

Necrotizing Fasciitis After Caesarean Section: Case Report

Sezaryen Doğum Sonrası Nekrotizan Fasiit

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ABSTRACT Necrotizing fasciitis (NF) is a rare, rapidly progressive and frequently fatal condition in obstetric and gynecological practice. Failure to make an early diagnosis and delay initiating appropriate treatment may result in significant morbidity and mortality. We report a case of necrotizing fasciitis affecting a woman after caesarean delivery. Prompt recognition and early debridement under antibiotic cover was carried out and resulted in full recovery. We had performed vacuum-assisted wound closing, prior to the skin graft and observed a significantly effective response. NF also caused by polymicrobial and monomicrobial infections. However, to our knowledge this is the first reported case of NF caused by *Enterococcus* spp following caesarean delivery.

Key Words: Fasciitis, necrotizing; caesarean section; delivery, obstetric

ÖZET Nekrotizan fasiit (NF) obstetrik ve jinekolojik pratikte nadir görülen, hızla ilerleyen ve sıklıkla ölümcül bir durumdur. Erken tanıda hata ve doğru tedavide gecikme belirgin morbidite ve mortaliteye neden olabilir. Biz, sezaryen doğum sonrası nekrotizan fasiit gelişen bir olguyu sunuyoruz. Hızlı tanı ve antibiyotik baskısı altında erken debridman uygulayarak hastayı sağlığına geri kavuşturduk. Deri grefti uygulamadan önce vakum asiste yara kapatma uyguladık ve fevkalade iyi yanıt aldık. NF'ye sıklıkla polimikrobiyal ve monomikrobiyal enfeksiyonlar neden olur, ancak, kendi bilgimize göre bu vaka sezaryen doğum sonrası Enterokok türlerinin NF'ye neden olduğunu gösteren ilk olgu sunumudur.

Anahtar Kelimeler: Fasiit, nekrotizan; sezaryen; doğum, obstetrik

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Necrotising soft tissue infection was first documented by Fournier in 1883.¹ However, the term of necrotizing fasciitis (NF) was first used by Wilson in 1952.² NF is a rapidly progressive soft tissue infection that involves the superficial and deep fascia, leading to thrombosis of the cutaneous vessels and gangrene of the underlying tissue. Fortunately, NF is a rare disease and the approximate incidence and mortality rates were estimated 0.4/100 000 and 25%, respectively per year in US.³ However, high mortality rates as two thirds were reported by researchers from different regions of the world.^{4,5}

The symptoms of NF may initially be non-specific and certain diagnostic signs which can be used to associate them with NF may not always be available. Besides, there are no definite preoperative diagnostic test avail-

able to confirm its presence. Once the clinician suspects the diagnosis of NF, treatment should be instituted immediately.

CASE REPORT

A multiparous patient, 37 years in age with caesarean section history applied to emergency service on the fifth postoperative day after giving birth with the caesarean method at another hospital with complaints of abdominal pain and overall health problem. On examination, she had pyrexia (38,9 °C), tachycardia (110 b.p.m.) and appeared unwell. Her abdomen was extremely tender, swollen and warm, showing red discolouration with a foul smelling blood-tinged purulent discharge from one end of the wound. There were foul smelling lochial discharge, too. She had a leucocytosis of 18 000/mL (with marked neutrophilia) and an elevated platelet count of 466 000/mL, C-reactive protein of 46 and procalcitonin 2,45 ng/mL. The serum pH was 7,24. Liver and renal function tests were normal. An abdominal computer tomography (CT) scan also confirmed gas and a collection of mixed echoes suggestive of pus in the anterior abdominal layer (Figure 1).

NF was suspected, wound swab culture was taken and the patient was immediately commenced an intravenous ceftriaxone and metronidazole therapy. The patient was taken to operation and underwent exploration. During the procedure, the abdominal subcutaneous tissue, rectus sheath, omentum, uterus and bilateral adnexal structures were seen discoloured, oedematous and necrotic. There was foul smelling pus in the abdominal cavity. General surgery consultation was requested during surgery and there were no intestinal damage. On pelvic exploration, there was dehiscence of the uterine suture line. After a deep washout with normal saline total abdominal hysterectomy, bilateral adnexectomy, partial omentectomy and extensive lower abdominal debridement of necrotic tissue was performed, until normal looking and bleeding tissue was seen. Later, two abdominal drains were placed and the wound was closed using silk sutures.

Enterococcus Species was cultured from the initial wound culture. The intravenous antibiotic

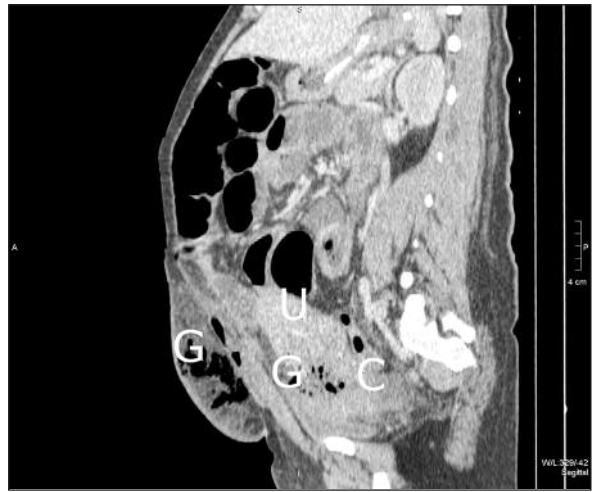


FIGURE 1: Abdominal CT scan demonstrating gas and pus (G: Gas, U: Uterus, C: Cervix).

therapy was changed to meropenem and teicoplanin due to wound culture results 3 days postoperatively, as per advice from the consultant microbiologist. Pathology revealed placenta increta, extensive thrombosis and necrosis at all the excision materials. The wound was evaluated on a daily basis and InfoV.A.C.® was applied to aid wound closure after surgical re-assessment and confirming of intact closure lines, 8 days postoperatively. The wound was finally closed with using skin graft 18 days postoperatively (Figure 2). The intravenous antibiotic therapy was maintained for 20 days and the level of CRP and procalcitonin regressed to normal range. The patient was discharged 30 days after the operation.

DISCUSSION

NF is a rare, rapidly progressive and frequently fatal condition in obstetric and gynecological practice.¹⁻⁷ Failure to make an early diagnosis and delay initiating appropriate treatment may result in significant morbidity and mortality.^{5,8} The underlying pathogenic processes involve production of destructive enzymes and toxins by bacteria, resulting in rapid tissue necrosis and spread of bacteria. The majority of cases result from polymicrobial infections with a mixture of Gram-positive, Gram-negative, aerobic and anaerobic bacteria. In an analyses of wound cultures, a single organism, multiple organism and no organism



FIGURE 2: Appearance of the wound after placement of skin graft.

(See color figure at

<http://www.turkiyeklinikleri.com/journal/jinekoloji-obstetrik-dergisi/1300-0306/>)

found at the percentages of 53%, 23% and 23%, respectively.⁹ Regarding monomicrobial infections, *Streptococcus* spp. (especially group A), *S. aureus*, *V. vulnificus*, *A. hydrophila*, *Enterobacteriaceae* (*E. coli*, *Pseudomonas* spp., *Klebsiella* spp. and *Enterococcus* spp), *Clostridium perfringens* and anaerobic streptococcus are common.¹⁰ There is no NF case caused by polymicrobial and monomicrobial infections which has been reported previously. However, to our knowledge this is the first reported case of NF caused by *Enterococcus* spp following caesarean delivery.

The aetiology of NF is not fully apprehended, and sometimes no individual factor can be found.¹¹ Diabetes mellitus, age over 50 years, peripheral vascular disease, surgery, muscle injuries, drug use and immunosuppression are the most common factors and associated with even greater morbidity and a higher mortality.^{8,12} In our case, placenta increta may have been aetiological factor.

NF is difficult to diagnose in the early stage because of nonspecific signs such as tenderness, swelling, erythema, and pain at the affected site that mimic non-severe soft tissue infection.¹⁰ Severe pain and systemic toxicity should rise the suspicion of NF in advanced patients.¹¹ Radiologic studies are only considered as adjunct measures for doubtful cases and cannot be used to exclude NF.¹³ A gas on plain was revealed only 35% of radiographic studies.¹⁴

NF is a medical emergency requiring prompt surgical exploration and administration of intravenous broad spectrum antibiotics.^{4,8,11} Surgical aggressive and extensive debridement is the mainstay of treatment. The abdominal wall, rectus sheath, omentum and also hysterectomy are also required for extensive treatment, however in some cases reported preservation of uterine.^{15,16} In our opinion, this approach is complicated for the treatment and cannot be performed in patients which the infection was spread to uterine. The vacuum-assisted wound closing (VAC) devices have been found to be effective for non-healing limb wounds, with reduced morbidity.¹⁷ We had performed VAC prior to the skin graft and observed a significantly effective response.

In this case, combination of prompt recognition, early debridement under antibiotic cover and multidisciplinary approach led to full recovery.

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