



ORIGINAL RESEARCH PAPER

Anatomy

UNILATERAL OSSIFICATION OF SACROTUBEROUS LIGAMENT: CASE REPORT

KEY WORDS: Calcification, Sacrotuberous ligament, Pudendal nerve

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ABSTRACT

The phenomenon of calcification in various soft tissue elements in the musculoskeletal system is well known. In many cases, calcification is seen as late sequelae of normal damage repair process. This calcification process may affect various tissues such as muscle and cartilage; and synovium. As a consequence of ossification of sacrotuberous ligament, a restriction of anatomical space of lesser sciatic foramen is expected. This will lead to lesser foramen becoming a potential site for compression of neurovascular structures traversing through this area.

Introduction: Sacrotuberous ligament is an important component of the pelvic wall since it forms an important connection between the pelvic bone and the vertebral column. Sacrotuberous ligaments and the sacrospinous ligaments play an important role of stabilizing sacrum on the pelvis. Acting to provide strength, support and stability to the sacroiliac region, it does so by counterbalancing its rotation, therefore limiting the movement of the lower portion of sacrum¹. Soft-tissue calcification is a not uncommon to be seen in various pathological conditions. An ossified sacrotuberous ligament may affect the general stability of the sacropelvic joints due to loss of elasticity. Sacrotuberous ligament can act like a claw with the pudendal nerve while traversing the intraligamentous space can be crushed². Although ossification of sacrotuberous ligament is reported in radiological literature but it is rarely seen in anatomical descriptions³. As a consequence of ossification of sacrotuberous ligament, a restriction of anatomical space of lesser sciatic foramen is seen (which lies between the sacrotuberous and sacrospinous ligaments). This will lead to lesser foramen becoming a potential site for compression of neurovascular structures traversing through this area. An ossified sacrotuberous ligament may precipitate pudendal nerve entrapment syndrome and may play an important role in undiagnosed chronic perineal pain. An ossified sacrotuberous ligament may act as a significant factor in differential diagnosis of soft tissue pain and tenderness after trauma⁴.

Case Report: During routine Osteology tutorials conducted in Department of Anatomy, KD Medical College, Mathura, for the undergraduate students, an articulated pelvis was observed to have left sided ossified sacrotuberous ligament. The length of the ossified sacrotuberous ligament was measured using sliding vernier caliper as 10.3 cm.



Figure 1: Articulated pelvis showing left-sided ossified sacrotuberous ligament

Discussion: The sacrotuberous ligament is closely associated with a variety of muscles and ligaments. It is a significant component in joining the myofascial planes of the lower limbs to the upper body. Phylogenetically the sacrotuberous ligament is considered to be the degenerated tendon of the long head of Biceps femoris at the origin. The fibres of sacrotuberous ligament passes obliquely in a downwards, forwards and lateral direction. As it reaches the ischial tuberosity, it becomes narrow. During childbirth, the ligament becomes flexible, making a way for the sacrum to shift outwards, and also makes a path for the fetus. During standing, the body weight transmitted on to the sacrum may cause anterior tilt of the sacrum. This is prevented by stretch in the posterior sacroiliac joint along with the sacrotuberous ligament, which acts an automatic locking device or home screw mechanism⁵. The finding of calcification in sacrotuberous ligament is rare³. The phenomenon of calcification in various soft tissue elements in the musculoskeletal system is well known. In many cases, calcification is seen as a late sequelae of a normal damage repair process. This calcification process may affect various tissues such as muscle and cartilage; and synovium⁶⁻¹⁰. A recent study has linked the ossified sacrotuberous ligament with pudendal nerve entrapment syndrome². Based on the morphological study of the sacrotuberous ligament, it can be hypothesized that such calcification seen in ligament may restrict the area of lesser sciatic foramen and limit the space for the passage of pudendal nerve, internal pudendal artery and nerve to obturator internus. The pudendal nerve (S 2,3,4) is the chief nerve for sensory supply to the external genitalia and the region of perineum. Its entrapment may lead to a condition of chronic perineal pain. The pudendal nerve enters the pudendal canal, formed by duplication of the obturator fascia, inferior to the falciform process and the insertion of the sacrotuberous ligament into the ischial tuberosity. It is for this reason that pudendal nerve entrapment often results in pain or loss of sensation in the perineal region¹¹. Compression of pudendal nerve can also lead to fecal incontinence¹².

Conclusion: The finding of calcification in sacrotuberous ligament is rare. An ossified sacrotuberous ligament may act as a significant factor in differential diagnosis of soft tissue pain and tenderness after trauma. The length of the ossified left-sided sacrotuberous ligament was measured using sliding vernier caliper as 10.3 cm in the current study.

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