Congenital dislocation of the hip and adult low back pain: a report of three cases

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Congenital dislocation of the hip (CDH) in an adult can accompany or cause mechanical low-back pain. This in turn, can create confusion in making the proper diagnosis. The mechanical alterations caused by CDH create an added strain to the lumbosacral spine. Manipulative treatment for back pain in these patients must not subject the dislocated hips to undue torque. (JCCA 1988; 32(1): 11–15)

KEY WORDS: low back pain, congenital dislocation of the hips, manipulation, chiropractic.

La dislocation congénitale de la hanche (DCH) chez un adulte peut accompagner ou causer une douleur lombaire mécanique, ce qui peut porter à confusion dans la pose d'un diagnostic. Les lésions mécaniques causées par la DCH créent une surtension à la colonne sacro-lombaire. Le traitement par manipulation pour une douleur lombaire chez ces patients ne doivent pas soumettre la hanche disloquée à une torsion indue. (JCCA 1988; 32(1): 11–15)

MOTS CLÉ: Douleur lombaire, dislocation congénitale de la hanche, manipulation, chiropratique.

Introduction

Congenital dislocation of the hip (CDH) is predominantly a diagnosis of childhood. It can, however, go undiagnosed and present later in life as a painful hip.[1] The presentation is usually one of buttock, trochanteric, groin and occasionally lower back pain. An adequate examination of the lumbar spine, sacroiliac joints and hips is, therefore, necessary for differential diagnosis. This should include general observation of posture, range of motion of all the involved joints, orthopaedic and neurologic examination of the lower extremities, as well as evaluation for joint dysfunction.

CDH is a condition where the femoral head is displaced from its normal position at birth. Later in life a false acetabulum may develop above the true acetabulum as a result of femoral pressure on the ilium during weight bearing. It can be unilateral or bilateral and the etiology is unknown. There is a nine times higher incidence in females than in males. This condition has a familial tendency and a higher prevalence in Mediterranean countries.[1,2,3,4]

Case One

Mrs. I.G., a 44-year-old female, presented with a long history of low-back, buttock, and leg pain. The pain was described as a pressure localized to the middle of the lower back. Past history revealed that she had untreated bilateral CDH, scoliosis, and hypoglycemia. She had been to chiropractors in the past but did not receive treatment for the low-back pain because of the CDH. She was otherwise in good health.

On examination, she stood with level pelvis and an increased lumbar lordosis. There was prominence of the trochanters altering the normal shape of the buttocks. Mild spasm was apparent in the left paraspinal muscles. Lumbar spine range of motion was full with some discomfort at the end range of extension. Hip range of motion was limited to 80 degrees of flexion, 0 degrees of extension, 20 degrees of abduction, 0 degrees of adduction, and 40 degrees of external rotation bilaterally. Internal rotation was 5 degrees on the left and 0 degrees on the right. Sensations and motor power were normal. Deep tendon reflexes were brisk and symmetrical. Plantar responses were downgoing. There was no evidence of nerve root tension. Sacroiliac joint testing was positive bilaterally for joint dysfunction.

Radiographs of the pelvis confirmed the presence of bilateral CDH with the formation of two false acetabula (Figure 1).

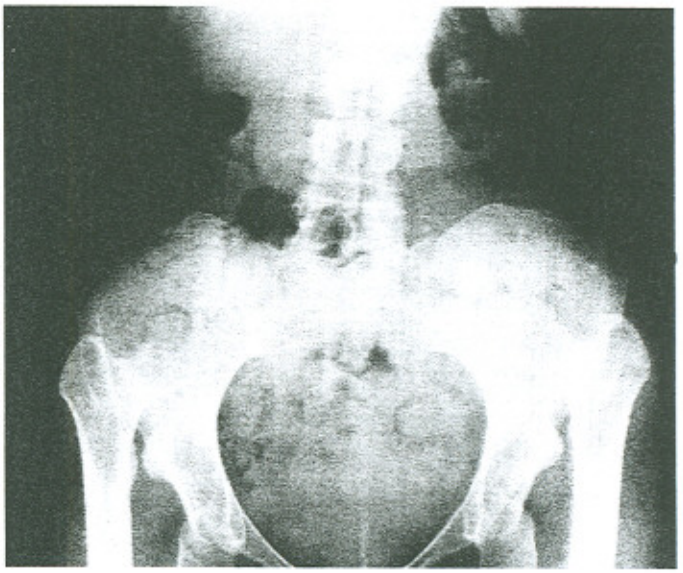

Figure 1 Case 1: AP pelvis showing bilateral CDH with formation of a false acetabula.

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A diagnosis of bilateral sacroiliac joint dysfunction associated with bilateral CDH was made.

Mrs. I.G. was treated with a short course of manipulation to the sacroiliac joints. The procedure was performed in side posture with both hips and knees flexed, thereby decreasing any torque imparted to the hips. She responded quickly to the treatment, but has required bimonthly mobilization to maintain her improvement.

Case Two

Mrs. V.S., a 50-year-old female, was referred to our clinic with a three-year history of back and leg pain. This insidious onset of pain radiated from the left lower back into the left lateral buttock, down the anterior thigh, and into the medial aspect of the leg. The left leg pain was sharp and constant. Walking was limited to less than one block. The leg was particularly painful at night. There was relief with rest. A previous course of manipulative treatment did not help her. She also suffered from erythema nodosum and was being treated with prednisone.

On examination, she was slightly overweight and walked with an antalgic gait. Lumbar spine range of motion was limited to 75 percent of normal in forward flexion, left lateral bending, and left rotation. There was a left Trendelenburg sign. Straight leg raising was 90 degrees bilaterally. Reflexes were brisk and symmetrical and sensations normal in the lower extremities. Plantar responses were downgoing. There was a mild weakness of hip flexion and extension on the left but no obvious muscle wasting. There was tenderness over the left greater trochanter, and flexion and internal rotation of the left hip were limited. Examination of the lumbar spine revealed decreased segmental motion at the L2-L5 posterior joints. There was tenderness and loss of joint motion at the left sacroiliac joint.

Lumbar spine radiographs show degenerative changes with marked loss of disc height at the L2, L3 and L4 levels (Figure 2).

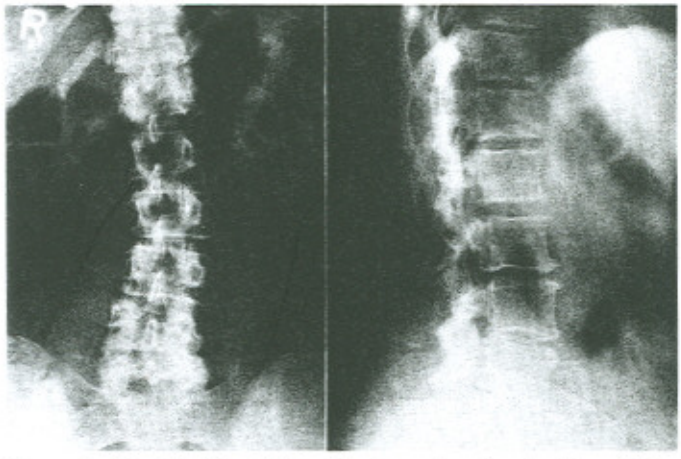

Figure 2 Case 2: AP and lateral lumbar spine showing loss of disc height at the L2, L3 and L4 levels with anterior body lipping. There is a minimal lumbar scoliosis convex to the left.

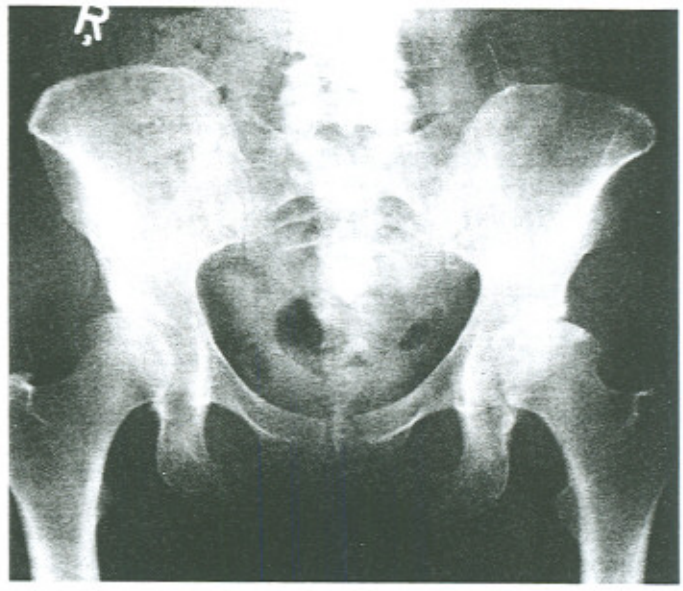

Figure 3 Case 2: AP pelvic view showing bilateral shallow acetabula, superolateral subluxation of femoral heads, and early degeneration of the left hip joint (with decreased joint space and femoral head and acetabular sclerosis).

An anteroposterior view of the pelvis showed bilateral superior subluxation of the femoral heads with shallow acetabula. Shenton's line was intact. On the left there was a decreased joint space with sclerosis of the femoral head and acetabulum (Figure 3).

A diagnosis of left sacroiliac dysfunction associated with bilateral dysplastic acetabula and early degenerative changes to the left hip was made.

Mrs. V.S. was treated with daily manipulations to the involved sacroiliac joint. Following two weeks of daily treatment the left sacroiliac joint was mobile and non-tender, however, her overall improvement was only 40 percent. It was felt that the degenerative changes at the left hip was the primary cause of her pain and she was referred for orthopaedic consultation. She later responded to intra-articular injections of a long-lasting anesthetic with steroids.

Case Three

Mrs. D.S., a 43-year-old seamstress, presented with a history of many years of low-back pain. The pain was a dull ache localized to the lower back. The back of the left calf occasionally became numb and the left leg had given way when she stood from the sitting position. The pain was aggravated by walking, standing, and sitting for long periods of time. Although she had difficulty falling asleep, her pain did not wake her. Bowel and bladder functions were normal. She took occasional aspirin for her pain along with oral iron and premarin.

On examination, this overweight lady stood with a marked

lumbar lordosis. She walked with a shuffling, waddling gait. There was tenderness over the gluteus medius muscles, sacroiliac joints, and lumbosacral joints bilaterally. Lumbar range of motion was full with low-back pain on hyperextension. Trendelenburg sign was positive bilaterally. Straight leg raising was 90 degrees bilaterally. Sensory, motor, and reflex examination of the lower limbs was within normal limits. Plantar responses were downgoing. Hip range of motion was symmetrical with full flexion, 10 degrees of extension, 20 degrees of abduction and adduction, 30 degrees of internal rotation, and 40 degrees of external rotation.

Lumbar spine radiographs showed a marked lumbar lordosis with a horizontal sacrum on the lateral view (Figure 4a). On the anteroposterior view the femoral heads were small and dislocated superiorly (Figure 4b).

A diagnosis of lumbosacral posterior joint dysfunction due to hyperlordosis because of bilateral congenital hip dislocation was made.

Although Mrs. D.S.'s back pain was mechanical in nature, she refused a regimen of manipulative therapy. She was, therefore, treated with exercise, low-back school and weight loss. Unfortunately, she was lost to follow-up.

Discussion

In cases of CDH there can be a partial upward displacement (subluxation) or a complete dislocation of the femoral head out of the acetabulum. The acetabular fossa is shallow and small in CDH with the roof of the acetabulum offering little resistance to the upward force of the femoral head during weight bearing. The articular capsule thickens and enlarges to accommodate the deformity and undergoes fibro-fatty tissue infiltration. The ligamentum teres elongates and undergoes degenerative change. With complete dislocation, the femoral head will rest against the lateral wall of the ilium. The most common presentation is an anterior dislocation with the femoral head located adjacent to the anteroinferior iliac spine. Some patients present with the femoral head lying posteriorly on the ilium near the sciatic foramen. Femoral head pressure on the ilium results in a posterior flattening of the epiphysis and increased anteversion of the femoral neck. The capsule may adhere to the ilium and obstruct replacement.

This disorder has been classified according to the amount of femoral head subluxation. Crowe et al (1979) describe group 1 as having less than 50 percent subluxation, Group 2 between 50 and 75 percent, Group 3 between 75 and 100 percent, and Group 4 more than 100 percent of subluxation.[3] Grouping is determined by the acetabular angle and the vertical distance measured from a point at the medial junction of the femoral head and femoral neck to a horizontal line drawn through the inferior tip of the teardrops. The normal distance is close to zero.

The clinical findings in CDH can vary. Adults present in their late twenties to early fifties. Asymmetry of the skin folds at the groin, thigh, and buttock may be present. Broad buttocks, a widened appearance of the pelvis, and undue widening of the

Figure 4a Case 3: Lateral lumbar view showing hyperlordosis and anterior subluxation of femoral heads.

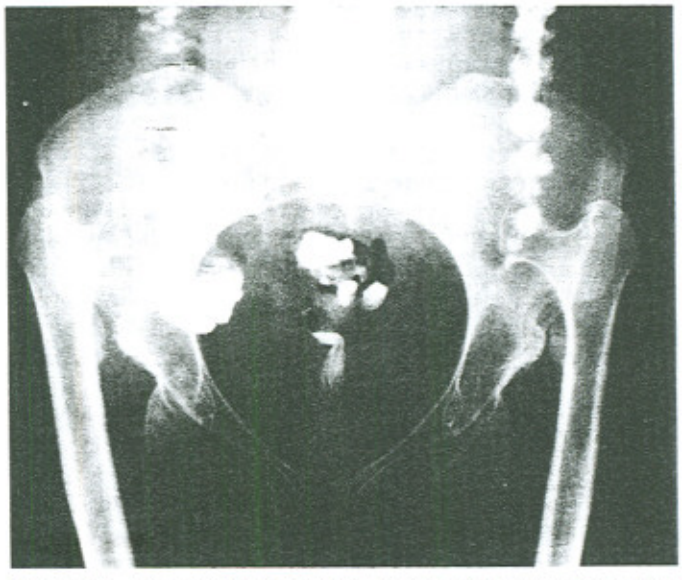

Figure 4b Case 3: AP pelvic view showing bilateral femoral head dysplasia and bilateral false acetabula.

perineum in bilateral cases are frequently seen. The femoral heads can be felt in a superior position near the anteroinferior iliac spine or posteriorly displaced to the sciatic notch. Palpation of the femoral pulses might be difficult. A typical gluteus medius gait (Trendelenburg gait and positive Trendelenburg sign) will be present in unilateral and bilateral CDH. Patients with bilateral CDH will also have the characteristic duck-waddle gait. There is usually an increased lumbar lordosis and a protuberant abdomen with bilateral anterior dislocation due to tilting forward of the pelvis. Scoliosis, due to unilateral CDH, might lead to osteoarthritic changes in the lumbar spine.[1,2,4,6] The hip range of motion is decreased. Internal rotation is usually affected first. A fixed flexion contracture and/or a fixed adduction contracture are present. Telescoping (femoral head displacing superiorly and inferiorly when the limb is impacted and distracted respectively) of the involved hip(s) is sometimes possible.

Clinical examination should allow one to differentiate between sacroiliac dysfunction and hip pain due to CDH. Undiagnosed CDH in an adult suggests that CDH may be asymptomatic until mechanical changes create joint dysfunction. These mechanical changes are the result of mechanical stresses created by the increased lordosis, as well as by muscular adaptations necessary to accommodate for the weakened hip abductor muscles and the flexion contracture of the hip. The result is increased forces through the lumbar posterior joints, the sacroiliac joints, and the hip joints. This can present in the form of degenerative changes at the false hip joint or by sacroiliac or lower lumbar joint dysfunction. Sacroiliac syndromes can refer pain over the greater trochanter, groin, or down the posterior thigh. There may be tenderness to pressure at the buttock and decreased movement of the sacroiliac joint.[5]

Complete dislocation of the hip is obvious on an A-P radiograph. A lateral projection of the hip might be necessary to evaluate a partial dislocation. In adults with complete dislocation, the acetabular fossa is shallow and the femoral head and neck are hypoplastic. There is disruption of Shenton's line and a shallow false acetabular cavity can form where the femoral head contacts the innominate. Radiographs can also give an indication of degenerative changes occurring at the false hip joint or at the true hip joint if there is a partial dislocation.

Subluxation of the hips in CDH is sometimes difficult to determine in the adult. Shenton's line is not always broken. Measurement of the acetabular angle and lateral displacement of the femoral head will help determine the extent of subluxation. To determine lateral displacement Perkin's line is drawn (Figure 5). The upper inner margin of the femoral neck is normally medial to Perkin's line. The distance from this point to the inferior edge of the ischial portion of the acetabulum is a useful comparison in determining unilateral subluxation. The acetabular angle (Figure 5) is a measurement of the slope of the upper half of the acetabular wall.[7] A mean adult angle for a normal hip is 22 degrees ± 4.2 degrees[8], and greater angles suggest a shallow acetabulum. Decreased joint space and early degenerative changes will also assist in making the diagnosis of a subluxation of the hip in CDH.

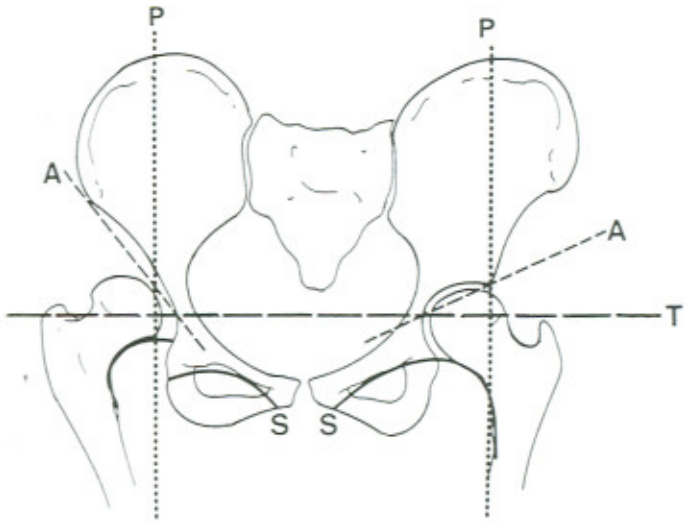

Figure 5 Demonstration of disruption in Shenton's line and a shallow acetabular fossa on the left.
T = transverse line drawn through the centres of both acetabulae.
P = Perkins line drawn at right angles to T from the upper outer edge of the iliac portion of the acetabulum.
A = acetabular angle – determined by a line through the superolateral point of the acetabulum and its intersection with T at the acetabular centre point. (If there is no clear superolateral point the oblique line should be an approximation of the slope of the iliac portions of the acetabular roof.)
S = Shenton's line a continuous arc along the inferomedial surface of the femoral neck with the superior roof of the obturator foramen.

Manipulative treatment of patients with CDH should impart minimal torque to the hip joints. Due to the flexion contracture, extension of the downside leg will put added stress to the hips. This, therefore, can be minimized by using side posture with the hips and knees flexed bilaterally. The contact is over the superior sacroiliac joint or the lumbar posterior joints with the thrust through the joint. Often the patient is unable to internally rotate and abduct the hip without pain, therefore, the patient's upper thigh cannot be utilized as a lever. This necessitates a modification of the normal side-posture manipulation. Further treatments to assist patients with CDH include exercises to strengthen the abductor muscle group. Fluori-methane spray and stretch and interferential current therapy may also benefit the rehabilitation of the abductor muscles.

Conclusions

The three presented cases illustrate the need to differentiate the true site of origin of pain. A thorough examination of the lumbar spine and hips will lead to an accurate diagnosis. It is important

to make modifications to the manipulative technique of the sacroiliac joints or lumbar posterior joints in patients with hip pathology in order to avoid excess abduction, internal rotation, and flexion of the involved hips.

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