

Postpartum symphysis pubis diastasis

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The pubic symphysis is a midline, nonsynovial joint that connects the right and left superior pubic rami. The interposed fibrocartilaginous disk is reinforced by a series of ligaments that attach to it. The joint allows very limited movement of approximately 0.5-1mm. Under hormonal stimulation during pregnancy, there is widening of the symphysis pubis and the sacroiliac joints. Diastasis wider than 15 mm is considered subdislocation and is generally associated with pain, swelling, and occasionally deformity. Most cases can be treated conservatively. However, internal or external surgical stabilization may occasionally be required.

Case report

A 27 year-old petite (4'9", 77 pounds) female G1P1 had a prolonged second stage of labor with spontaneous vaginal delivery of a 3334-gram child. After her epidural wore off, the patient noted severe anterior pelvic pain, and was unable to move due to the severity of pain. Lying supine alleviated the pain. Attempts by physical therapists to mobilize the patient had failed due to significant pain and discomfort. She also described crepitation anteriorly over the pubic symphysis area. Given the severity of symptoms, the patient was evaluated by an orthopedic surgeon. On physical exam, there was no obvious instability with compression of both iliac wings. There was reproducible pain over the midline and in the infraumbilical region, and exquisite tenderness over the pubic symphysis, with a small palpable defect.

Radiographs of the pelvis were ordered to further assess the symphysis pubis and the sacroiliac joints. Initial images of the pelvis were obtained on postpartum day 3 and demonstrated abnormal widening of the symphysis pubis to a



Figure 1. 27-year-old female with postpartum symphysis pubis diastasis. AP radiograph of the pelvis shows abnormal widening of the symphysis pubis (arrow) to a maximal transverse measurement of 3.4 cm. There is no sacroiliac joint widening or fracture.

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maximal transverse measurement of 3.4 cm (Fig. 1). There was no definite sacroiliac joint widening.

Given imaging findings and the stability of the posterior ring, conservative management was recommended, and the patient was placed in a pelvic binder. It was recommended for her to bear weight as tolerated. Sequential images at followup were obtained (Figs. 2 and 3). The patient improved clinically and radiographically. On followup visits, she reported progressive improvement of symptoms.

Discussion

Symphysis pubis diastasis is defined as separation of the joint, without fracture. It is a condition that allows excess lateral or anterior movement about the symphysis pubis and can result in symphysis pubis dysfunction. It is most commonly associated with pregnancy and childbirth, though trauma may occasionally be a culprit. In general, one in four women are affected, to a varying degree. The reported prevalence of nontraumatic diastasis varies from 1 in 300 pregnancies to 1 in 30,000 pregnancies (1). Marked



Figure 2. 27-year-old female with postpartum symphysis pubis diastasis. AP radiograph of the pelvis obtained before discharge with the pelvic brace on. Brace is seen as a vertical-appearing radiodensity projecting over the pubic symphysis. There is improvement of the symphysis pubis alignment, measuring 2.8 cm.

regional variations in prevalence have been noted, with reported rates in Norway as high as 37.5% (2). In recent years, a possible increase in prevalence has been noted in the United Kingdom by some authors, but it is not clear whether this is a true increase or if it is merely due to increasing awareness of this diagnosis (3).

The pubic symphysis is a midline, nonsynovial, amphiarthrodial, fibrocartilaginous joint that connects the superior pubic rami. The joint is reinforced by four ligaments: the superior, inferior, anterior, and posterior pubic ligaments (4) (Figs. 4 and 5).

The interpubic cartilaginous disc and the anterior pubic ligament are the most important structures maintaining stability of the joint (4). The physiologic width of the normal cleavage differs with age, ranging from 10mm at the age of 3, to 6mm at 20 years of age, to 3mm at 50 years of age (5). Women have a greater thickness of the fibrocartilaginous disk, which allows more mobility of the pelvic bones, providing for a greater pelvic diameter to facilitate childbirth. During pregnancy, under the influence of hormones, particularly relaxin, the gap in the symphysis pubis can increase by at least 2-3 mm (6). In pubic symphysis diastasis, the separation of the right and left pubic rami

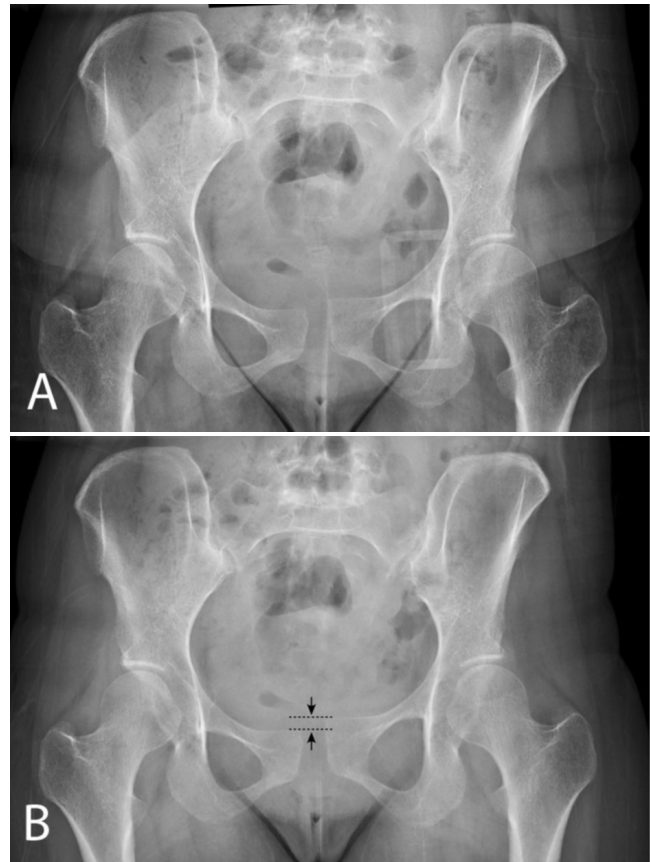


Figure 3. 27-year-old female with postpartum symphysis pubis diastasis. AP radiographs of the pelvis 6 weeks postpartum (A) with the brace and (B) without the brace demonstrate marked reduction of the diastasis with a normal distance of 1.2 cm. There is minimal vertical displacement of the left superior pelvis (arrows). There is no evidence of radiographic instability with the brace off.

may increase to a width of greater than 10 mm (7). This may result from rapid or prolonged vaginal birth or assisted forceps delivery, or it can occur prenatally. If there is complete separation or a traumatic tear, the joint will be completely unstable and the tear can sometimes be heard by women.

The abnormally widened gap can cause significant pain followed by inflammation and swelling. In the supine position, a patient's legs will involuntarily move apart. When this condition is encountered, investigation into possible involvement of the sacroiliac joints is required. The SI joints may be bilaterally or unilaterally involved.

Diagnosis may be made based on multiple imaging studies. On radiographs, there is an abnormally wide gap between the pubic bones, as in our case. Further instability may be demonstrated on standing/flamingo-position films (6). On standing films, a vertical displacement of greater than 1 cm indicates instability of the symphysis pubis; greater than 2 cm is highly associated with sacroiliac joint

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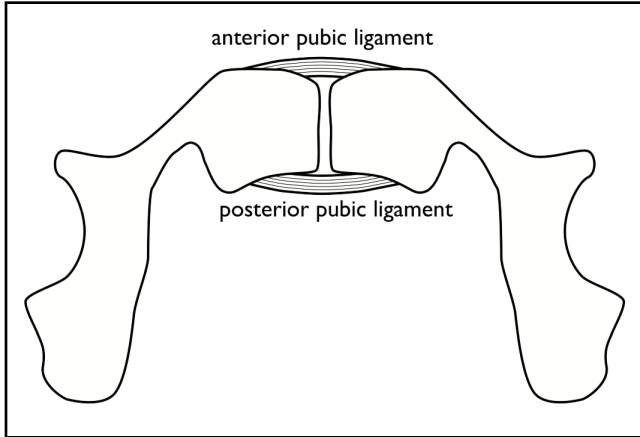


Figure 4. 27-year-old female with postpartum symphysis pubis diastasis. Axial view of pubic symphysis, showing anterior and posterior pubic ligaments.

involvement. Cross-sectional studies, MRI or CT, can produce detailed information about the symphysis pubis as well as involvement of the SI joints (6). MRI is superior in demonstrating soft-tissue injury and inflammation of the subchondral region and the bone marrow. Bone-scan studies are also able to determine areas of bony inflammation.

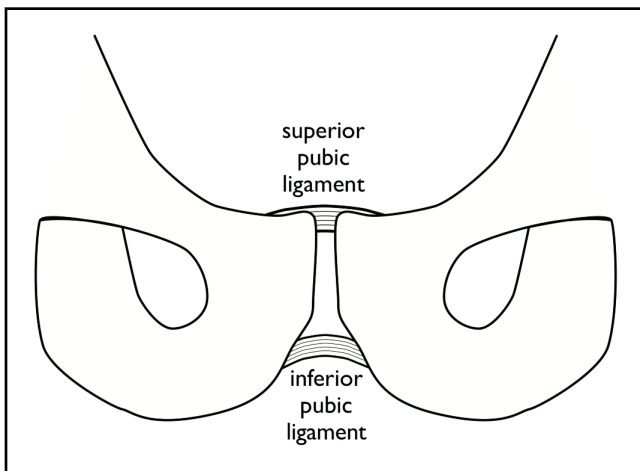


Figure 5. 27-year-old female with postpartum symphysis pubis diastasis. Frontal view of pubic symphysis, showing superior and inferior pubic ligaments.

Additionally, a small Swedish study has shown ultrasound to be as precise as radiographs in diagnosing symphyseal widening without risk of radiation to the fetus (8).

There is no overwhelming evidence in the medical literature to support any particular treatment. However, this condition is commonly treated conservatively, with stabilization of the pelvis using a brace/pelvic belt and muscle strengthening. Analgesics and anti-inflammatory medication are used to treat the pain as required. On occasion, women may benefit from physical therapy. In severe cases, orthopedic surgical consultation and operative fixation of the pelvis may be necessary (1, 5, 9). Although specific recurrences are difficult to predict, women must be informed of the high recurrence rate of 68-85% in future pregnancies (6).

In summary, our case demonstrates an extreme case of pubic symphysis diastasis related to prolonged labor. Our patient was treated conservatively, with successful results. Diagnosis and progress to healing was documented by radiographs.

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