

# Split Apart Postpartum: A Case Report of Postpartum Pubic Symphysis Diastasis

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**ABSTRACT** Pubic symphysis diastasis following childbirth via vaginal delivery is a rare but debilitating condition. It is an uncommon and under-diagnosed condition resulting in acute pelvic pain and deformity. Since postpartum pain is frequently dismissed as attributable to labor and childbirth, the diagnosis of pubic diastasis is often delayed and sometimes missed altogether. In this article we report a case of 35 years old multigravida with pubic symphysis diastasis presenting on second-day postpartum. Management consisted of simple conservative treatment with binders and analgesics, which were sufficient in achieving a complete reversal of the condition. A multi-disciplinary approach is essential in both early detection and treatment for satisfactory patient outcomes.

**KEYWORDS** Pelvic pain, Vaginal delivery, pubic symphysis, diastasis, management

## Introduction

The pubic symphysis is a midline, non-synovial 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 a widening of the symphysis pubis and the sacroiliac joints. Diastasis symphysis pubis is when your pelvis splits at your symphysis pubis (the cartilage holding your pelvis together) without concomitant fracture.

Diastasis wider than 10 mm is generally associated with pain, swelling, and occasionally deformity [1].

The incidence of complete separation of the pubic symphysis is reported to be within 1 in 300 to 1:30,000, with many instances likely undiagnosed [2]. Patients can present with pubic symphysis diastasis before delivery, during delivery, or most commonly postpartum. Most cases can be treated conservatively.

This paper describes the case of a patient who presented post-delivery with acute abdominal pain and difficulty in walking, diagnosed as pubic symphysis diastasis and discusses the etiopathogenesis, clinical and radiological features, and treatment modalities.

## Case Report

A 35 years-old female G3P2L2 at 39 weeks period of gestation weighing 72 kgs with no significant past medical or surgical history presented to the emergency in active phase of labour. She had spontaneous onset of labour at term. The active phase lasted 12 hours and was augmented with amniotomy and oxytocin. The labour was prolonged resulting in delivery of a 3.7 kg neonate by normal vaginal delivery. Following delivery, she noticed difficulty in walking and getting up and pain lower abdomen.

The pain was gradual in onset aggravated on walking and carrying her child, and relieved on lying supine. On the second postpartum day, the patient noted severe lower anterior abdominal pain radiating to the back and thighs, and was unable to move due to the severity of pain. Because of the severity of the pain she also had retention of urine for which she was catheterised. The pain was not relieved even on emptying the bladder. There was no history of incontinence of urine.

On examination, her vitals were normal, per abdomen there was tenderness and guarding in the infra umbilical region. The

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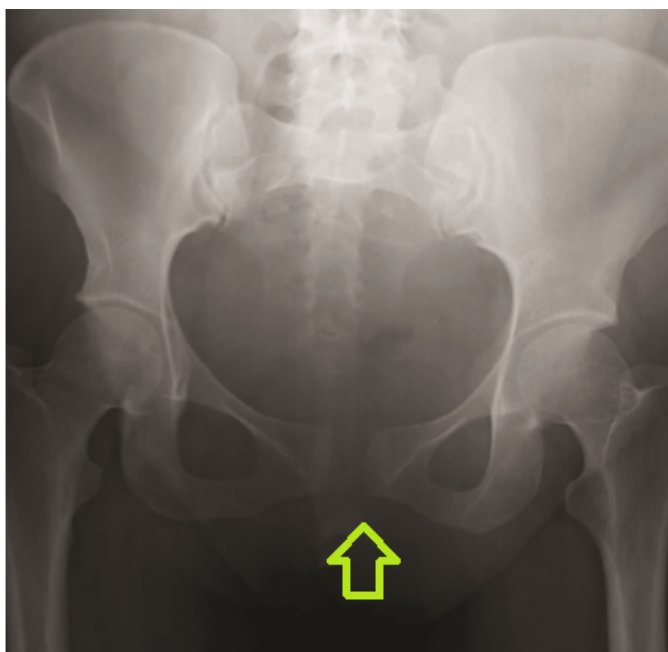
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uterus was around 18 weeks size, well retracted. The abdomen was non-distended and bowel sounds were present. On per speculum examination, there was no evidence of perineal or cervical tear, and lochia was healthy.

Complete hemogram, erythrocyte sedimentation rate, coagulation tests, blood glucose, renal and liver function tests were normal. Pelvic ultrasonography was normal.

Radiographs of the pelvis were ordered to assess the symphysis pubis and the sacroiliac joints further and demonstrated abnormal widening of the symphysis pubis to a maximal transverse measurement of 2.8 cm (Fig. 1) and a diagnosis of pubic symphysis diastasis was made. There was no sacroiliac joint widening.

Based on the imaging findings, orthopaedic opinion was sought. A neurologist opinion was also taken, and it was observed that power, tone and reflexes were normal. Conservative management was recommended with analgesics and anti-inflammatory drugs, and the patient was placed in a pelvic binder. The patient was discharged on day seven and reviewed after six weeks of conservative management. The patient had progressive improvement of symptoms and improved radiographically as well.



**Figure 1.** Posteroanterior view of the pelvis showing symphysis pubis diastasis. Sacroiliac joints appear normal.

## Discussion

The pubic symphysis is a synovial joint separated by a fibrocartilaginous disc and supported by superior and inferior pubic ligaments, which are mainly responsible for the strength of the joint [3]. 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 [4].

Pubic symphysis diastasis following childbirth via vaginal delivery is a rare but debilitating condition. Widening of the cartilaginous joint during pregnancy before childbirth is physiologic and assists in expanding the birth canal for successful delivery [2]. It is common to find many women complain of

groin and pubic pain during pregnancy which is due to physiological separation of symphysis pubis. The physiological process of joint relaxation starts at around ten weeks and reaches maximum at or near term, and returns to normal by 4 to 12 weeks' postpartum [5]. Pubic symphysis diastasis is usually considered with separation wider than 10 mm and is generally associated with pain, swelling, and occasionally deformity [1]. The magnitude of separation does not correlate well with the severity of symptoms. Identified risk factors for postpartum pubic symphysis diastasis include primigravida women, multiple gestations, prolonged active labour, forceps deliveries, infant macrosomia, cephalopelvic disproportion, fundal or suprapubic pressure, epidural analgesia and shoulder dystocia or McRoberts manoeuvre [6]. Complicated deliveries are prone to soft tissue (levator ani muscle) and bone lesions due to the stretching forces. It has also been reported in unsupervised home vaginal deliveries [7].

Other theoretical causes or predisposing factors for pubic symphysis diastasis include [8]: Biomechanical strain of the pelvic ligaments and associated hyper-lordosis; anatomical pelvic variations and "contracted pelvis"; metabolic (calcium) and hormonal (relaxin and progesterone) changes leading to ligamentous laxity; extreme weakening of the joint; tearing of the fibrocartilaginous disc during delivery; narrowing, sclerosis, and degeneration of the pubic joint; muscle weakness; increased pregnancy-related weight gain.

Relaxin, a hormone secreted by the placenta during pregnancy, peaks during the first trimester and again peripartum in females. Relaxin serves to relax the pelvic ligaments and contribute to softening of the cartilage of the pubic symphysis for preparation of the birth canal for delivery [9]. During pregnancy, under the influence of hormones, particularly relaxin, the gap in the symphysis pubis can increase by at least 2-3 mm [4].

A careful evaluation to rule out labial and perianal tears and lacerations, venous thrombus embolisms, musculoskeletal low back pain, and lumbosacral radiculopathy; pubic osteolysis, osteitis pubis, bone infection (osteomyelitis, TB, syphilis), tumours, postpartum fracture, abscess, osteomyelitis have to be considered [8]. A careful history, clinical examination, and ultrasound or plain film radiography can aid in the diagnosis process.

Imaging is the investigation of choice to confirm the diagnosis. Pubic symphysis diastasis can be established with simple x-ray pelvis. The bilateral sacral iliac joints should also undergo evaluation on plain radiography for gapping or gross separation.

A CT with three-dimensional reconstruction is also helpful in the further evaluation of the pubic symphysis and sacral iliac joints. If plain radiographs show a significant pubic separation greater than 4 cm, treatment algorithms support obtaining non-contrast-enhanced magnetic resonance imaging to assess for surrounding soft tissue injury, extent of sacroiliac joint injury, sclerosis and osteomyelitis [10].

Discussions of multiple treatment options in the literature include non-operative treatment with an application of pelvic binder coupled with physical therapy and immediate weight-bearing, non-weight bearing with bed rest, closed reduction with application of binder, application of anterior external fixator with or without sacroiliac screw fixation, and anterior internal fixation with plate and screws. In most cases, conservative, non-operative management is recommended and yields good functional outcomes. Physiotherapy is helpful [11]. Distorted pelvic anatomy, increased pelvic vascularity, and peripartum hypercoagulability complicates surgical intervention [12,13]. It

is suggested that surgical correction should be offered if the diastasis is more than 3 cm wide [14].

Prognosis is very good for the majority of patients who experience postpartum pubic symphysis diastasis, and in most cases, full recovery without persistent pain is the expectation. Urinary outflow obstruction, hematoma formation, sustained painful ambulation and rarely venous thrombus embolism attributable to prolonged immobilisation complicate the case sometimes. Chronic pelvic pain and dyspareunia are delayed complications.

In case of next pregnancy, the mode of delivery will have to be discussed with the patient due to the traumatic past and the patient's fear of recurrence of symptoms. Vaginal delivery can be advised, leaving a choice upon the patient with discussion about prevention and therapeutic possibilities [15]. The obstetrician conducting the delivery should be alert to the recurrence or a gap developing in the sacroiliac joints or a resultant fracture in case the gap widens significantly to prevent instability to the pelvic girdle [16].

## Conclusion

Pubic symphysis diastasis is an uncommon and underdiagnosed condition resulting in acute pelvic pain. Various high-risk factors such as primiparity, abnormally greater or less duration of labour, shoulder dystocia, Mc Roberts manoeuvre, and epidural anaesthesia etc. are associated with the phenomenon. The magnitude of separation, however, does not correlate well with severity of clinical features. A multi-disciplinary approach is essential in both early detection and treatment for satisfactory patient outcomes. Warning signs can be falsely interpreted as complaints related to pregnancy and can give rise to diagnostic delays. Besides there is increased incidence of recurrence in subsequent pregnancies. Therefore, this disease should also be investigated in the differential diagnosis of pregnant patients presenting with acute pelvic pain postpartum.

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## Competing Interests

The authors declared that this review was done independently without any conflict of interest of any organizations that would lead this review to bias.

## Ethical statement

This is a retrospective case report without the use of any samples from patients, so ethical approval can be waived.

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