

Case Report

UNILATERAL ANKYLOSIS OF SACRO-ILIAC JOINT: A CASE REPORT

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ABSTRACT

The sacroiliac joint (SIJ) is a plain synovial joint through which the body weight is transmitted from the trunk to the lower extremity. Bones forming the joint are auricular surface of the sacrum and ilium. SIJ has gained its importance towards anatomical and radiological studies in relation to the treating aspects in ankylosis and other degenerative diseases of the joint. This complex joint shows numerous structural variations with the increase of age. The present case describes unilateral ankylosis of SIJ of right side. The postero-superior interosseous part of the SIJ was completely fused, and the anterior, posterior and interosseous sacroiliac ligaments were ossified. These ossifications may cause painful and restricted movements of the joints of pelvis. Anatomical and radiological knowledge of ankylosis of SIJ may be helpful for clinicians, radiologists and surgeons for differential diagnosis and can be implicated in the development of innovative treatments of sacroiliac and perineal pains.

Key words : sacro-iliac joint, ankylosis, anterior, posterior and interosseous sacroiliac ligaments, pudendal nerve.

INTRODUCTION : Sacro-iliac joint (SIJ) is the largest axial joint and is one of the most stable joints in the body and supports the weight of the trunk. It is a diarthrodial joint consisting of two types of articulation, an antero-inferior synovial joint between the C-shaped auricular surfaces of the sacrum and ilium and a postero-superior syndesmosis situated between the interosseous surfaces of the ilium and sacrum. The reciprocal irregularity of the joint surfaces allows very little movement. The tendency of the sacrum to be forced downwards by the trunk is resisted by the extremely strong posterior ligaments, while the iliolumbar ligaments help to resist displacement of the fifth lumbar vertebra over the sacrum. The sacrotuberous and sacrospinous ligaments oppose upward tilting of the lower part of the sacrum under downward thrust at its upper end. These irregular articular surfaces are greater in males and contribute to the considerable strength of the

joint in transmitting weight from the vertebral column to the lower limbs[1].

Even though the irregular surface of the joint help to maintain more in the stability, slight antero-posterior rotation occurs around a transverse axis of the joint. During pregnancy the pelvic joints and ligaments loosen rendering the sacroiliac locking mechanism less effective permitting greater rotation and perhaps allowing alterations in pelvic diameter at birth[1].

Several muscles such as gluteus maximus, piriformis, biceps femoris and ligaments such as anterior and posterior sacroiliac, sacrotuberous and sacrospinous ligaments surrounding the joint also influence the movement and stability of this joint[2].

Ankylosis or fusion of the joint and ossification of the adjacent ligaments can decrease the mobility of the joint. The muscles and ligaments acting on this

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joint, traverses the SIJ both in front and back and can be the cause of pain and inflammation if these joints are in dysfunction[3].

CASE REPORT

During routine osteology teaching program for undergraduate medical students in the Department of Anatomy, King George's Medical University, UP, Lucknow, we noted a unilateral ankylosis of SIJ on right side. Careful observation revealed that the sacrum and hip bone was of a male. There was complete ossification of the anterior, posterior and interosseous sacroiliac ligaments of right sacroiliac joint. The joint was studied both from anterior and posterior aspects to see other ligamentous ossification in the nearby vicinity and was photographed (Fig.1a & b).



Fig. 1: Photograph showing ankylosis of right sacroiliac joint. (a) Anterior view

DISCUSSION : The sacroiliac joint is a synovial articulation between the sacral and iliac auricular surfaces. Fibrous adhesions and gradual obliteration occur in both sexes, earlier in males, and after the menopause in females. Radiological evidence of obliteration in normal subjects is occasionally seen before 50 years, but is not uncommon thereafter. In old age, the joint may be completely fibrosed and occasionally even ossified[1].



Fig. 1: Photograph showing ankylosis of right sacroiliac joint. (b) Posterior view

Stability of SIJ is provided by the intrinsic ligaments i.e. anterior sacro-iliac ligament in the ventral region, posterior and interosseous ligaments in the dorsal region, and by the extrinsic sacrotuberous and sacrospinous ligaments[4].

In standing, the body weight transmitted on to the sacrum may cause anterior tilt of the sacrum. This is prevented by the stretch in the posterior sacroiliac ligament along with sacrotuberous ligaments which acts as an automatic locking device or screw home mechanism[5].

Ankylosis of joints can lead to a disease known as ankylosing spondylitis in which inflammation of joints, most often in the axial skeleton, can lead to reactive fibrosis and eventual joint fusion with associated immobility and kyphosis. The sacroiliac joint is involved nearly 100% of the time, followed by the intervertebral joints (75%); unilateral involvement of the shoulders (30%) and knees (20%) and other joints, such as temporomandibular, also occurs[6].

Other musculoskeletal complications can be associated like spinal fractures, cauda equina syndrome, dactylitis, and peripheral asymmetric oligoarticular arthritis. The disease often involves

extra-articular features, such as uveitis and aortic regurgitation, as well as associated inflammatory conditions of the intestines[7]. The etiology is unknown but postulated to be of autoimmune origin, having a strong association with the B27 histocompatibility complex (HLA-B27)[8].

Our case is similar to Sankar and Bhanu (2011) but they found a pelvic bone showing bilateral ankylosis of SIJ along with the ossification of sacrospinous, sacrotuberous and transverse acetabular ligaments.

Ankylosing spondylitis most commonly presents in young males (15–30 years old) as persistent low back pain and stiffness that is worse in the morning and at night and improves with activity. It is estimated that in 15- 25% of cases the low back pain is originated in the SIJ due to ankylosis of the joint.

The hallmark sign of ankylosis in almost all the cases is sacroiliitis, eventhough it includes other joints and has been showed in previous radiographic studies[9,10]. The basic histopathological changes are the inflammation of the joint with the erosion usually on the iliac bone followed by the gradual ossification of the joint resulting in ankylosis. This takes place in both the synovial joint as well as anterior and posterior sacroiliac ligaments which may be unilateral or bilateral. The para-articular osteophytosis are more seen in ankylosis, a feature of degenerative sacroiliac disease and is more common in men than in women. The sacroiliac ankylosis is strictly confined to the males, with the advanced age and the causes of childbirth in women make them less prone for the sacroiliac ankylosis. The strength and stability are sacrificed for the increased mobility after puberty and during pregnancy in women[11,12].

CONCLUSION : It is important to have adequate anatomical and radiological information of SIJ for the diagnosis and further treatment as SIJ ankylosis leads to pain and decreased mobility of the joint. Proper anatomical knowledge and radiological studies from MRI and CT can be interpreted for the accurate diagnosis and treatment of the neurovascular compression syndromes, also during the reconstructive procedures of the pelvic floor.

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