



Necrotising Fasciitis of the Neck: An Uncommon Presentation

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Authors' contributions

This work was carried out in collaboration among all authors. Author MRAM designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors MAFK and RA managed the analyses of the study. Author NKBE managed the literature searches. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Necrotising fasciitis of the neck is a soft tissue infection which vigorously affects fascia and superficial fat tissue with necrosis of the overlying skin. It commonly affects the perineum, extremities, abdominal wall and rarely occurs in the neck. We reported a case of neck necrotising fasciitis which has presented to us with left neck swelling and required immediate surgical intervention.

Keywords: Neck; necrotising fasciitis; saucerization.

1. INTRODUCTION

The term Necrotising Fasciitis (NF) was first described by Wilson in 1952 [1]. Commonly called a 'flesh eating infection' it is a rare disease

which usually caused by multiple bacteria comprising from group A Streptococcus (group A strep), Klebsiella, Clostridium, Escherichia coli, Staphylococcus aureus, and Aeromonas hydrophila [2].

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Among others, Group A streptococcal is considered the most common organism causing necrotizing fasciitis [1]. NF may occur to patients regardless of sex, race, geographical or age predilection. It usually occurs in area such as perineum, lower limbs or in abdominal wall post surgery or trauma especially in individuals with underlying systemic disease such as renal failure, diabetic mellitus, arteriosclerosis malnutrition or in immunocompromised patient. Aggressive surgical intervention, wide spectrum antibiotics and supportive therapy universally agreed to be the most effective therapy [1].

Extensive fasciotomy with exposure of all affected fascia and removal of necrotic tissue should be performed [1].

We reported a case of necrotising fasciitis in the neck which presented with classical deep neck space infections symptoms.

2. CASE PRESENTATION

A 60-years- old Malay gentleman suffering diabetic mellitus type 1 and hypertension. The patient presented to our department with complaint of painful left neck swelling for two weeks which was increasing in size. He also had history of one week fever and odynophagia.

On examination noted that there is a vague 8 cm x 6cm soft swelling with subcutaneous emphysema and tenderness (Fig. 1). No dental caries intraorally and patient is on dentures. No pathology was found in Flexible

nasopharyngolaryngoscope (FNPLS) Airway patency was good and no signs of gastroesophageal reflux. Full blood count examination showed leucocyte count of $21.0 \times 10^9/L$ with neutrophil Leucocytosis (70%). Random blood glucose on admission was 19. Computed Tomography Scan (CTS) neck was done and reported as large collection of air in the soft tissue of left side of the neck extending from level of mastoid tip to manubrium. The largest collection of gas is seen at the level of hyoid cartilage. However no fluid filled collection seen (Fig. 4).

This patient was proceeded with saucerization of the left neck under general anaesthesia. Sloughy and necrotic tissue involving the subcutaneous tissue, part of sternocleidomastoid was removed exposing the infected area. The disease appear to be extending into the left submandibular space with production of slough and minimal pus.

A sample for culture and sensitivity (C&S) which consist of swab, necrotic tissue wall and tissue for C&S has been sent for investigations and turns out to be Pseudomonas and sensitive to amoxicillin and clavulanic acid. Patient had daily dressing over the wound using prontosan wound gel [3] and urgisorb silver dressing. After two weeks of dressing with blood sugar optimized at control level patient improved and decided to proceed with Split skin grafting (SSG) on the neck wound. (Fig. 2). Patient was reviewed back one month post SSG with a clean wound and healthy skin graft tissue (Fig. 3).



Fig. 1. Preoperative



Fig. 2. 5 Days Post SSG



Fig. 3. Postoperative SSG skin well healed

3. DISCUSSION

Necrotising fasciitis of neck occurs in all individuals regardless of age, sex and race [1]. Most of the necrotising fasciitis of the neck preceded by dental or oropharyngeal infections. The most common cause of neck necrotising fasciitis dental infections (Chan et al, 1997) [4].

Peptostreptococcus, *B melaninogenicus* and *Fusobacterium* (Moss et al, 1990) are the commonest organism seen in NF of neck [4].

Antibiotic therapy is one of the treatment used in treating necrotising fasciitis. A combination of

Penicillin G, Aminoglycosides as well as clindamycin to cover for streptococci, staphylococci, gram-negative bacilli, and anaerobes is commonly practised [5].

Radiographically, necrotizing fasciitis is seen as diffuse thickening and infiltration of the cutis and subcutis in cellulitis; thickening and/or diffuse enhancement of the superficial and deep cervical fasciae (fasciitis); enhancement and thickening of the platysma, sternocleidomastoid muscle, or strap muscles (myositis); and fluid collections in multiple neck compartments [6].

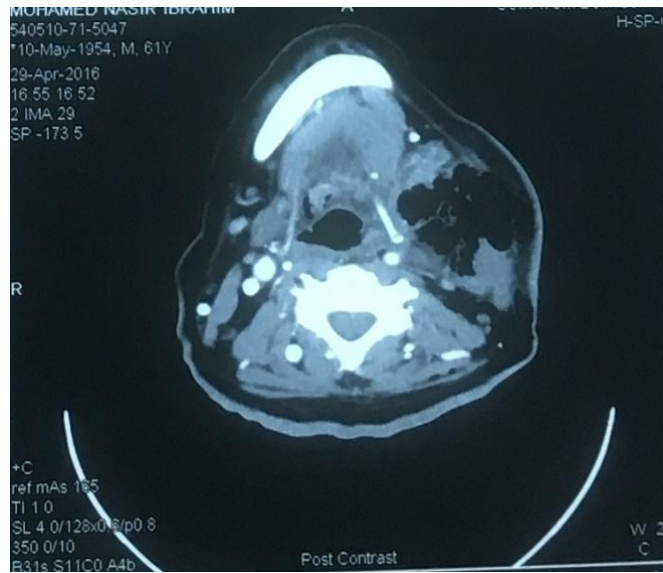


Fig. 4. CT Image Of Neck showing gas collection in the soft tissue over left side of the neck

Table 1. Necrotising fasciitis can be classified in several types listed in Table 1 according to Lemierre’s [4]

No.	Types of necrotising fasciitis	Organism	Descriptions
1.	Necrotising Fasciitis Type 1- Polymicrobial	Non Group A Streptococci And Anaerobes Or Facultative anaerobes.	Subcutaneous Fat and Fascia involved. Gas formation common
2.	Necrotising Fasciitis type 2	Streptococcus Pyogenus Or with Staphylococcus	Streptococcal Toxic Shock Syndrome Associated
3.	Clostridial Myonecrosis	Clostridium Perfringens	Gas Gangrene Muscle necrosis
4.	Fournier’s Gangrene		Necrotising FasciitisOf The Scrotum
5.	Le Mierre’s Gangrene	<i>Fusobacterium Necrophorum</i>	Oropharyngeal Infection with Internal Jugular Vein Thrombophlebitis

One of the complications of NF in neck is Lemierre’s syndrome [7]. Lemierre’s syndrome was described by Lemierre in 1936 [8] a clinical condition characterised by bacteremia and thrombophlebitis of internal jugular vein which usually preceded by oropharyngeal infections [9]. Lemierre’s syndrome may lead to systemic sepsis and septic pulmonary emboli which may lead to fatal outcome if early diagnosis and inappropriate treatment are not provided [8]. Therefore in this case we decided to proceed with saucerization of NF of the neck instead of simple incision and drainage. Early exploration and drainage of affected areas with extensive fasciotomy and removal of necrotic tissue could reduce loss of covering skin and avoid cosmetic deformity [1].

In order to obtain the best outcome of the disease, early detection of the disease, surgical intervention, removal of source of infections, combinations of IV antibiotics and wound dressings are needed [1].

In the case we reported prontosan gel dressing was used. Prontosan gel is made of Polyhexanide an antimicrobial agent that is used in cosmetics, baby wipes, contact lens solutions and wound care to reduce surface burden, and Betaine a surfactant that lower surface tension of medium and remove dirt and debris easily so that it doesn’t recontaminate the wound [3].

The presented case shows that early detection of the disease, aggressive surgical intervention,

intravenous antibiotic, wound dressing plays important role to obtain a good prognosis as well as investigating and evaluating patients systemic illness. The progression of necrotising fasciitis must be detected as early as possible in order to prevent a fatal morbidity and mortality.

4. CONCLUSION

Necrotising fasciitis of the neck is rare, however early diagnosis and intervention is essential in treating this condition. Wound saucerization, intravenous antibiotics, proper wound dressing as well as optimizing patient systemic illness is crucial for healing process and to prevent complications and mortality in this illness.

CONSENT AND ETHICAL APPROVAL

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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