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OSSIFICATION OF ANTERIOR LONGITUDINAL LIGAMENT IN THORACIC VERTEBRAE – A CASE REPORT

Nagaraj Mallashetty¹, B.M. Bannur¹, Preetish Endigeri², O.B. Pattanashetty², Pramod Sangolgi³

¹Department of Anatomy, BLDEU's Shri B M Patil Medical College, Hospital and Research Centre, Bijapur, KA, India

²Dept of Orthopaedics, BLDEU's Shri B M Patil Medical College, Hospital and Research Centre, Bijapur, KA, India

³Department of Surgery, BLDEU's Shri B M Patil Medical College, Hospital and Research Centre, Bijapur, KA, India

E-mail of Corresponding Author: nagarajsmalashetti@gmail.com

ABSTRACT

During the routine examination of dry and processed bones, it was observed that the bodies' thoracic vertebrae were fused due to the ossification of anterior longitudinal ligament. The posterior longitudinal ligament, ligamentum flavum and intervertebral disc were spared. The ossification of anterior longitudinal ligament is considered as a part of diffuse idiopathic skeletal hyperostosis – DISH(Forestier's disease), most common in the age group of 40 and more who are obese leading to mild to moderate restriction of joint movement, low back pain and stiffness.

Keywords: ossification, longitudinal ligament, forestiers disease, vertebrae

INTRODUCTION

The human vertebral column consists of 33 vertebrae. 7- cervical, 12 - thoracic, 5 - lumbar, 5 - sacral, and 4 - coccygeal. Among these five sacral vertebrae fuse to form sacrum and 4 coccygeal bones fuse to form one coccyx.

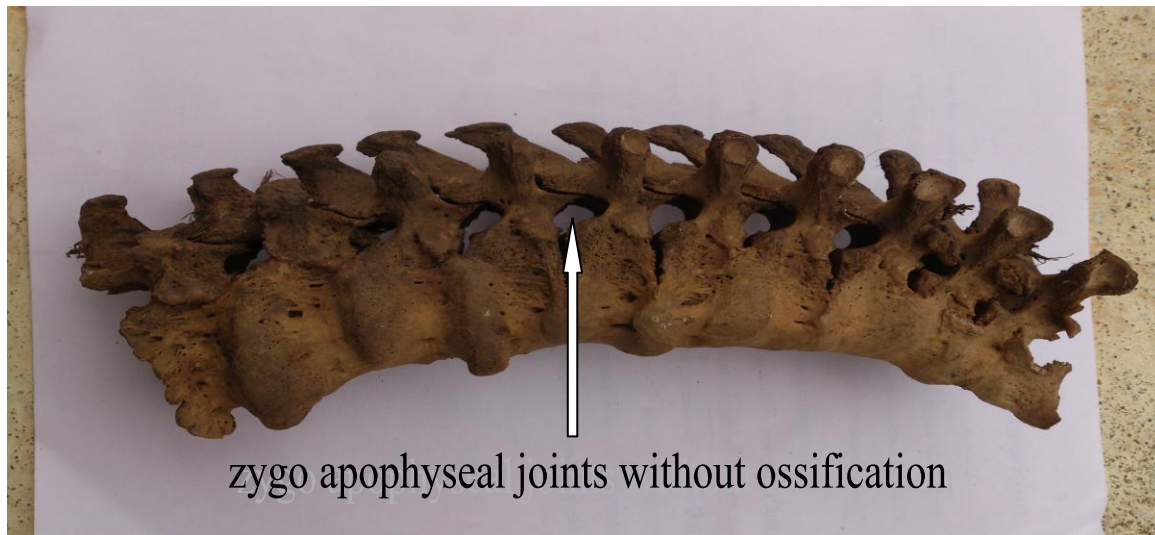
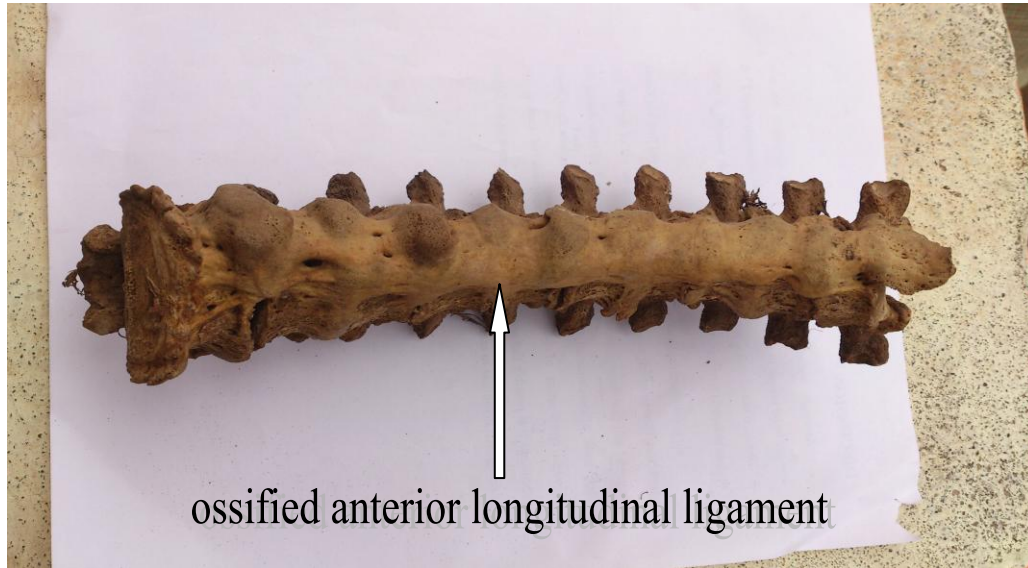
The vertebrae are held together by muscles and strong ligaments like anterior longitudinal and posterior longitudinal ligaments. Anterior longitudinal ligament extends from atlas to sacrum and it is a flat strong band found along the anterior surface of vertebral bodies. ¹

In the present study the bodies of upper ten thoracic vertebrae were fused due to ossification of anterior longitudinal ligament.

CASE REPORT

During the routine examination of dry and processed bones in the department of Anatomy, Shri B.M.Patil Medical College, we observed that the bodies of upper ten thoracic vertebrae were fused due to ossification of anterior longitudinal ligament.

A clear space was noted between the mass and the vertebral bodies. The intervertebral disc space was found to be maintained and zygoapophyseal joints were found to be free. The intervertebral foraminae and vertebral canal appeared normal.



DISCUSSION

The present observation of ossification of anterior longitudinal ligament on the anterior aspect of thoracic vertebral bodies, with maintained disc space, favor the diagnosis of Forestier's disease, otherwise known as Diffuse Idiopathic skeletal hyperostosis (DISH).

DISH commonly involves the thoracic and lumbar vertebrae. Forestier's disease most commonly affects obese men who are more than 40 years old.

The prevalence of the disease has been estimated to range between 12 and 22% in men and 12 to 13% in women. Most patients have mild to moderate restriction of spine movements, low back pain and stiffness in the lumbosacral region.³ The Forestier's disease is diagnosed and differentiated from ankylosing spondylitis, on the basis of certain radiological criteria. Calcification and ossification along the anterolateral borders of vertebral bodies and preservation of the integrity

of the intervertebral disc, without diminution of disc spaces and facet joints remain unaffected¹.

The ossification pattern of DISH involves the anterior ligament, the lateral portion of the annulus fibrosis, and the adjacent vertebral bodies.

Ankylosing spondylitis is a genetic disease with identifiable marks and involvement of organs. DISH has no genetic link and no organ involvement.⁴

DISH is an abnormality in which abnormal ossification occurs along the ligaments.⁵ The incidence of this disease is about 6-12% and most common in males. Usually occurs in elder people after 50 years of age. But Coakley et al., had observed it in paediatric cases.⁶

The calcification and ossification is most common in right side of spine than left. In patients with dextrocardia this calcification occurs on left side, which confirms the role of the descending thoracic aorta in preventing the physical manifestation of DISH on one side of spine⁴

The exact etiology is unknown. Mechanical factor, dietary and long term use of antidepressants may be correlated with DISH. The disease is not fatal however some complications may lead to death such as paralysis, dysphagia and pulmonary infections due to fusion of rib cage.

Ossification of posterior longitudinal ligament has been well recognized as Japanese disease and it is a well documented cause of cervical spine stenosis. It occurs after the age of 40 years and most commonly affected region is cervical spine, although thoracic and lumbar regions are not exempt. The frequency of involvement decreases as the level descends as follows: cervical 70-75%, thoracic 15-20% and lumbar 10%. Most of the cases are asymptomatic. Some may present with cervical radiculomyopathy along with spastic palsy of extremities which depends on thickness of ossification of ligament.⁷

CONCLUSION

In the present study it was observed that, there was fusion of the bodies of thoracic vertebrae due to

ossification of anterior longitudinal ligament and it is a part of Diffuse Idiopathic Skeletal Hyperostosis which should be differentiated from ankylosing spondylitis as both have different etiology and treatment.

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