, Khan MA. Diffuse idiopathic skeletal hyperostosis: differentiation from an- kylosing spondylitis. Curr Rheumatol Rep 2009; 11:321–8.

[13]. Yagan R, Khan MA. Confusion of roentgenographic differential diagnosis in ankylosing hyperostosis (Forestier's disease) and ankylosing spondylitis. In: Khan MA. Ankylosing spondylitis and related spondyloarthropathies. Spine: state of the art reviews. Vol. 4. Philadelphia: Haley & Belfus; 1990. p. 561–75.

[14]. Dar G, Peleg S, Masharawi Y, Steinberg N, Rothschild BM, Hershkovitz I. The association of sacroiliac joint bridging with other enthesopathies in the human body. Spine 2007; 32:303–8.

How to cite this article:

Vivek Singh Malik, Gargi Soni. OSSIFICATION OF THE ANTERIOR LONGITUDINAL LIGAMENT OF THE THORACIC SPINE. Int J Anat Res 2014;2(4):727-729. **DOI:** 10.16965/ijar.2014.519