Necrotizing Fasciitis (Streptococcal Gangrene) of the Face: A Case Report

Emmanuel Lalrinchhana* **and Deeplata Mendhe**

Department of Community Health Nursing, Smt. Radhikabai Meghe Memorial College of Nursing, Datta Meghe Institute of Higher Education and Research, Sawangi, Wardha, Maharashtra, India

Corresponding Author

Emmanuel Lalrinchhana
Department of Community Health Nursing,
Smt. Radhikabai Meghe Memorial College of Nursing,
Datta Meghe Institute of Higher Education and Research,
Sawangi, Wardha, Maharashtra, India
E-mail: emmanuellalrinchhana@gmail.com

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Abstract

Necrotizing fasciitis is a sporadic infection caused by a bacterium that spreads promptly throughout the body and it could be tragic and terminal. A thorough diagnosis, prompt antibiotic treatment, and prompt surgical treatment are required and essential to break this infection. Necrotizing fasciitis is a "flesh-eating illness" caused by a variety of bacteria. Necrotizing fasciitis is typically caused by group A Streptococcus, according to public health experts (group A strep). This necrotizing fasciitis is primarily caused by group A strep bacteria. A skin breach is one of the most common repeated methods for bacteria to enter the body. Scratches or cuts, burns, insect bites, and puncture lesions are just a few of the skin breakdowns that can occur (including those caused intravenously by drug use) surgical incisions that can lead to deformity. A male patient in his late 50's was admitted with a case complaining painful swelling on the unilateral submandibular and orbital areas of the face. The overlying skin was oedematous and reddish and some part of the orbital region showing scabbing of necrosed skin. He also complained extreme pain on the face mainly in the orbital region. After the treatment, however his condition persisted and does not show any progress for over a period of time and had to undergo facial surgery to remove the areas affected by the necrosis which is mainly on the orbital region of the right face. Necrotizing fasciitis can affect people of any age; however, it typically affects people with compromised immune systems. With that 0.40/100,000 individuals in adult and 0.08/100,000 individuals in children. Necrotizing fasciitis is an uncommon condition. Raising awareness and enhancing clinical diagnosis are crucial. The purpose of this case report is to emphasize the significance of a baseline consultation of hospitals and doctors for the prevention of further problems and debilitation.

Keywords: Facial necrosis • Necrosis • Necrotizing fasciitis • Flesh eating disease • Deformity

Introduction

Necrotizing simply means the process of dying tissues or deterioration of the tissue. Inflammation of the fascia is referred to as fasciitis (the layer of tissue beneath the skin that protects nerves, muscles, fat, and blood vessels). Necrotizing fasciitis manifests itself at random. It is exceedingly unlikely that someone with necrotizing fasciitis will infect others. As a result, doctors are less likely to prescribed prophylactic antibiotics to patients who live near someone who has this kind of ailments or infection. Necrotizing fasciitis is a sporadic bacterial infection that spreads swiftly and rapidly throughout the body and can be fatal. A precise diagnosis, prompt treatment with antibiotics, and an immediate surgical operation are required to stop the ulceration [1].

Necrotizing fasciitis is divided into different categories based on the polymicrobial or monomicrobial microbiology, anatomy, and the shallowness of infection. Immunocompromised people are more likely to develop polymicrobial NF. Monomicrobial NF is less common and more commonly act on traumatised individuals than healthy individuals (usually minor). Those with NF may display symptoms of systemic toxicity, sepsis, or skin inflammation in addition to discomfort that is excessively uncomfortable. Yet, these can also be encountered in less serious situations. Use laboratory and radiologic studies to identify individuals who require a surgical consultation. Treatment options for NF include early wound debridement, broad-spectrum intravenous antibiotics, and the removal of non-viable tissue [2].

Necrotizing fasciitis acquire a wide range of clinical appearances and is oftentimes confused for other infection such cellulitis and Superficial Skin Infections (SSI's). Due to the rapid and abrupt course of the disease, it is crucial to comprehend how necrotizing fasciitis presents clinically. Just 15% to 34% of patients with necrotizing fasciitis have the correct admission diagnosis, according to the evidence, demonstrating how difficult it is to make an accurate diagnosis. The absence of symptoms, or the subtle signs that may be present (such as erythema, fever, or pain), frequently leads to misdiagnosis. Diabetes was a risk factor for 70.3% of participants in 2003 research. Chronic illness, immunosuppression, IVDU'S, peripheral vascular disease, renal failure, and underlying cancer are all risk factors [2,3].

Case Presentation

Patient information

A 58-year-old diabetic male patient was brought with a case of uncomfortable swelling on the right submandibular and orbital areas for 3-5 days followed by a portion of the orbital region displayed scabbing of necrosed skin, and the overlying skin was oedematous and reddish. Also, he was reported having excruciating facial pain, mostly in the orbital area after sometime, and had to have facial surgery to remove the necrosis-affected parts, which are primarily in the orbital region of the right face, because his condition persisted after the treatment and did not improve for a while (Figure 1).

Figure 1. Post-operative debridement of necrotizing fasciitis in the orbital and submandibular areas of the right face.

Clinical findings

Patient was examined and upon examination, his initial vital signs show a temperature of 100.2°F, blood pressure 125/79 mm of Hg, heart rate of 98/min, respiration rate of 24/min, and oxygen saturation of 98% on room air. The patient was conscious and well-oriented to time, place and person. The patient was found to have excruciating pain on the unilateral right side of the face mainly on the orbital region showing small scabbing of the necrosed tissue which was being confused with mild scabbing of bruises from the fall. The patient also expressed acute exhaustion, although he denied experiencing nausea, vomiting, coughing, dysuria, or encounters with sick people. Moreover, he denied having ever had an allergy, used tobacco, alcohol, or intravenous drugs.

Timeline of current episode

The patient has been suffering excruciating facial pain on the orbital area of right face and swelling of the mandibular and orbital areas for 3-5 days. Overtime scabbing in the necrosed area had been formed.

Informed consent

Written informed consent for debridement had been obtained from the patient.

Diagnostic assessment

Patient had undergone various investigations like haemoglobin-13.4 g/dL, total white blood cell count-11.2 × 10^9/L, platelets-200 × 10^9/L, C-reactive protein-298 mg/L, sodium-134 mmol/L, potassium-3.5 mmol/L, urea-6.0 mmol/L, creatinine-87 µmol/L, glucose-14.2 mmol/L, tissue cultures-positive for group A Streptococcus, urine cultures-no bacterial growth (Table 1).

Table 1. Diagnostic evaluation.

Investigation	Results	Normal values
Haemoglobin	13.4 g/dL	12.0-16.0 g/dL
Total white blood cell count	11.2 × 10^9/L	4.0-10.0 × 10^9/L
Platelets	200 × 10^9/L	140-400 × 10^9/L
C-reactive protein	298 mg/L	0.2-8.8 mg/L
Sodium	134 mmol/L	130-145 mmol/L
Potassium	3.5 mmol/L	3.5-4.9 mmol/L
Urea	6.0 mmol/L	2.2-7.7 mmol/L
Creatinine	87 µmol/L	40-85 µmol/L
Glucose	14.2 mmol/L	3.9-11.0 mmol/L
Tissue cultures	Positive for group A Streptococcus	NA
Urine cultures	No bacterial growth	NA

Diagnosis

The presence of fascial necrosis during surgery and the analysis of tissue samples, which revealed group A streptococcal infection, later validated the diagnosis.

Therapeutic interventions

- For medical intervention, the patient was treated with – Inj. piperacillin and tazobactam 4.5 gram I/V Q8H, Inj. pantoprazole 40 mg I/V × OD, Inj. ondansetron 4 mg × Q8H and Inj. Tramadol 100 mg in 100 ml normal saline I/V × BD
- Surgical intervention-debridement with complete removal of the necrosed skin.

Nursing management

- Keep track of the patient's reaction to treatment by keeping an eye out for any signs of infection or open wounds.
- Keep an eye on lab tests and regularly take vital signs.
- Administer medication as prescribed.
- Informed all the information to the family and the patient.

Follow up and outcomes

Till date the patient had not report any symptomatic recurrence and was discharged after 8 days of post operation and was advised to consult aesthetic surgeon if he was willing to do more changes on his appearances.

Patient perspective

During hospitalization and treatment, the patient does not complain and was thankful to the hospital and staffs for the care and treatment being provided.

Discussion

Necrotizing fasciitis, an uncommon but potentially fatal condition, can affect any area of the body, including the perineum and oral cavity. Type-1 (polymicrobial) necrotizing fasciitis frequently affects immunocompromised persons. Contrarily, patients with the type 2 (monomicrobial) variant remain typically immunocompetent and have a history of trauma (sometimes minor). Because there are few symptoms and few people are suspicious, diagnosis is frequently

delayed. Clinical experts can identify necrotizing fasciitis. While not diagnostic, blood tests and imaging, particularly computed tomography and magnetic resonance imaging, can be beneficial [4].

Patients typically complain of excruciating pain that cannot be clarified by an obvious wound, but because the skin is still unaffected and accompanying symptoms like erythema or swelling are vague, primary stages escape discovery and can be mistakenly diagnosed as cellulitis as the symptoms are so similar. As there aren't many diagnostic tools, early detection and prompt treatment are the most crucial factors in a patient's survival [4,5].

However, this is made more difficult because the early symptoms are generally vague and hence hard to identify. If there is a high level of clinical suspicion, surgery is suggested. Early surgical debridement, intravenous broad-spectrum antibiotics, and fluid resuscitation, if necessary, are all components of management [6].

Conclusion

In general practice, necrotizing fasciitis is a rare illness but one that has a high risk of significant morbidity. Physicians must exercise heightened caution while caring for patients who exhibit erythema, discomfort, and fever in order to catch this uncommon but fatal illness. The mortality rate from NF is high. Without surgery, mortality is very close to 100%. Moreover, there is a sizable amount of postoperative morbidity, sometimes as a result of severe debridement that causes muscle loss. In order to regain function in the damaged areas, patients might need to go through a rehabilitation period. Significant scarring and deformity are also possible.

Conflict of Interest

Conflict of interest had not been shown.

Authors Contributions

All writers contributed to the patient's treatment and the writing of the publication. Each author read and approved the final draught of the work.

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