

# Abdominal rectus muscle sheath abscess after spontaneous vaginal delivery. A case report

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## Summary

Postpartum infections cause severe morbidity of the mother. Abdominal wound infection and abscess formation are common complications after cesarean delivery. We report a case with abscess formation inside the abdominal rectus muscle sheath after normal, spontaneous vaginal delivery. A 32-year-old woman, para 2, had a normal vaginal delivery at term. The second postpartum day she complained of lower abdominal pain and was unable to stand up or walk. The fourth day, cellulitis of the skin of the lower abdomen developed and was treated with broad-spectrum intravenous antibiotics. The seventh day the patient developed septic fever and an abdominal rectus muscle sheath abscess was diagnosed. The abscess was treated with incisions and evacuation and the patient was discharged the 12th postoperative day.

The abscess in this case, as hematoma formation was not preceded, was referred to ascending contamination via the lymphatic vessels.

**Key words:** Abdominal rectus muscle sheath abscess; Puerperal infections.

## Introduction

Postpartum infections are the causes of severe maternal morbidity. Endometritis, septic pelvic thrombophlebitis, mastitis, pyelonephritis, and wound infections are examples of post delivery infection morbidity. Postpartum infections are more common after cesarean sections compared to vaginal deliveries. Abdominal wound infection are commonly caused by microbial growth on necrotic material, foreign bodies or hematomas.

In this case report we describe a patient who developed a rectus sheath abscess without the presence of a hematoma after an uncomplicated vaginal delivery.

## Case Report

A 32-year-old woman, gravida two, para one, had a normal spontaneous vaginal delivery at term (39<sup>th</sup> week). An uncomplicated mediolateral episiotomy was performed. No lacerations or extensions were observed. The duration of the labor was 3 hr 40 min. The infant's weight was 3,950 g and the Apgar score was 9 at 1 min and 10 at 5 min. The mother suffered occasionally from arthralgias of the peripheral joints but she had never taken any drugs in the pregnancy period. There was no previous history of operations or other diseases. The patient did not receive anticoagulants.

Thirty-six hours after labor she complained of lower abdominal pain and was unable to stand up or walk. Her general condition was good and her temperature, blood pressure and pulse rate were normal. Clinical examination revealed suprapubic tenderness, painful flexion of the thigh and painless pubic symphysis. The episiotomy was intact, without evidence of infection and with normal findings from the vaginal examination. The inguinal nodes were not palpable. The results of hematological examinations and immunological assay carried out on the second postpartum day were as follows: drop of Hgb 1.5 g/dl, white blood count (WBC) 11,580/mm<sup>3</sup> (NEUT 80.7%), ESR

120 mm, C-reactive protein (CRP) 11.8 mg/dl (normal range), antinuclear antibodies (ANA) positive (1/160), rheumatoid factor (RHF) 20 IU/ml (normal < 20), C3 and C4 complement levels normal and more specific autoantibodies (anti-dsDNA, anti-SSA (Ro), anti-SSB (La), anti-Sm, anti-RNP) normal. Results of other examinations, including lower abdominal ultrasonography, X-ray for symphysis pubis separation and Doppler of the deep pelvic veins were normal. We treated this condition with bedrest and non-steroidal anti-inflammatory drugs (NSAIDs).

The fourth day after labor, cellulitis of the skin of the lower abdomen developed. Her temperature was 37.2-37.7 °C, but her general condition was good. Meticulous perineal and vaginal examination revealed intact episiotomy and no signs of infection of the lower genital track. The patient was treated empirically for cellulitis with antibiotics intravenously (ampicillin 1 g every six hours and metronidazole 500 mg every eight hours) and symptoms subsided in the next 48 hours.

The seventh day after labor and while antibiotics were given intravenous, the patient developed a high fever (> 39°C) and her general condition was worsening. Hematologically, the hemoglobin and the hematocrit were unchanged, but the WBC was elevated (16400/mm<sup>3</sup>). Blood cultures were negative, but the ultrasound and CT scan of the lower abdomen showed abscess formation within the abdominal rectus muscle sheath (Figures 1 and 2). The abscess was treated by surgical drainage of all purulent material. The fascial layers were intact. Vigorous debridement was carried out until vital tissue was encountered. Sutures of fullthickness untied and separated were placed. They were tied on the fifth postoperative day when healthy pink granulation tissue was formed. The culture of the pus was positive for *Staphylococcus aureus* and *Enterobacter cloacae*, both of them sensitive to amoxicillin/clavulanic acid. The postoperative course was normal and the patient was discharged 12 days after the operation.

## Discussion

Abdominal wall abscesses usually develop in women delivered by cesarean section. Rectus sheath abscesses

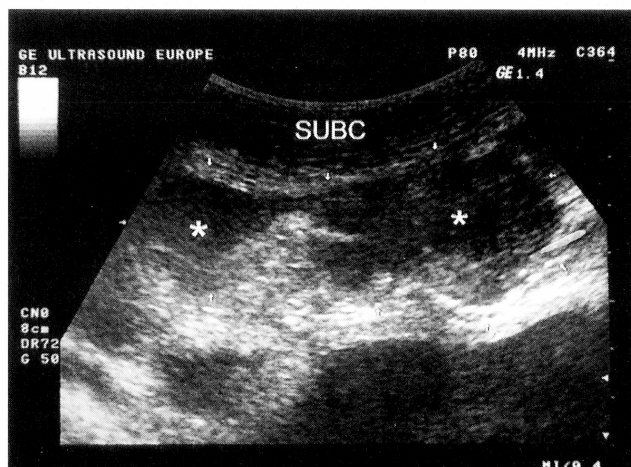


Fig. 1

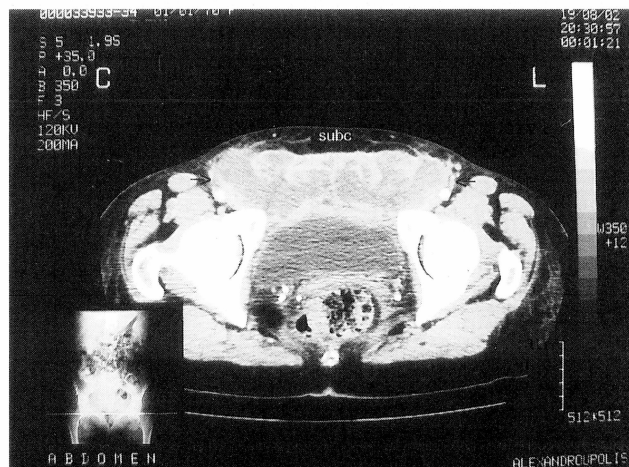


Fig. 2

Figure 1. — Ultrasound of the lower abdomen. subc: subcutaneous tissue. \*: Abscess of the abdominal wall. Small arrows: margins of the abscess.

Figure 2. — CT of the lower abdomen. Abscess formation inside the rectus sheath (black arrows), but not extending to the pelvis. subc: subcutaneous tissue.

can develop after contaminated hematoma formation. In many cases these are preceded by uterine infections. However, to our knowledge, there have been no other reports of abscess formation inside the abdominal rectus muscle sheath after vaginal delivery. Infections of episiotomy, lacerations and perineal wounds are relatively uncommon considering the degree of bacterial contamination that accompanies vaginal delivery [1, 2]. Serious infection is more likely in women with fourth degree lacerations and especially in diabetics and immunocompromised women. Fasciitis is a rare complication of vulvar and perineal wound infections. Such infections may extend distally to the fascial layers of the abdominal wall [3, 4]. In our case, a superficial fascial infection developed regardless of the intact episiotomy, the non-prolonged uncomplicated labor and the healthy woman. The laboratory findings of the patient's immunological assay (elevated CRP, ESR and positive ANA, but normal titers of specific autoantibodies) were relevant to the infection and did not strongly suggest any connective tissue disorder. Superficial fascial infection (fasciitis) includes Colles' fascia on the perineum, Camper's and Scarpa's fascia on the lower abdominal wall and fascia lata on the thigh. It is an infection of intermediate depth, which usually follows a simple episiotomy infection, with progressive onset, slow course and no severe systemic manifestations [5]. The pathogenesis of the abdominal rectus muscle sheath abscess was that of an ascending infection. Bacteria that colonized the lower genital track inoculated the episiotomy and then superficial fasciitis was caused by the lymphatic transmission of these organisms (from superficial pudental lymph vessels and lymph vessels of Colles' fascia to those between superficial fascias of Camper and Scarpa) [6]. The involvement of Camper's and Scarpa's fascia and fascia lata of the thigh caused the initial symptoms of lower abdominal pain and inability to stand up and then the cellulitis of the skin of the lower abdominal wall. Spread of infection from the superficial

to the deep lymph vessels into the rectus abdominal sheath and inadequate antimicrobial therapy lead to the localization of the infection and formation of the abscess. The infection is commonly multimicrobial. Coverage with antimicrobial therapy should be targeted to streptococcal organisms (Group A, Group B, anaerobic species), staphylococci, enterobacteriaceae and anaerobes including bacteroids species and *Fusobacterium necroform*. Response to antimicrobial therapy should occur within 24-48 hours; however if there is a poor clinical response or if the woman's condition worsens during therapy then surgical exploration should be carried out [5, 7].

Signs and symptoms of superficial fascial infection without necrosis are neither striking nor distinctive. Consequently, even in cases of an intact episiotomy a thorough surgical exploration should be done to rule out necrosis.

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