



NECROTIZING SOFT TISSUE INFECTION OVER NECK IN A NONDIABETIC PATIENT- A CASE REPORT

General Surgery

Dr MS Kalyan Kumar	M.S, Senior Assistant Professor, Institute Of General Surgery, Madras Medical College, RGGGH, Chennai.
Dr Nivetha Jayasankar*	M.S., General Surgery Post Graduate, Institute Of General Surgery, Madras Medical College, RGGGH, Chennai. *Corresponding Author
Dr V Vijayalakshmi	M.S., D.G.O., Professor, Institute Of General Surgery, Madras Medical College, RGGGH, Chennai.
Dr. P. S. Shanthi	M.S., D.G.O., Professor & Director, Institute Of General Surgery, Madras Medical College, RGGGH, Chennai.

ABSTRACT

Necrotizing soft tissue infection is characterized by severe infection of the soft tissues and fascia. Involvement of the head and neck is rare but carries significant morbidity and mortality. Cervical necrotizing fasciitis (CNF) represents an aggressive form of deep neck space infection and is associated with a high-mortality rate of 40% to 76%. The disease is usually polymicrobial in origin and includes mixed aerobic and anaerobic species. Prompt diagnosis and treatment are necessary in the management of CNF. The mainstay of treatment is early and complete surgical debridement, combined with antimicrobial therapy, close monitoring, and physiologic support. Novel therapeutic strategies, including hyperbaric oxygen and intravenous immunoglobulin, have been described, but their effect is controversial. We report here a necrotizing soft tissue infection involving the neck in a 60 year old non diabetic female patient who was treated upon by a timely surgical debridement and later on followed by a split skin graft.

KEYWORDS

Necrotizing; non diabetic; mortality; graft; debridement

INTRODUCTION

Necrotizing soft-tissue infections (NSTIs) are infrequent but highly lethal infections. They can be defined as infections of any of the layers within the soft tissue compartment (dermis, subcutaneous tissue, superficial fascia, deep fascia, or muscle) that are associated with necrotizing changes. NSTIs are typically not associated with abscesses, although they can originate from an untreated or inadequately drained abscess. Establishing the diagnosis of NSTI is probably the greatest challenge in managing these infections. Delay of diagnosis leads to delayed surgical debridement, which leads to higher mortality. It is clear that early and complete debridement is essential for the treatment of NSTI. Concomitantly, appropriate broad-spectrum antibiotic coverage, combined with adequate organ support and close monitoring, helps patients during the acute phase of the disease, but it is only the complete debridement of infected tissue that controls the infection and allows for future recovery.⁴

CASE REPORT

A 60 year old female found neglected on the roadside was admitted by the social care workers. On admission, patient was drowsy, responding poorly to oral commands with stable vitals. Her random blood sugar was normal. Local examination revealed sloughed off necrotic areas between the two sides of sternocleidomastoid extending inferiorly till suprasternal notch and superiorly up to the mandible with active maggots infestation (FIGURE 1)



Figure 1: Necrotizing Soft Tissue Infection Over Neck And Submandibular Region With Active Maggots.

CT neck revealed necrotizing soft tissue infection only up to the subcutaneous plane not involving the muscles. Patient was taken up for surgical debridement under general anaesthesia. Postoperative period was uneventful. (FIGURE 2)



Figure 2: Post Surgical Debridement

Patient was started on oral diet on POD-1. No dental caries and pharyngeal infection or a inciting factor could be found. Close monitoring of her fasting and postprandial blood sugars were done which revealed patient to be a nondiabetic. Daily cleaning and dressing was being carried out for a month. (FIGURE 3)



Figure 3: Wound After A Month With Minimal Fibrosis Leading To Contractures

Even though Neck physiotherapy was done to prevent contracture, minimal fibrosis was noted. Plastic surgery opinion was sought for the closure of the defect and was advised SSG. Patient was taken up for surgery under GA and initially, the fibrotic strands were cut and proceeded with Split skin grafting. (FIGURE 4)



Figure 4: Fibrotic Strands released And SSG Done

On postop day 7 patient was successfully discharged and transferred to a care facility. Patient was followed up till 6 months and wound site was found to be healthy. (FIGURE 5)



Figure 5: Post SSG Wound After 6 Months

DISCUSSION:

Necrotizing soft tissue infections over the neck is an infection that rapidly progresses on the facial plane, even if cases are rare. It comprises 2.6% of all head and neck infections. It is more common in males. According to literature, its mortality rate changes between 19% and 40%⁵. The most common risk factors are dental pathology, closely followed by para pharyngeal and peri tonsillar infections. The mandibular second and third molar teeth are the common reason behind odontogene -based infections. The fact that these teeth reach beneath the region where the mylohyoid muscle sticks to the mandible enables infections caused by these teeth to reach the submandibular region. The infection may progress to the skull base in the upper region, and the thorax and the mediastinum in the lower region^{6,7,8}. The infection starts with necrosis in subcutaneous tissue as a result of intense lymphocytic infiltration, vascular thrombosis, and oedema as it spreads among muscle layers. In general, the infection in necrotizing fasciitis is poly-microbial¹⁰. Suitable radiological examinations should be requested as soon as possible in order to determine the extent of the disease, and to correctly evaluate the airway of the patient. The CT enables us to see the formation of subcutaneous gas and abscess. Even though the CT image does not illustrate significant pathology, it helps guide surgical intervention⁹.

The first step of management is checking and securing the airway. Medical treatment requires a broad range of antibiotics together with fluid and electrolyte replacements. Surgical treatment requires extensive surgical debridement exploring facial planes together with drainage and excision of all necrosis tissues. Once culture results are obtained, antibiotic treatment should be modified.¹⁰

CONCLUSION

This case report concludes that necrotizing soft tissue infection over neck can occur even in non diabetic persons when the trivial trauma or infection is being neglected. Once the diagnosis is made, the extent of the disease is to be delineated and airway secured and then, immediate extensive wound debridement has to be carried out to control the infection. The further plan of managing the wound depends upon the course of control of infection as well as the glycemic status.

REFERENCES

1. Bahu S, Shibuya T, Meleca RJ, et al. Craniocervical necrotizing fasciitis: an 11-year experience. *Otolaryngol Head Neck Surg.* 2001;125(3):245–252.
2. Fihman V, Raskine L, Petitpas F, et al. Cervical necrotizing fasciitis: 8-years' experience of microbiology. *Eur J Clin Microbiol Infect Dis.* 2008;27(8):691–695.
3. Ferzli G, Sukato DC, Mourad M, Kadakia S, Gordin EA, Ducic Y. Aggressive Necrotizing Fasciitis of the Head and Neck Resulting in Massive Defects. *Ear, Nose & Throat Journal.* 2019;98(4):197-200. doi:10.1177/0145561319839789
4. Ellie J. C. Goldstein, Daniel A. Anaya, E. Patchen Dellinger, Necrotizing Soft-Tissue Infection: Diagnosis and Management, *Clinical Infectious Diseases*, Volume 44, Issue 5, 1 March 2007, Pages 705–710, <https://doi.org/10.1086/511638>
5. Zhang WJ, Cai XY, Yang C, Zhou LN, Cai M, Lu XF, Zheng LY, et al. Cervical necrotizing fasciitis due to methicillin-resistant *Staphylococcus aureus*: a case report. *Int J Oral Maxillofac Surg.* 2010;39(8):830-834. pubmed doi
6. Bono G, Argo A, Zerbo S, Triolo V, Procaccianti P. Cervical necrotizing fasciitis and descending necrotizing mediastinitis in a patient affected by neglected peritonsillar abscess: a case of medical negligence. *J Forensic Leg Med.* 2008;15(6):391-394. pubmed doi
7. Feinerman IL, Tan HK, Roberson DW, Malley R, Kenna MA. Necrotizing fasciitis of the pharynx following adenotonsillectomy. *Int J Pediatr Otorhinolaryngol.* 1999;48(1):1-7. pubmed doi
8. Hohlweg-Majert B, Weyer N, Metzger MC, Schon R. Cervicofacial necrotizing fasciitis. *DiabetesResClinPract.* 2006;72(2):206-208. pubmed doi
9. Obiechina AE, Arotiba JT, Fasola AO. Necrotizing fasciitis of odontogenic origin in Ibadan, Nigeria. *Br J Oral Maxillofac Surg.* 2001;39(2):122-126. pubmed doi
10. lynn, L., San, I., Bozkus, F., & Beklen, H. (2011). Life-Threatening Necrotizing Fasciitis of the Neck: A Case Report. *Journal Of Current Surgery.* 1(1), 35-37.