Acta Scientific Otolaryngology

Volume 2 Issue 11 November 2020

Case Report

Neck Necrotizing Fasciitis: Minimal Invasive Surgical Approach. A Case Report

Barbara Filosa*, Antonio Trusio and Giuseppe Malafronte

ENT Department, AORN S.G. MOSCATI, Avellino, Italy

***Corresponding Author:** Barbara Filosa, ENT Department, AORN S.G. MOSCATI, Avellino, Italy.

Received: September 21, 2020

Published: October 28, 2020

Abstract

Introduction: The necrotizing neck fasciitis (NNF) is a serious and potentially lethal infection of the soft tissue of the neck characterized by a rapid diffusion along the fascia colli with possible extension to the mediastinum. It has a rapid onset due to odontogenic, tonsillary/peritonsillar or salivary gland infections. Early diagnosis and timely treatment are essential to avoid the extent of the infection to the chest with serious and lethal complications.

Case Summary: We report the case of a 78-year-old woman with a necrotizing neck fasciitis from an odontogenic abscess origin diagnosed at onset. The patient after a sub-mandibular small incision through which hydrogen peroxide was daily instilled and aggressive intravenous antibiotic therapy, has had a rapid clinical improvement until complete healing.

Discussion: Despite in literature an aggressive surgical approach has been validated as the therapy of choice of NNF, in the reported case we performed only a small neck incision at the crackling gaseous area through which hydrogen peroxide was daily instilled in association with board spectrum intravenous antibiotic therapy and hyperbaric oxygen therapy. The clinical conditions of the patient quickly improved. In our opinion this type of treatment has been successful because we made a very early diagnosis. The necrotizing neck fasciitis is a life-threatening disease. Early diagnosis and timely treatment can allow rapid clinical recovery with a less invasive surgical approach.

Keywords: Necrotizing Neck Fasciitis; Cervical Fasciitis; Cervicotomy; Cervical Deep Infections

Introduction

The necrotizing neck fasciitis (NNF) is a serious and potentially lethal infection of the soft tissue of the neck characterized by a rapid diffusion along the fascia colli with possible extension to the mediastinum [1,2]. It has a rapid onset due to odontogenic, tonsillary/peritonsillar or salivary gland infections. Although considered a rare condition, in recent years there has been an increase in its incidence due to increased antibiotic resistance and cases of immunodepression. Early diagnosis and timely treatment are essential to avoid the extent of the infection to the chest with serious and lethal complications (mediastinitis, pericarditis, large vein rupture, septic shock). The early diagnosis of NNF in not always easy due to its nonspecific symptoms at the onset [3]. In the early stage it may present as a common abscess. However, a fast-spreading swelling with an erythematous and crackling skin must be suspicious for NNF. We report the case of a 78-year-old woman with a necrotizing neck fasciitis from an odontogenic abscess origin diagnosed at onset. Despite in literature an extended bilateral cervicotomy with complete excision and debridement of the necrotizing tissue is considerate the first-line treatment, we performed only a small incision, through which hydrogen peroxide was daily instilled and aggressive intravenous antibiotic therapy. After this treatment the patient has had a rapid clinical improvement until complete healing.

Case Report

A 78 years old female patient that comes to our observation through the general first aid due to trismus and painful swelling on the left submandibular, submental and upper neck areas, which had appeared for about two days. The skin of these areas appeared

reddish, edematous, warm and painful to palpation. Moreover, she had swelling of the oral floor. She had a body temperature of 38,5°C, a clinical history of essential arterial hypertension and obesity and she had allergies to penicillin and topical anesthetic. No other relevant medical condition was detected. At the entrance to the hospital laboratory findings were a white blood cell (WBC) of 19,4 10^3/µL (normal range 4,0 - 10,0), neutrophil of 92,7% (normal range 41,0 - 73,0), lymphocytes 2,9 (normal range 19,4 - 44,9), suggesting an acute infected state. Immediately was performed a computed tomography (CT) of the head and neck that showed edema of soft tissues with a large gaseous area along the fascial planes of the left anterior lateral region of the neck, passing the hyoid (Figure 1 and 2). This lesion appears centered on the left submandibular gland with increased volume.

Figure 1 and 2: High-resolution computed tomographic scans of neck showing large gaseous area along the fascial planes of the left anterior lateral region of the neck.

We promptly drained the abscess in our outpatient treatment room by a small incision in the submental area and dissecting with providence forceps with consequent leakage of a big amount of purulent and necrotic material of brownish color. Laminar drain was inserted and pus and blood culture were performed. Intravenous empiric antibiotics including clindamycin, linezolid and levofloxacin were instituted. The clinical conditions of the patient quickly improved so in the following days we performed repeated washings through the skin incision with hydrogen peroxide. At the same time the patient was sent to the hyperbaric chamber.

Seven days after treatment the inflammation indexes had normalized (WBC 10,6 10^3/µL, NE% 75,3, VES 5 mm, PCR 0,14 mg/dl). Ten days after treatment a neck CT scan with c.m. was performed and it showed gas resorption (Figure 3). We proceeded to the administration of oral antibiotics. The patient was discharged without complications 17 days after admission.

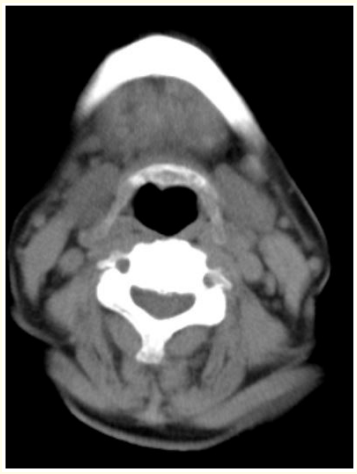

Figure 3: High-resolution computed tomographic scans of neck showing gas resorption.

Discussion and Conclusion

The necrotizing neck fasciitis is a life-threatening disease. Diabetes mellitus is its most common risk factor [4]. A painful swelling of the neck region is the most common onset symptom and the most frequent source of infection is dental or pharyngeal [5]. The NNF is a polymicrobic infection that involves aerobic and anaerobic microorganisms. Its pathognomonic sign is a crackling and emphysematous skin due the presence of gas produced by bacteria. When these symptoms and signs arise a timely treatment is mandatory to reduced the risk of the infection diffusion along the fascia colli and prevent its possible extension to the mediastinum. Nowadays the first-line treatment is an extended bilateral cervicotomy allowing complete excision and debridement of the necrotizing tissue

[3,6,7]. Besides early aggressive surgery board spectrum antibiotic therapy is necessary. Moreover, the vacuum-assisted closure therapy (VAC-therapy) and the hyperbaric oxygen therapy are useful to reduce morbidity and to facilitate the healing process [8]. Despite in literature an aggressive surgical approach has been validated as the therapy of choice of NNF, in the reported case we performed only a small neck incision at the crackling gaseous area through which hydrogen peroxide was daily instilled in association with board spectrum intravenous antibiotic therapy and hyperbaric oxygen therapy. The clinical conditions of the patient quickly improved and we were able to discharge her 17 days after admission. In our opinion this type of treatment has been successful because we made a very early diagnosis. The necrotizing neck fasciitis is a life-threatening disease. Early diagnosis and timely treatment can allow rapid clinical recovery with a less invasive surgical approach.

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