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Pubis Symphysis diastasis during eutocic delivery in an obese primigravid at Kacyiru District Hospital, Kigali, Rwanda

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ABSTRACT

Pubic symphysis diastasis is a rare condition characterized by an abnormal widening of the inter-symphysis joint space exceeding 10 mm, most commonly occurring as a complication of labor and delivery. There is no established gold standard for its management, with treatment ranging from conservative approaches to surgical intervention based on severity and clinical presentation.

Here, we present the case of a 32-year-old primigravid woman at 39 weeks and 2 days of gestation, who was obese and experienced precipitous labor. The patient reported three days of insidious lumbopelvic pain prior to delivery, which was initially attributed to a urinary infection. Following delivery, she developed acute pain and instability in the anterior pelvic ring, rendering her unable to stand or walk. Radiographic imaging confirmed a severe pubic symphysis diastasis measuring 72.7 mm.

Management involved surgical intervention with pelvic external fixation performed by an orthopedic team, along with perioperative care that included blood transfusions, analgesics, and antibiotics. The patient demonstrated excellent recovery, with no recurrence of pain and significant functional improvement. She was discharged on postoperative day 33 under a rehabilitation program involving walking exercises and crutch support.

This case underscores the importance of recognizing risk factors for pubic symphysis diastasis, such as obesity, precipitous labor, and primiparity. It highlights the critical role of early diagnosis and timely surgical management in achieving favorable outcomes, advocating for increased awareness among healthcare providers to prevent delays in treatment.

Keywords: Pubis Symphysis diastasis, obese, primigravid, eutocic delivery

INTRODUCTION

Pubis symphysis diastasis (PSD) is a rare condition characterized by an abnormal widening of the inter-symphysis joint beyond the physiological range [1,2]. The pubic symphysis is a non-synovial joint connecting the right and left superior pubic rami, with a normal radiographic separation of 4–5 mm

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[1]. During pregnancy, hormone-related changes and physiological adaptations can increase this gap by 2–3 mm, remaining within the physiological range after delivery. However, vaginal delivery may occasionally cause joint widening exceeding 10 mm, which is diagnostic of pathological pubic symphysis diastasis [1]. Epidemiological data show that PSD during delivery is a rare complication, with an incidence ranging from 1 in 300 to 1 in 30,000 pregnancies [3].

Various studies have identified multiple risk factors for PSD, including biomechanical, physiological, and hormonal factors [2]. Research indicated potential risk factors, such as epidural analgesia, shoulder dystocia, and the McRoberts maneuver [3]. Moreover, primigravidity, multiple gestations, prolonged active labor, forceps deliveries, macrosomia, and newborns weighing over 4000 grams were also identified as risk factors [4]. Pregnancy-related physiological and body changes, such as biomechanical strain on pelvic ligaments, pelvic anatomical variations, and metabolic or hormonal changes (e.g., relaxin, progesterone, or calcium metabolism) also have been shown to contribute to PSD [5].

Symptoms of PSD include pubic joint pain radiating to the abdomen, inguinal region, lower extremities, or back. Pain often worsens with movement, weight-bearing, or leg elevation, and can lead to instability, locomotion difficulties, or incapacity [6]. Pathognomonic clinical signs include pain with compression of the greater trochanters, an inability to flex hips fully, sacroiliac joint pain, and a palpable pubic cleft [7].

The diagnosis of PSD can be clinical, particularly in mild cases, but imaging is recommended for severe cases. PSD is often suspected based on insidious or acute postpartum pain, confirmed by imaging showing an inter-symphysis space exceeding 10 mm [1]. It is recommended to perform on ultrasonography and magnetic resonance imaging (MRI) for PSD diagnosis to avoid radiation exposure during pregnancy, with X-rays or CT scans reserved for postpartum evaluation [8].

Management of PSD can be operative or non-operative. Surgical interventions, such as open reduction with internal fixation for severe cases should be performed, especially when diastasis exceeds 4 cm [9], while non-operative treatments include pelvic binders, physical therapy, bed rest, and closed reduction with binders [2,9]. In addition, Lucian Henry introduced chiropractic methods, including adjustments, trigger point release, electrical stimulation, and stabilizing exercises [10]. Early diagnosis and interventions are vital to optimize positive outcomes as supported by Davis Erickson et al. who emphasized the importance of early orthopedic consultation for severe cases to improve recovery outcomes [11].

This case report aimed to present this rare condition, highlighting risk factors associated with PSD, significance of early diagnosis and provide recommendations for most effective therapeutic approaches for managing PSD to inform healthcare providers.

CASE PRESENTATION

We report the case of a 32-year-old primigravid woman (G1P0) at 39 weeks and 2 days of gestation. She was admitted to our obstetrics and gynecology department on May 15, 2023, at 3:35 a.m. The patient presented with a 3-day history of lumbopelvic pain and premature rupture of membranes (PROM) at home 10 hours before admission. She reported no contractions or false labor.

On examination, the patient was obese, with a height of 164 cm, weight of 87 kg, and BMI of 31.2 kg/m². Her blood pressure was 122/72 mmHg, and oxygen saturation was 98%. She had no history of chronic diseases, surgeries, or obstetric complications and had attended three antenatal care visits with two tetanus vaccinations. Gynaecological examination revealed a gravid uterus with a uterine height of 34 cm, a positive pooling test, and a posterior, closed cervix. Laboratory investigations showed hemoglobin of 10 g/dL, platelets of 274 × 10^9/L, white blood cells of 6.837 × 10^9/L, blood glucose of 115.5 mg/dL, presence of coccobacilli on urine gram stain, and negative HIV test.

A diagnosis of preterm premature rupture of membranes (PPROM) was made, and the patient was admitted to the delivery room with continuous cardiotocography (CTG) monitoring. Labor induction was initiated with oral misoprostol (Cytotec) at a dose of 50 µg, with a maximum of six doses administered every four hours. She also received ampicillin 2 g every six hours as per the PPROM protocol.

The first dose of misoprostol was given at 5:30 a.m., and the cervix was dilated to 2 cm. By 1:00 p.m.,

cervical dilation was 4 cm, and fetal descent was at 4/5. After the third dose of misoprostol, labor progressed rapidly, and a male infant weighing 3.075 kg was delivered at 4:15 p.m., before the fourth dose of misoprostol.

The delivery was complicated by an anterior vaginal wall tear with significant bleeding. Immediately postpartum, the patient experienced severe pain and instability in the anterior pelvic region, rendering her unable to stand, walk, or lift her legs while lying down.

Post-delivery, she appeared moderately pale with a hemoglobin level of 10 g/dL and a blood pressure of 117/76 mmHg. Examination under spinal anesthesia revealed a severe anterior vaginal wall tear associated with pubic symphysis diastasis, with an inter-pubic separation of approximately 60 mm. Radiographic imaging confirmed a diastasis of 72.7 mm (Figure 1), classifying the case as an orthopedic emergency.

The patient was transferred to a specialized center for multidisciplinary management. The orthopedic team conducted a thorough physical and radiological assessment. On May 16, imaging revealed anteroposterior compression (APC II). On May 17, the patient underwent surgical intervention, including pelvic external fixation to stabilize the pubic symphysis (Figure 2).

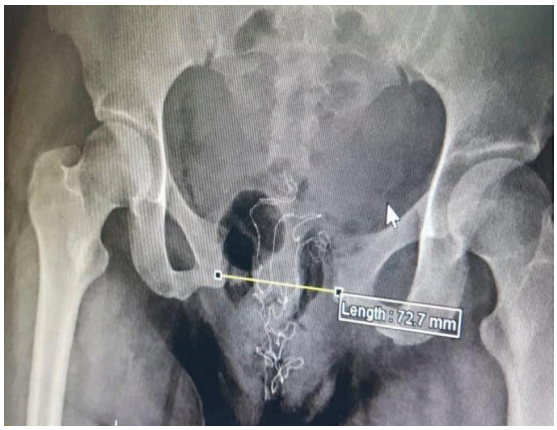

Figure 1: PSD before fixation

Perioperative management included 3-unit blood transfusion to address anemia, pain management with tramadol and morphine, and antibiotic therapy with cefotaxime. Postoperatively, the patient was closely monitored and gradually mobilized. She was discharged on 19 June, 33 days after surgery, with instructions for a rehabilitation program involving walking exercises and crutches. Follow-up evaluation after 5 months showed that she was walking unaided.

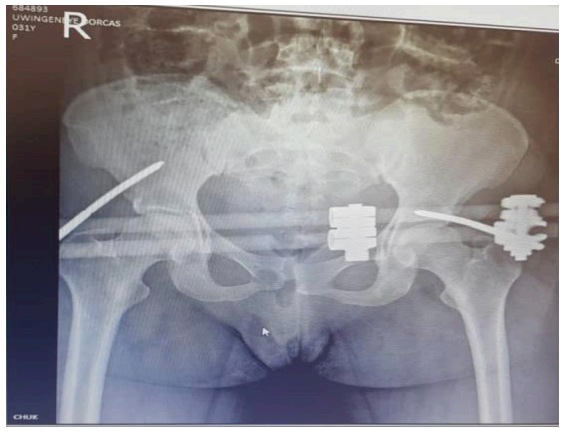

Figure 2: PSD after fixation

DISCUSSION

The etiology of symphyseal diastasis remains poorly understood, and its diagnosis is exceedingly rare. However, studies have identified both shared and distinct risk factors among affected parturients, with a frequent association between symphyseal diastasis and specific obstetric events [1,2,4]. Though pubic symphisis diastasis is an uncommon complication, previous case reports showed that factors, including rapid labor, fetal macrosomia, frontal presentation, hyperabduction of the thighs, and uterine fundal pressure, are associated with a 4.7 cm postpartum pubic symphysis diastasis [3,12]. Similarly, Gräf et al. reported a case of a multiparous patient who developed a 6 cm symphyseal separation following shoulder dystocia managed with the McRoberts maneuver and suprasymphysial pressure [13], and Cowling et al. reported a case of a primigravida with a 5.4 cm separation during intrapartum, associated with precipitous labor and the McRoberts maneuver [12], confirming previous literature highlighting these risk factors [4,13]. Other risk factors were also reported in some cases, such as a case of a 27-year-old patient with a postpartum symphysis pubis diastasis of 3.4 cm, associated with fetal macrosomia, prolonged second-stage labor, and epidural analgesia [14].

The previous reports indicate some risk factors unique to individual cases and others shared among cases, confirming the multifactorial nature

of this rare condition. In our case, we identified three risk factors consistent with the literature: obesity, precipitous labor, and primiparity, which might have contributed to PSD observed.

While rare, PSD is relatively straightforward to diagnose for experienced healthcare professionals. Clinical signs such as tenderness in the joint area, a positive Patrick's (FABER) test, and a positive Trendelenburg sign are highly specific and sensitive [15]. Diagnosis is often confirmed radiologically, and imaging modalities include X-rays, which reveal an inter-symphysis space exceeding 10 mm, as well as ultrasonography, Computed Tomography (CT), and MRI [16]. For pregnant patients, ultrasound and MRI are preferred to avoid ionizing radiation, with X-rays and CT used postpartum [11,16].

The management of postpartum pubic symphysis diastasis varies, lacking standardized protocols. Treatment options range from conservative approaches to surgical intervention, depending on the severity of separation. Pubic symphysis diastasis has no universally accepted gold standard treatment. Initial management is typically conservative, involving a combination of oral analgesics, local anesthesia, rest, and physiotherapy. For cases where the inter-symphysis gap measures less than 2.4 cm, chiropractic care may be used if feasible [5,10], though conservative approaches remain the most recommended to alleviate pain and provide adequate analgesia [11]. In cases of significant diastasis, where the inter-symphysis space exceeds 4 cm, orthopedic interventions, including pelvic bandaging or surgical treatment, are used. These interventions should be accompanied by preventive anticoagulation in patients requiring immobilization, to mitigate the risk of thromboembolic events [5,11]. This approach underscores the importance of individualized treatment strategies tailored to the severity of the condition and the patient's clinical circumstances. Though diastasis exceeding 4 cm often necessitates orthopedic surgery, Ryan et al. demonstrated successful non-surgical management of a 5.5 cm diastasis with a pelvic binder, achieving full recovery within six months [17]. Despite this, studies advocate for surgical intervention for separations greater than 4 cm, emphasizing techniques such as open reduction and internal fixation [11,13]. Surgical options may include external fixation or internal fixation with dedicated plates. External fixators are less commonly used due to the risk of pin-site infections [18]. Nonetheless, external fixation is recommended in cases involving significant pelvic organ damage or hemorrhage [19]. Emergency surgical intervention is strongly recommended in cases of acute symphisial diastasis during childbirth, particularly when accompanied by genitourinary injury [20].

In our case, the choice of surgical intervention with external fixation was dictated by the sudden onset of a large postpartum diastasis (7.27 cm) coupled with a tear in the anterior vaginal wall. Emergency orthopedic surgery was performed within 48 hours, and the patient demonstrated excellent recovery, regaining independent ambulation five months postoperatively. Our patient, a primiparous woman, experienced insidious pelvic pain three days before delivery, initially attributed to a urinary infection due to the presence of coccobacilli in urine tests. Following a precipitous labor, she developed acute perineal pain in the immediate postpartum period, rendering her immobile. An X-ray confirmed a 7.27 cm diastasis. Emergency external fixation was performed, leading to a favorable outcome. The patient was discharged after 33 days and transitioned to rehabilitation with crutches. By five months post-surgery, she was walking unaided, underscoring the efficacy of timely surgical intervention. These positive outcomes and successful management underline the efficacy of appropriate management, tailored to the severity and clinical context. This is crucial in ensuring pain relief, functional recovery, and improved quality of life for patients with symphyseal diastasis.

CONCLUSION

This case highlights the complexity and rarity of pubic symphysis diastasis as a postpartum complication, emphasizing the need for prompt diagnosis and appropriate management. While clinical and imaging modalities provide reliable diagnostic tools, the choice of treatment must be individualized based on the severity of diastasis and associated complications. In this case, the patient's significant diastasis of 72.7 mm, coupled with a vaginal wall tear, necessitated timely surgical intervention with external fixation, resulting in an excellent clinical outcome. The success of this approach underscores the importance of early diagnosis, multidisciplinary management, and the good judgment in selecting between

conservative and surgical treatment. As there is no gold standard treatment, this case reinforces the need for standardized guidelines to optimize care for patients with pubic symphysis diastasis, ensuring effective pain relief, functional recovery, and improved quality of life.

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