Hip spine syndrome

- Bone mineral density is associated with pre-treatment pain levels of complex regional pain syndrome type 1 and predicts the response to N-containing bisphosphonates
- Investigating the Role of Nandrolone Decanoate in the Management of Osteosarcopenia in Postmenopausal Women: A Prospective Observational Study
- A prospective cohort study on the effect of low back pain in patients undergoing total hip arthroplasty
- Influence of pelvic incidence-lumbar lordosis mismatch on surgical outcomes of total hip arthroplasty: a retrospective cohort study
- Evaluation of bone mass changes in patients with SAPHO syndrome by measuring bone mineral density on dual-energy X-ray absorptiometry and vertebral bone quality scores on MRI
- What are the diagnoses attributed to persistent hip pain after hip arthroplasty? A systematic review
- Diagnosis of skeletal fragility due to Loeys-Dietz syndrome and treatment with romosozumab followed by denosumab
- Impact of denosumab on muscle health in older adults in long-term care

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The term hip-spine syndrome was first coined by Offierski and MacNab in 1983 and was used to describe patients with coexisting hip and spine degenerative changes ¹⁾.

Significant lumbar spinal stenosis and lower extremity arthritis may coexist in the elderly.

The hip and spine have coordinated movement, and limitations of one area will affect the other. This may manifest itself as pain.

Farfan described the relationship, and advantage, of lumbar lordosis and hip extension for upright activity.

He noted that lumbar muscle activity increased as the lumbar spine flexed to 45° and that further flexion thereafter required pelvic rotation. The rigidity of spinal column ligamentous structures determined the endpoint of flexion, at which point the muscles involving the pelvic girdle—including the iliopsoas and abdominals—activated to allow for further flexion. The hamstrings, posterior hip muscles, and lumbar paraspinals activated to counteract these flexion forces. At terminal flexion, the paraspinals were inactive and resisted further spine bending in their fully elongated position ²⁾.

Lee and Wong measured movements of the hip and spine in forward, backward, lateral, and twisting motions in 20 healthy participants. They confirmed what previous studies have shown using video techniques: the contributions of the spine and hip in forward and backward bending are similar, with the spine having a greater contribution in the early stage of the movement, and less so toward the end.

Lateral flexion of the lumbar spine was accompanied by abduction of the ipsilateral hip and adduction

of the contralateral hip; however, the hip joint contribution was small. On the other hand, during twisting of the trunk, the hips contributed most of the motion $^{3)}$.

Epidemiology

The incidence of symptomatic osteoarthritis of the hip and degenerative lumbar spinal stenosis is increasing in our aging population

Classification

Cases in which the spine symptoms are aggravated by deformity of the hip were called a secondary hip-spine syndrome. Symptomatic disease at both the hip and spine can present as a complex hip-spine syndrome ⁴.

Etiology

The etiology of the pathology may be difficult to discern due to the overlap of innervation in certain areas of the spine, pelvic girdle, and hip.

Clinical features

Symptoms from both sites gives a confusing clinical picture and may require ancillary investigations to diagnose the major source of disability. Failure to recognize concurrent disease at both the hip and spine may lead to misdiagnosis and possibly erroneous treatment ⁵⁾.

Evaluation of the patient with lower extremity pain in consideration for total joint arthroplasty should include functional inquiry of the spinal nerves. Diagnostic tests and injections may allow an informative weighting of the patient's symptoms, leading to a better understanding of the patient's pain syndrome. There is a group of patients who have a total hip arthroplasty and then develop or may continue to have pain of groin and buttock, secondary to sciatica of lumbar spinal stenosis. For the patient undergoing total hip arthroplasty with asymptomatic spinal stenosis, there may be increased neurological risk at surgery, related to the stenosis. The patient with both conditions may require surgical decompression of the lumbar stenosis as well as joint arthroplasty of the arthritic joint ⁶.

A study demonstrated an improvement in LBP levels (VAS and ODI) and postural balance in patients with HSS following THR surgery. No significant changes have been noted in radiographic spinal sagittal alignment postoperatively. The improvement in LBP levels does not correlate with post-operative changes in spinopelvic alignment or postural balance⁷.

Diagnosis

This combination of lumbar stenosis with radiculopathy and lower extremity arthritis may lead to diagnostic uncertainty.

A thorough history and physical examination, coupled with selective diagnostic testing, can be performed to differentiate between these clinical entities and help prioritize management. Determining the potential benefit from surgical intervention and the order in which to address these conditions are of utmost importance for patient satisfaction and adequate relief of symptoms⁸⁾.

Differential diagnosis

Intra-articular hip Femoroacetabular impingement Dysplasia Instability Labral tear Ligamentum teres tear Synovitis Capsulitis Loose body Degenerative joint disease Osteonecrosis Extra-articular hip Muscle/tendon/bursa Adductor strain Iliotibial band syndrome Iliopsoas complex Piriformis/hip external rotators Trochanteric bursitis Hamstring complex Bone Stress fracture Epiphysitis Transient osteoporosis Nerve Meralgia paresthetica Genitofemoral Ilioinguinal Sciatic Other Sports hernia Pelvic visceral pain Spine Axial Disk Facet Lumbar strain Vertebral fracture Radicular Spinal stenosis Radiculopathy Spondylolisthesis

Case series

Thirty-five patients were reviewed with what is called hip-spine syndrome. Concurrent disease at both the hip and spine is not infrequent in the older population. In most cases, the finding and diagnosis were straight forward, and were classified as a simple hip-spine syndrome. Cases in which the spine symptoms are aggravated by deformity of the hip were called a secondary hip-spine syndrome. Symptomatic disease at both the hip and spine can present as a complex hip-spine syndrome. Symptoms from both sites gives a confusing clinical picture and may require ancillary investigations to diagnose the major source of disability. Failure to recognize concurrent disease at both the hip and spine may lead to misdiagnosis and possibly erroneous treatment ⁹.

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