

# Symphysis Pubis Separation During Childbirth

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Separation of the symphysis pubis during labor and delivery is a rare event in modern medicine, occurring at an estimated rate of 1:600 to 1:3400 deliveries in the United States.<sup>1-3</sup> Separation can occur during the first or second stage of labor or at the moment of delivery itself. Symptoms can occur anytime during labor or up to several days after delivery when the patient becomes active. A case is reported here of severe separation of the symphysis pubis during delivery, including several previously unreported complications. A review of the literature follows, highlighting the variety in presentation, treatment, and prognosis.

## Case Report

A 20-year-old primigravida with no prenatal medical problems came to the hospital at 41.5 weeks' gestation for induction of labor. She was 4 cm dilated, and amniotomy was done. Estimated fetal weight was 8 to 9 lbs. Within 2 hours she began having regular contractions and progressed to complete dilation 5 hours after rupture of membranes. She pushed in the second stage for approximately 1 hour, then gave birth to a 4060-g healthy boy. At her request she did not have an episiotomy. The delivery was controlled and not rapid or precipitous. She had small bilateral periurethral tears and an estimated blood loss of 400 mL. Immediately following delivery of her infant, during fundal massage, she was noted to have urinary incontinence. The remainder of the delivery progressed normally.

At 4 hours postpartum the patient was noted again to be incontinent of urine and was not moving her legs because of severe pain in her back. On examination she had diffuse sacral tenderness, extensive perineal edema, and a flaccid anal sphincter. Results of a neurological examina-

tion of her legs were normal. Eighteen hours after delivery she was unchanged and unable to move her legs without severe pain in her sacrum. A radiograph of the pelvis showed a normal coccyx and sacrum and a separation of the symphysis pubis of 5.8 cm. (Figure 1) A computed tomography (CT) scan 2 days later showed a symphysis separation of 4.0 cm, with a 3 × 5-cm hematoma between the pubic symphysis and the urethra, pressing on the urethra and bladder neck. On catheterization of the urinary bladder she was found to have overflow incontinence. During the preparation for the CT scan, she was given a contrast material that caused diarrhea. She was unable to sense the need to have a stool and had fecal incontinence. She had marked tenderness of the pubic symphysis. Her back pain was attributed to a hinge movement of the sacroiliac joints when the pubic symphysis separated.

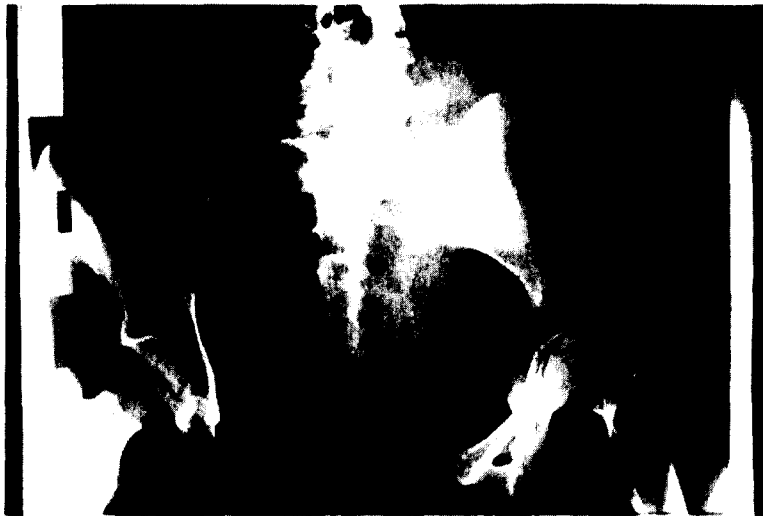
I consulted an orthopedic surgeon, who recommended that the patient be treated with a pelvic sling attached by means of an overhead bar to a 15-pound weight. After 3 days her pain was mostly relieved at rest but was still moderately severe on any movement of her legs, and she continued to require analgesia. One week after delivery a radiograph showed a pubic symphysis separation of 1.6 cm. A tight pelvic girdle was applied, and the pelvic sling was discontinued. The patient was pain free at this point except when moving out of bed, but she required no further analgesia. She had sensation in her bladder and rectum by day 5, and her fecal incontinence resolved. The urinary catheter was discontinued on the 8th postpartum day. She was allowed out of bed and could sit in a chair while wearing her pelvic girdle on day 7, and on day 11 she started walking with assistance. She had no problems breastfeeding her infant son but needed help lifting and caring for him while she was bedridden in the hospital. By day 14 she was walking well without her walker and was discharged to her home. A radiograph at this time showed a pubic symphysis that had widened again to 3.0 cm.

Six weeks postpartum she was walking well without difficulty or pain. A radiograph showed a symphysis separation of 2 cm. She was advised

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**Figure 1. Radiograph showing 5.8 cm separation of the symphysis pubis.**

that all normal activity could be resumed, including exercise. She continued to wear the pelvic girdle most of the time. Return visits and radiographs at 4 months, 6 months, and 8 months postpartum showed her to be asymptomatic with symphysis separation of 1.2 cm at each visit. She wore the pelvic girdle only sporadically after the 4-month visit.

### **Discussion**

Symptomatic separation of the pubic symphysis was first described in the English literature by Snelling in 1870.<sup>4</sup> The first series of 54 cases of pelvic separation was reviewed by Brehm and Weirauch in 1928.<sup>5</sup> Since that time symptomatic pubic symphysis separation has been reported several times in the literature with incidences of occurrence varying from 1:521 to 1:30,000 deliveries.<sup>6-10</sup> More recently, three studies have been reported with documentation by radiograph. Kane, et al.<sup>1</sup> in New York in 1967 reported an incidence of 1:3400 patients. In 1985 Schwartz, et al.<sup>2</sup> in Israel reported an incidence of 1:2218. In 1986 Taylor and Sonson<sup>3</sup> in Hawaii reported an incidence of 1:600 patients.

The tremendous variation in incidence for this disorder is confounded by several factors. First is the inconsistency of documentation by radiograph in these various studies. Only in the more recent studies since the 1960s have most of the

cases been documented by radiographs. Additionally, the definition of pubic symphysis separation is determined by differing degrees of symphysis separation in these studies. In some reports, symphysis separation is defined as greater than 1 cm,<sup>3</sup> whereas others define separation of the symphysis as greater than 0.5 cm.<sup>1</sup> In other reports, pubic symphysis separation is defined clinically and is not measured radiographically at all. An analysis of the more recent, better documented studies gives an incidence of 1:600 to 1:3400 deliveries.<sup>1-3</sup>

Studies document that the normal width of the symphysis pubis is between 4 and 5 mm in non-pregnant women, and between 7 and 8 mm in pregnant women.<sup>1,11</sup>

Whereas symptomatic symphysis pubis separation can occur in the 5- to 10-mm range, it is commonly agreed that any separation of 1 cm or greater is considered abnormal, even though symptoms are variable beyond 1 cm of separation. In the most recent review of this subject by Lindsey, et al. in 1988,<sup>12</sup> separation of more than 1 cm represents partial or complete rupture of the symphysis pubis ligaments. Separation can occur during the first or second stage of labor or at the moment of delivery itself. Symptoms can occur anytime during labor or up to several days after delivery when the patient becomes active. Relaxation and elasticity of the pubic ligaments are known to occur prenatally as a result of the effects of progesterone and relaxin.<sup>13</sup> Slight asymptomatic widening of the symphysis pubis during pregnancy is common; however, the maximum that has been reported is 1 cm.<sup>12</sup> It is thought that during labor and delivery the mechanical forces of the birth cause a partial or complete rupture of the pubic ligaments.<sup>2,3</sup> A rapid delivery is thought to play a role in rupture of the pubic ligaments, but intervention with the vacuum extraction or forceps delivery has not had an important role in the series reported.<sup>3</sup>

Clinically, separation of the symphysis pubis is heralded by pain in the region of the symphysis, with point tenderness in the region of the symphysis pubis and pain in that area on compression

of the pelvis. Pain usually occurs with walking, and an unstable or waddling gait is noted. With wider separations, back pain in the sacroiliac joints becomes more prevalent because of the hinge-type movement when the pelvis widens. There can be edema, hemorrhage, and a palpable gap at the symphysis pubis. The clinician can best appreciate the gap by placing one finger in the vagina and the thumb on top of the symphysis pubis and palpating the area between the two.<sup>1</sup> Edema and hemorrhage can produce a mass effect between the symphysis and the urethra sufficient to impair micturition.

In this patient urinary and fecal incontinence were accompanied by lack of sensation in the bladder and rectum. A hematoma behind the symphysis pubis, documented on CT scan, could have contributed to the overflow urinary incontinence. Trauma or mass effect might have contributed to the lack of bladder and rectal sensation by placing direct pressure on the sacral nerve roots (S4, S5). One could speculate that the mechanical trauma of the sacroiliac joint hinge motion during symphysis pubis separation somehow traumatized the sacral nerves.

A review of the literature revealed no report of a separation of the symphysis pubis of this degree (previous largest documented separation was 4.5 cm)<sup>12</sup> and no reported complications of urinary or fecal incontinence. The case presented here represents a particularly severe separation of the symphysis.

Treatment is generally nonoperative, and functional recovery should be complete.<sup>12</sup> Reduction of the symphysis separation is accomplished either by use of a pelvic sling or tight pelvic binding (or both), temporary bed rest in a lateral decubitus position, and analgesia. Walking is allowed when the pain is tolerable, anywhere from 2 days to 2 weeks after delivery. Schwartz, et al.<sup>2</sup> reported a series of 13 patients in Israel who had a quicker recovery with daily injections of hydrocortisone, chymotrypsin, and lidocaine into the symphysis pubis, but this treatment has not been reported in other countries. Surgical intervention is rarely indicated, but when necessary, reduction can be obtained with internal or external fixation devices. Prognosis is uniformly good; however, some women require as much as 8 months before they are free from pain when walking. The separation of the symphysis pubis often corrects itself,

although many women do retain some degree of symphysis separation after they are asymptomatic. Outcome of future pregnancies is debated in the literature, with approximately one-half the studies reporting no recurrence of the symptomatic symphysis separation on subsequent deliveries, and the other one-half reporting some degree of symptomatic separation with nearly all of subsequent pregnancies.<sup>1,2</sup> A minority of authors recommend Cesarean section for subsequent pregnancies.<sup>7</sup>

### Summary

A severe case of separation of the symphysis pubis during labor and delivery is reported, which included severe pain and unusual complications of urinary outflow incontinence and fecal incontinence that gradually resolved with conservative treatment. The incidence of symphysis pubis separation is reported to be between 1:600 and 1:3400 obstetric patients. Treatment should generally be conservative and symptomatic. Prognosis for recovery is excellent. Recurrent separation of the symphysis pubis could occur during subsequent deliveries but generally is no worse than the first occurrence.

This case report illustrates the unusual complications that can occur with severe diastasis of the symphysis pubis during pregnancy. Family physicians, obstetricians, and orthopedic surgeons could encounter this complication of childbirth in their own practices. Although the symptoms are dramatically severe in presentation, a conservative management approach is effective.

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