Reminder of important clinical lesson

Necrotizing fasciitis of face – our experience in its management

Dal Vankudoth Singh,¹ Shaji Thomas,¹ Preeti P Nair,² Sumeeth Cyriac,¹ Geeta Mishra Tripathi¹

¹Department of Oral and Maxillofacial Surgery, People's College of Dental Sciences and Research Centre, Bhopal, India;

²Department of Oral Medicine and Radiology, People's College of Dental Sciences and Research Centre, Bhopal, India

Correspondence to Professor Preeti P Nair, shajihoss@gmail.com

Summary

Necrotising fasciitis (NF) is a severe soft tissue infection which spreads rapidly through fascial planes, characterised by soft tissue necrosis and potentially life threatening. Involvement of the face from NF is rare. Only 35 such cases have been reported in the literature since 1960. It is associated with a high mortality and results in severe disfigurement of the face, posing challenging reconstructive problems. The authors present their experience on the comprehensive management of NF of face with severe disfigurement affecting a young female patient.

BACKGROUND

Necrotising fasciitis (NF) is a highly aggressive infectious process characterised by spreading along the fascial planes. The condition was first described by Meleny (1924) in China,¹ it is typified by cutaneous necrosis, suppurative fasciitis, thrombosis of small blood vessels in the subcutaneous tissue and extreme systemic toxicity.² It can rapidly involve overlying skin, subcutaneous tissues, muscle and other adjacent soft tissue structures. NF is a rare infection frequently preceded by trauma and usually caused by β -haemolytic *Streptococcus*.

Involvement of the face from NF is rare. Only 35 such cases have been reported in the literature since 1960. It is associated with a high mortality and can result in severe disfigurement of the face, posing challenging reconstructive problems.³ In 1997, Shindo *et al.* reported four new cases and presented a review of 35 previous true cases of NF of the face.⁴

This paper presents a case of NF of the face affecting a young female patient and our experience in its comprehensive management.

Figure 1 Necrotising fasciitis on the left lower part of face.

Figure 2 Wound following debridement and preparation of wound margins.

CASE PRESENTATION

A 15-years-old female patient was referred to our unit with a history of an open wound on the lower part of left cheek of 8 days duration with associated pus discharge and toothache in the left side of lower jaw. This was preceded by a diffuse swelling over left side of face that had lasted 7 days before bursting. The patient was administered Cap. Penicillin V 250 mg 6th hourly by the referring doctor for 5 days. The patient was not on any medication at the time of presentation.

Intraorally, pericoronitis was noticed in relation to partially erupted left mandibular second molar which was perceived to be the source of infection.

Local examination revealed an ulcer measuring about 3×3 cms, surface of which was covered with slough, the surrounding skin was purplish and edges showed slight undermining. There was evidence of disintegration of the subcutaneous fat. The muscular fascia was necrotic and peeled off easily during dressing. There was a distinct putrid odour when the patient first presented. Medical/family/social history was unremarkable.

INVESTIGATIONS

Laboratory investigations were within normal limits. A β -haemolytic streptococcus was isolated from pus culture which was highly sensitive to ciprofloxacin and moderately sensitive to amoxycillin.

TREATMENT

Amoxycillin 500 mg 8th hourly was administered at the time of admission and withdrawn on receipt of the culture and sensitivity report following which, ciprofloxacin 500

mg, 12th hourly was administered for a period of 10 days. Multivitamins and high protein diet were provided.

Following vigorous debridement and regular dressings with saline and H_2O_2 , initially the dressings were changed daily for the first 4 days and then as the soakage reduced, the frequency was reduced to alternate days with light dressing. The wound became better but leaving defect of approximately 2×2.5 cms in the cheek necessitating plastic repair. The offending third molar tooth was extracted.

Surgical procedure

Considering the age of patient, we have decided to cover the defect (figure 1) by random transpositional flap under general anaesthesia. After extensive debridement and margin refreshment (figure 2), the size of the wound is measured. The outline of anteriorly based flap in adjacent region is marked (figure 3) and infiltrated with 2% xylocaine. After few min, flap from donor site is harvested, transpositioned (figure 4) and sutured in two layers to prepared margins of recipient site (primary defect). Wound created at the donor (secondary defect) site also closed primarily after undermining and advancement of margins (figure 5). Healing was uneventful (figure 6).

OUTCOME AND FOLLOW-UP

Follow-up was done for 6 months and the result is good as the patient was highly satisfied with the final outcome (figure 7).

DISCUSSION

The term NF was first proposed by Wilson in 1952. Other terms include-hospital gangrene, haemolytic or acute streptococcal gangrene, gangrenous or necrotising erysipelas,

Figure 3 Design of flap for reconstruction.

Figure 4 Flap raised and rotated to position.

Figure 5 Wound following primary closure.

Figure 6 One week postoperative.

suppurative fasciitis, Meleney's gangrene and Fournier's gangrene. NF may affect patients of all ages, without sex or race predilection. The condition has probably been under diagnosed in the past, and is being widely recognised nowadays.⁵ The condition is diagnosed clinically and may be confirmed by frozen section histopathology.⁶ In our case

the diagnosis was based in clinical presentation as facility for frozen section was not available in our setup.

NF usually occurs in the perineum, lower limbs or abdominal wall following surgery or trauma, particularly in individuals with underlying systemic diseases such as diabetes mellitus, arteriosclerosis, chronic renal failure or

Figure 7 Three months postoperative.

malnutrition. NF is rare in the head and neck. An infection of odontogenic origin is the most common cause followed by tonsillar and pharyngeal infections.⁵

In most cases of NF, bacterial invasion occurs as a result of some precipitating event that produces a break in the epidermis. Prompt and successful management of NF is universally agreed to be aggressive surgical intervention, intravenous wide-spectrum antibiotics, supportive therapy and oxygenation of the damaged tissues with a hyperbaric chamber.^{5 7 8}

In our case, skin loss was minimal. We used wound dressings soaked in H₂O₂, normal saline and betadine as topical treatment after debridement. However, we believe that the frequency of dressing is far more important than the solution used. Frequent dressing with bland solutions have been suggested as they may prevent secondary infections by providing a barrier and help to remove the slough, thereby exposing the healing granulation tissue, which enhances the healing process.⁹ The nutritional support, whether enteral or parenteral is also of great importance. NF involving the scalp and upper face has better prognosis than that involving the neck.⁵

In the face extensive resection of skin and subcutaneous tissue will result in long-term deformity. However, in an effort to control the disease, all variety of diseased tissue must never be spared. Since skin is less affected in NF as compared to the subcutaneous tissue, wide base skin flap can be raised and used to cover the deformity and to aid in clearance of the necrotised subcutaneous tissue.¹⁰

Learning points

- ▶ NF, though rare in young patients, if not recognised and unmanaged, it may lead to severe disfigurement.
- ▶ Its a rare entity in the facial region requiring reconstructive procedures.
- ▶ Aggressive medical and surgical management must be initiated immediately after diagnosis in order to contain morbidity and mortality associated with delayed intervention.
- ▶ Adequate wound care and frequent dressing will ensure reduction of morbidity.
- ▶ Frequency of dressing is dependant on various factors such as the soakage, amount of granulation tissue, external soiling, progress of healing process etc. The main point is to dress as frequently as permissible to enhance the healing and allow the wound to breathe.
- ▶ Since the condition has a tendency to progress in a subcutaneous plane often not affecting the overlying skin, the surgeon has to pay attention to clearing necrotic tissue under the surrounding skin.
- ▶ Reconstruction should be attempted only on complete resolution of the disease and the recipient bed is healthy.

Competing interests None.

Patient consent Obtained.

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