

# Postpartum pubic symphysis diastasis: a case report and review of literature

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## ABSTRACT

**BACKGROUND:** Symphysis pubis diastasis is defined as an abnormally wide gap of more than 10 mm between the two pubic bones. The present report describes a case of woman who experienced a symphysis pubis diastasis.

**CASE:** Following delivery, a 38-year-old gravida 3 para 0 at 41,5 weeks gestation complained of severe pain in the symphysis pubic region. We formulated the suspect diagnosis of pubic symphysis diastasis, that was confirmed by an anterior - posterior pelvic x-ray, which showed a pubic separation of 16 mm. We decided to perform a conservative approach and patient was discharged from hospital 1 week after delivery. One month later she was seen at the outpatient clinic. Assessment by the orthopaedic team found her to be in good health. The obtained results were considered successful.

**CONCLUSION:** It is important for physicians and other health care providers involved in the care of pregnant women to be aware of symphysis pubis diastasis as a potential complication.

**Keywords:** pubic symphysis diastasis, pubic symphysis, pregnancy complication, diastasis, post partum

## INTRODUCTION

Symphysis pubis diastasis is an uncommon intrapartum complication. The reported incidence of peripartum pubic diastasis varies widely in the literature, from 1 in 300 to 1 in 30.000 deliveries<sup>(1-5)</sup>.

The pubic symphysis is a secondary cartilage-like joint, classified as amphiarthrosis, covered by a layer of hyaline cartilage separated by a softer fibrocartilaginous disc, acting as a buffer, and reinforced by 4 ligaments<sup>(6,7)</sup>. It is a joint that allows only very limited movement except under hormonal stimulation during the third trimester of pregnancy or during birth when it becomes progressively looser<sup>(6,7)</sup>. This increase in elasticity of the pubic ligaments results from exposure to elevated levels of progesterone and relaxin<sup>(6,8,9)</sup>.

## RIASSUNTO

**BACKGROUND:** la diastasi sinfisi pubica è definita come un anormale ampio divario di più di 10 mm tra le due ossa pubiche. Il presente relazione descrive uno caso di donna che ha sperimentato una diastasi sinfisi pubica.

**CASO:** A seguito del parto, una donna di 38 anni gravida 3 para 0 a 41,5 settimane di gestazione lamentava forti dolori nella regione sinfisi pubica. Abbiamo formulato la diagnosi di sospetto di diastasi sinfisi pubica, che è stato confermata da un x-ray antero-posteriore del bacino, che ha mostrato una separazione pubica di 16 mm. Abbiamo deciso di effettuare un approccio conservativo e la paziente è stata dimessa dall'ospedale 1 settimana dopo il parto. Un mese dopo è stata vista in ambulatorio. La valutazione da parte del team ortopedico è stata di essere in buona salute. I risultati ottenuti sono stati considerati ottimi.

**CONCLUSIONE:** È importante per i medici e gli altri operatori sanitari coinvolti nella cura delle donne incinte di essere a conoscenza della diastasi sinfisi pubica come potenziale complicazione.

**Parole chiave:** diastasi sinfisi pubica, sinfisi pubica, complicazione della gravidanza, diastasi, post parto

In a non-pregnant woman, the normal pubic symphysis gap ranges from 4 to 5 mm<sup>(1)</sup> and the limited possible movements mentioned before are in the range of 0.5-1 mm<sup>(7)</sup>. Starting from the seventh month of pregnancy a widening of the sacro-iliac joint and the pubic symphysis occurs (4-8 mm)<sup>(7)</sup>. After delivery, the laxity of the ligaments decreases and pelvic stability returns<sup>(6)</sup>.

Indeed, separation of less than 1 cm is considered normal<sup>(6)</sup>. However, in some cases with accompanying risk factors pathologic symphysis pubis diastasis may occur. This condition is defined as an abnormally wide gap of more than 10 mm between two pubic bones<sup>(8)</sup>.

We present a case of woman who experienced a symphysis pubic diastasis after a straightforward, uncomplicated, non-operative, term vaginal delivery, with the aim to perform a review of literature on this topic and inform all clinicians about this condition.

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## CASE REPORT

A 38-year-old gravida 3 para 0 at 41,5 weeks gestation was admitted to Niguarda Ca' Granda Hospital Obstetric Department in Milan after spontaneous rupture of the membrane. She was known to be group B Streptococcus negative. She had an uneventful antenatal history, and all her routine antenatal blood investigations and ultrasound scans were normal. The pelvic examination on admission revealed a 70% effaced cervix, dilated 1 cm, vertex at stage -3 and a drip of clear fluid. Cardiotocography was normal. After 24 hours of waiting, the local conditions of the patient were unchanged compared to admission. So labor was induced with a Dinoprostone 10 mg vaginal slow-release system. After another 24 hours, the examination revealed an unchanged local condition. The patient had an inadequate contraction pattern with a high level of discomfort. So the patient received an epidural for pain relief and labor induction with oxytocin was begun. After nine hours and 30 minutes she delivered a 3460 g male baby without complications.

On the first post partum day, she complained of severe pain in the symphysis pubic and sacral region and was unable to walk. On examination, there was a gap and local tenderness and edema in the region of the symphysis pubis. Palpation caused the patient a great deal of pain. We formulated the suspect diagnosis of pubic symphysis diastasis. As a result, we suggested the use of analgesics, bed rest and a radiography of the pelvis. An anterior - posterior and lateral pelvic x-ray was done, which showed a pubic separation of 16 mm (Figure 1).

**Figure 1**

*Anterior - posterior pelvic x-ray shows a pubic separation of 16 mm (white arrow) whereas the sacro-iliac and hip joints appears to be intact.*



The sacro-iliac and hip joints appeared intact. At this point, and after our diagnostic doubts were confirmed, a referral was made to the orthopedic surgeon, who recommended bed rest, with the possibility of movement from bed to chair, avoiding prolonged standing. Furthermore, he asked to plan a clinical and radiological test after 30 days. A consultation with the anaesthesiologist was obtained, for the severe pain experienced by the patient. An intravenous administration of fluids, opioids and drugs for gastroprotection was started. The patient was discharged from hospital 1 week after delivery. She was advised to maintain active ambulation and start physiotherapy. One month later she was seen at the outpatient clinic. She was able to walk independently and no longer experienced any pain. Physical and pelvic examinations were unremarkable. Assessment by the orthopaedic team found her to be in good health. Clinically the patient did not complain of any pain whatsoever, even during pubic manual pressure. The obtained results were considered successful. She was counseled regarding the possibility of a recurrence in her next pregnancy.

## DISCUSSION

Despite the pubic symphysis has been extensively studied, several aspects of the anatomy and physiology of this structure remain unknown and unclear. The reported incidence of the postpartum diastasis varies widely and it refers only to the symptomatic forms. This variation is due to lack of studies that have analyzed systematically the behavior of the symphysis pubis during pregnancy and labor. Furthermore, the detection rate depends on physician's concern about this condition. The detection rate would be low if patients and physicians neglect a diastasis considering pubic pain as a transient uneventful symptom around labor<sup>(10)</sup>.

A symptomatic diastasis of the pubic symphysis after birth is a rare, but painful complication that causes serious distress to the patient<sup>(7)</sup>.

Pathophysiology of this condition is not clearly defined in literature. During pregnancy pelvic joint relaxation caused by relaxin and progesterone is a physiological adaptation that enables normal vaginal delivery<sup>(6,8,9,11)</sup>. The symptomatic gap of >10mm is considered abnormal<sup>(6)</sup>. The gap was 16 mm in the present case.

The clinical factors thought to contribute most to the development of symptomatic symphyseal separation are fetal macrosomia and cephalopelvic disproportion<sup>(6)</sup>. Other contributing factors

include multiparity, precipitous labor or rapid progression of second stage labor, rapid descent of presenting part, intense uterine contractions, prior pelvic trauma to the pelvic ring, the use of oxytocin, epidural anesthesia, malpresentation, difficult forceps delivery and forceful abduction of the thighs during delivery<sup>(5,6,9,11,12)</sup>. Abnormalities caused by connective tissue disorders, congenital dysplasia, osteomalacia, chondromalacia, rickets, tuberculosis, arthritis, or hormonally related softening of the ligaments during pregnancy may also play a role<sup>(6,8,9,11)</sup>. However, these factors were speculative, which were not verified statistically<sup>(10)</sup>.

The most consistent finding is pain in the symphyseal region that radiates to the lower back and thighs and is exacerbated by leg movement<sup>(6)</sup>. Pain is often immediate and preceded by a "popping" or "snapping" sensation<sup>(2,12)</sup>. The pain increases when manual pressure is applied to the pelvis in a latero-lateral and antero-posterior direction<sup>(7)</sup>. Other symptoms include tenderness, instability, allodynia, hyperaesthesia or hyperalgesia at and around the joint site<sup>(6,8)</sup>. In addition, many women will have difficulty walking, in fact the gait is described as waddling, or potentially be unable to stand or walk due to pain<sup>(2,5,11,12)</sup>. In some case it is possible to hear a clicking sound when the patient walks<sup>(7)</sup>. Palpation of the symphysis pubis may reveal a gap with edema or hematoma on the soft tissue overlying the symphysis pubis<sup>(11)</sup>.

A pubic diastasis must be suspected if the patient complains of acute and persistent pain in the pelvic area. Symptoms may be noted during labor and up to 48 hours postpartum. Discovery of a peripartum pubic symphysis separation can be delayed for a significant interval after birth if the patient used epidural anesthesia<sup>(2,6,12)</sup>.

The diagnosis is based primarily on clinical findings. Often the first diagnostic test used to identify the pubic diastasis is an anteroposterior x-ray of the pelvis<sup>(2,6,7,8,11)</sup>. The ultrasonography is another useful diagnostic tool in the diagnosis, it is simple to perform and provide an optimal assessment of the symphysis separation extension<sup>(2,6,8,13)</sup>. The ultrasonography is performed in the following way: place the probe in transverse orientation on the pubic symphysis (identified by palpation) with an approximately 30° caudal scanning plane,

with the purpose of measuring the width of the symphyseal joint at its upper margin. Literature also reports the use of the magnetic resonance imaging and computer tomography of the pelvis to diagnose this condition<sup>(2,8,14)</sup>. The measurement of interpubic gap confirms the diagnosis, but does not appear to predict outcome<sup>(10,13,15)</sup>. Unfortunately, any imaging techniques fail to show a correlation between the size of the symphysis separation and severity of the patient's symptoms<sup>(2)</sup>.

Most cases of symphysis pubis diastasis following vaginal birth can be successfully managed conservatively with strict bed rest, analgesia (e.g. Non-steroidal anti-inflammatory drug and Opioids), activity restriction and later on physiotherapy and pelvic exercise<sup>(3,6,7,8,9,10,11,12,13,15,16,17,18,19,20,21,22)</sup>. This conservative treatment is helpful in most patient and functional recovery is excellent in 6 – 8 weeks<sup>(2,11,12)</sup>. However, an wide separation > 4 cm is usually associated with an skin – rupture of sacroiliac joint and instability of the pelvic ring, which necessitate a surgical intervention<sup>(10,23,24,25)</sup>.

In our case we consulted an anaesthesiologist and an orthopedic surgeon, so we decided the best therapy for our patients together. We decided to perform a conservative approach and patient was discharged with the recommendation to start physiotherapy. We think that a successful treatment requires a multidisciplinary approach involving obstetrics, an anaesthesiologist, an orthopedic surgeon and a physical therapist.

There is little information in the literature about the management of subsequent pregnancies in women with prior pubic symphysis separation. Based on a literature review, there is a significant risk of repeat symphysis diastasis with subsequent vaginal delivery<sup>(3,6)</sup>. Indeed, there appears to be an approximately 50% recurrence risk in subsequent pregnancies<sup>(2,3,18)</sup>.

In summary, minimal separation of the pubic symphysis during pregnancy and delivery is normal, but if the separation becomes wide enough, it can be pathological. It is important, for physicians and other health care providers involved in the care of pregnant women, to be aware of symphysis diastasis as a potential complication.

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