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Assessment of Adult Patients with a Diagnosis of Necrotizing Fasciitis: A Three-Year Experience

Nekrotizan Fasiit Tanısı Olan Yetişkin Hastaların Değerlendirilmesi: Üç Yıllık Deneyim

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Abstract

The aim of this study is to evaluate experiences about diagnosis, follow-up, and treatment of necrotizing fasciitis (NF) patients who admitted to our hospital. The records of patients who had a diagnosis of NF that referred to our hospital between 01.01.2017 and 01.01.2020 were retrospectively analyzed. Patients' demographic feature, additional disease, number of operations, length of hospital stays, and responses for treatment was evaluated. All of 20 patients with NF were followed up and treated at our hospital. We found 15 (75%) of the patients were male and 5 (25%) were female. The mean age of the patients was 53 (min: 28 - max: 80). While nine (45%) of patients had diabetes mellitus. Concerning the site of infection, 13 (65%) patients had abdominal wall - (NF of the anterior, lateral, and posterior regions), the four (20%) patients of NF involved the chest wall- (NF of the anterior and posterior regions), three (15%) patients' perianal region with Fournier's gangrene (secondary to NF). In 75%of patients received double antibiotic (ceftriaxone + metronidazole combination) therapy. Then, the majority of patients were exposed to lots of debridement and diversion colostomy, ranging from 1 to 6 surgeries (mean being two operations). Negative pressure wound closure was applied to 17 (85%) of the patients after debridement and three (15%) of the patients were treated with open dressing. Skin grafting was tackled in our hospital for 13 of these patients while four (31%) of the patients were treated with surgical flap methods. The length of hospital stay varies from 90 days to one day. This time was 37 (1-90). Mortality in this study was found to be 30%- one patient dying on the day of admission after the broad debridement. NF is a malady that is often related with mortality when it is not treated. In many patients, are immunosuppressed and that's why diagnosis can be delayed. In patients with early diagnosis, fast and broad debridement for treatment can achieve enough outcomes.

Keywords: Early diagnosis, Necrotizing fasciitis, Early treatment.

Özet

Hastanemize başvuran nekrotizan fasiit (NF)'li hastaların tanı, takip ve tedavisi ile ilgili deneyimlerimizi değerlendirmekti. 01.01.2017 ve 01.01.2020 tarihleri arasında hastanemize başvuran NF tanısı alan hastaların kayıtları retrospektif olarak incelendi. Hastaların demografik özellikleri, ek hastalıkları, ameliyat sayıları,

hastanede kalış süreleri ve tedaviye yanıtları değerlendirildi. Toplam 20 NF hastası takip ve tedavi edildi. Hastaların 15'i (%75) erkek, beşi (%25) kadın idi. Yaş ortalaması 53 (minimum: 28 - maksimum: 80) idi. Hastaların 9'unda (%45) diabetes mellitus vardı. Enfeksiyon yeri ile ilgili olarak, 13 (%65) hastada karın duvarı - (ön, lateral ve arka bölgelerin NF'si), dört (%20) NF hastasında göğüs duvarı- (ön ve arka bölgelerin NF'si) vardı), üç (%15) hasta perianal bölge ile birlikte Fournier gangreni (NF'ye sekonder Fournier gangreni) mevcuttu. Hastaların %75'i ikili antibiyotik (seftriakson + metronidazol kombinasyonu) tedavisi aldı. Tanıdan sonra çoğunlukla 1 ila 6 ameliyat arasında değişen ortalama debridmanlara ve diversiyon kolostomisi yapıldı. Debridman sonrası 17 (%85) hastaya negatif basınçlı yara kapatma yöntemi uygulandı ve üç (%15) hastaya açık pansuman uygulandı ve sekonder iyileşmeye bırakıldı. Bu hastaların 13'üne hastanemizde deri greftleme uygulandı, dördüne (%31) cerrahi flep yöntemi uygulandığı görüldü. Yatış günlerinin sayısı 1 gün ila 90 gün aralığında değişiyordu. Hastanede ortalama kalış süresi 37 (1-90) gün idi. Bu çalışmada mortalite %30 olarak bulundu - bir hastada yoğun debridmandan sonra yatışının birinci gününde mortalite gelişti. NF, tedavi edilmediğinde mortalite ile ilişkili bir hastalıktır. Birçok hastada, bağışıklık sistemi baskılanır ve bu nedenle tanı gecikebilir. Erken tanı alan hastalarda, tedavi için hızlı ve geniş debridman yeterli sonuçlara ulaştırabilir.

Anahtar Kelimeler: Erken tanı, Nekrotizan fasiit, Erken tedavi.

Introduction

Necrotizing fasciitis (NF) is a rare malady that results in high morbidity and mortality unless treated in its early term. [1]. But, early period, it is difficult to distinguish from another superficial skin situations like cellulitis [2]. In the presence of symptoms such as pain, fever and erythema, doctors should have a high level of suspicion for referral to surgery [3]. NF is a quickly advancing soft tissue infection mainly involving the superficial fascia and subcutaneous tissue. It is leaded to Streptococcus pyogenes or synergistic infection of aerobic and facultative anaerobic bacteria. NF has been divided into three types based on microbiological cultures. Type-I is polymicrobial and generally caused by an aerobic and an anaerobic organism. Type-II caused by Streptococci only or with staphylococci [4]. Marine vibrio is the cause of Type-III [5].

Material and Methods

Study Design

Mogadishu, Somalia, Turkey, Recep Tayyip Erdogan Research and Training Hospital after obtaining the approval of the Ethics Committee, records of the NFA patients were analyzed retrospectively between 01/01/2017 and 01/01/2020. Age, gender, co morbidity, total number of surgeries, length of hospital stays, fever, place of infection, laboratory results, microbiological cultures and timing. Thereafter, the number and response to treatment were recorded.

Statistical Analysis

Data "Statistical Package for the Social Sciences (SPSS) for Windows 21.0. Descriptive statistics minimum for continuous variables and maximum, categorical variables frequency and percentage. Operation characteristics and risk factors were compared. Statistical $p < 0.05$ was considered significant.

Results

All of 20 patients with NF were followed up and treated at our hospital. We found 15 (75%) of the patients were male and 5 (25%) were female. The mean age of the patients was 53 (Min: 28 - Max: 80). While nine (45%) of patients had diabetes mellitus. Concerning the site of infection, 13 (65%) patients had abdominal wall - (NF of the anterior, lateral and posterior regions), the four (20%) patients of NF involved the chest wall- (NF of the anterior and posterior regions), three (15%) patients' perianal region with Fournier's gangrene (secondary to NF). Fever in 14 cases was observed on admission. Leukocytosis was observed in 20 cases. The organisms isolated; Staphylococcus aureus 7 cases. Mixed polymicrobial infection (coccobacillus) and Enterobacteriaceae like Klebsiella spp., Escherichia coli and Pseudomonas aeruginosa were identified in 11 cases. No growth was seen in bacterial culture of two patients. In 75%of patients received double antibiotic (ceftriaxone + metronidazole combination) therapy. Later they were tailored as per culture

and sensitivity reports. Then, the majority of patients were exposed to lots of debridement and diversion colostomy, ranging from 1 to 6 surgeries (mean being two operations). Negative pressure wound closure was applied to 17 (85%) of the patients after debridement and 3 (15%) of the patients were treated with open dressing and secondary surgical closure methods. Skin grafting was tackled in our hospital for 13 of these patients while four (31%) of the patients were treated with surgical flap methods. The length of hospital stay varies from 90 days to one day. This time was 37 (1-90). Mortality in this study was found to be 30%- one patient dying on the day of admission after the broad debridement. The above-mentioned results are summarized in Table 1.

Table 1. Demographic and statistical data of patients with necrotizing fasciitis. Total patients (n=20)

Age	Mean (Min-Max): 53 (28-80)
Gender	Male 15 (75%), Female 5 (25%)
Chest wall (%)	4 (20%)
Co-morbidities	Diabetic 9 (45%)
Sign	Fever 14 (70%)
Culture (%)	*S. aureus* 7 (35%), polymicrobial 11 (55%), No growth 2 (10%)
Length of hospital stay	Mean; 37 day (1-90 day)

Discussion

This situation was defined in a number of reports in the end 1800s, and it was Dr. B. Wilson who first called the situation NF in 1952 liver function problems eats contaminated seafood or a wound is contaminated with sea water containing Vibrio vulnificus [6]. Mucormycosis is an uncommon reason for NF reported in a caesarean wound in young female patients. Fungal periorbital NF reported in an immunocompetent adult NF has been reported following laparoscopic appendicectomy, cholecystectomy and following medical termination of pregnancy [7]. A rare case of NF of the thigh because of the extent of sigmoid colon cancer was reported. In one study, thirty-three patients were examined in the three-year period. Predisposing factors included intravenous drug misuse (30%), diabetes (21%), and obesity (18%).

We present twenty cases of NF managed in our hospital in Somalia 3 years. 13 (65%) patients had abdominal wall - (NF of the anterior, lateral and posterior regions), The 4 (20%) patients of NF involved the chest wall- (NF of the anterior and posterior regions), 3 (15%) patients' perianal region with Fournier's gangrene (Fournier gangrene secondary to necrotizing fasciitis). The atypical NF is increasing worldwide and there is no recent data available in our country, we tried in this study to elude the atypical NF and some of its risk factors among the adult patients attending to our hospital. The atypical necrotizing fasciitis has risk factors; in this research we found that the most common risk factor was diabetic. Our study we can conclude that males are more prone to develop.

NF is an uncommon but potentially mortal malady. It is a surgical emergency with a high morbidity and mortality rate. This situation is more widespread in men, diabetes mellitus being the most widespread comorbid malady. The NF more common in extremities. We report here typical cases of necrotizing infections of the trunk, this type of NF is a rare but life-threatening infection with high a mortality rate [8]. NF is many times severe, rapidly advancing, and related with sepsis and multi-organ failure. Despite progress in care, mortality from NF remains high, approximately between 20% and 30% [9]. Mortality rate, in present study was observed to be 30%- one patient dying on the day of acceptance after the broad debridement. The limitation of this study was retrospective and limited number of patients included in the study. As a result, in patients with NF, we think that early diagnosis and drainage are crucial for reducing the spread of the disease.

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