Putative Clinical Implications of Unilateral Ossified Sacrospinous Ligament

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Introduction

Sacrospinous ligament (SSL) is a thin structure that extends from the ischial spine to the lateral margins of sacrum and coccyx, anterior to the Sacrotuberosus ligament (STL). The internal pudendal and inferior gluteal vessels, pudendal nerve, sciatic nerve, and other branches of sacral nerve plexus pass through the greater sciatic foramen (GSF) in close proximity to the ischial spine and SSL.

Objective

This study aimed to report a case encountered during the routine osteology tutorial, where one of the pelvises presented with ossified SSL on the right side along with ossification of lumbosacral and the sacroiliac joints.

Case Report

The SSL of the right side of the pelvis was completely ossified, extending between the ischial spine and fifth piece of sacrum. The ossification had a broad-based origin from the sacrum and tapered as it proceeded to the ischial spine. It was attached to the ischial spine with a slight enlargement. Moreover, the lumbosacral and the sacroiliac joints also appeared to be ossified.

Conclusion

Ossification of the SSL can restrict the lesser sciatic foramen and the greater sciatic foramen, thus causing compression of neurovascular structures traversing these areas. This can be the causative factor in pudendal nerve/sciatic nerve entrapment and can be a cause for undiagnosed chronic perineal pain. Proper anatomical knowledge and radiologic studies can be utilized for accurate diagnosis and treatment of neurovascular compression syndromes and also during reconstructive procedures of the pelvic floor and treatment of uterovaginal prolapse.
on the medial edge of the sacrum, fourth and fifth vertebra, and the coccyx; runs diagonally downward, outward, and forward; and terminating at the top of the ischial spine. The SSL crosses the sciatic nerve at its distal two-thirds. Ossification of the STL has been reported by earlier researchers.7,8

The ossified SSL carries significance as the STL–SSL complex has a distinct function in maintaining pelvic stability and, in particular, sacroiliac joint and pubic symphysis stability.9 In an earlier report, bilateral ankylosis of sacroiliac joint with ossified sacrospinous, STL and transverse acetabular ligament was reported (Fig. 1).10 In the present case, we describe a pelvic bone with ossified unilateral SSL throughout its course.

**Case Report**

During the routine osteology tutorials for undergraduate medical students, one of the pelvises presented with ossified SSL. The origin, as well as gender of the bone, was unknown. The specimen was photographed and is described here. The SSL of the right side was completely ossified, extending between the ischial spine and fifth piece of sacrum. The ossification had a broad-based origin from the sacrum and tapered as it proceeded to the ischial spine. It was attached to the ischial spine with a slight enlargement. Moreover, the lumbosacral and the sacroiliac joints also appeared to be ossified.

**Discussion**

Ossification of the SSL can be the causative factor for restricting the anatomical areas within the LSF and GSF, thus resulting in compression of neurovascular structures traversing these areas. This can be the causative factor in pudendal nerve/sciatic nerve entrapment and can be an important cause for undiagnosed chronic perineal pain. It is stated that calcification of various soft tissues in the musculo skeletal system is a well-known phenomenon. In many cases, it may be the late sequelae of a normal damage-repair process. Calcification may affect various tissues such as synovium, muscle, and cartilage.11,12

In a study, three possible sites for pudendal nerve and vessels entrapment have been described, as it winds and passes through the fibers of SSL, between STL and SSL, and along the falciform process of STL.5,13 Such variations also possess significance in sacrospinous colpopexy, a surgical procedure that corrects vaginal vault prolapse posthysterectomy by suspending the vault to the SSL. Certain authors have advocated the placement of SSL fixation sutures in the lateral third of SSL to decrease the risk of injury to pudendal nerves.3

Moreover, it was reported in a study that in eight cases (out of 73), that is, 11%, the inferior rectal nerve (IRN) pierces the SSL. In these cases, the IRN is prone for entrapment resulting in IRN syndrome. In this syndrome, the patient describes both perineal and perianal paresthesia which can be accompanied by anal sphincter insufficiency.14

**Conclusion**

The SSL remains a structure with tempting easy access. It is simply the most convenient structure for treating vaginal vault and uterine prolapse.15 The study on ossified SSL has significance in clinical and diagnostic purposes. Proper anatomical knowhow and radiological studies can be utilized for correct diagnosis and treatment of neurovascular compression syndromes and also during the practice of reconstructive procedures of the pelvic floor and surgical treatment of uterovaginal prolapse.

**Conflict of Interest**

None declared.
References