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A Rare Case of Labial Necrotizing Fasciitis and Review of the Literature

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Abstract:- Necrotizing Fasciitis is a severe soft tissue infection characterized by sudden course and poor outcomes. It most ordinarily presents within the extremities, trunk, genitalia, and perineum. It rarely involves the lips. Here we are reporting a twenty years old male presented with painful swelling and blackish discoloration of the lower lip which was developed following scraping of a furuncle on the left lower lip and had the feature of sepsis. Clinical examinations and lab parameters suggestive of NSTI lower lip with Sepsis. The patient was immediately put on broad spectrum IV Antibiotics followed by emergency incision, drainage, and debridement of necrotic tissue on the lower lip and submental region. Postoperatively he was managed with IV antibiotics and daily saline dressing. He recovered well after three weeks without any complications.

Keyword:- *Necrotizing Soft Tissue Infection; Necrotizing Fasciitis; Sepsis.*

I. INTRODUCTION

Necrotizing soft tissue infections (NSTIs) are sudden infections of any layer of the soft tissue compartment related to widespread tissue necrosis, systemic toxicity, and a high death rate if not treated early. The first recorded description of NSTI in the United States was by Joseph Jones, an Army Surgeon, who reported 2,642 cases of "hospital gangrene" with mortality approaching 50% [1]. The term "necrotizing fasciitis" was proposed by Wilson in 1952 [2]. The incidence of NSTIs in the United States of America is around 500–1500 cases annually [3]. The mortality rates have been reported to be around the twenty-fifth percent, though it's higher in some studies [4]. Most case series report an association of NSTI with a chronic systemic illness, DM, obesity, peripheral vascular disease, alcohol abuse, or intravenous drug use [5]. It commonly affects the extremities [leg 33% and hand 7.5%], trunk, genitalia and perineum (20.2 %). Within the head and neck region, cervical necrotizing fasciitis is rare (5.3 %) [6]. Here we are reporting a rare case of Necrotizing soft tissue infection of the lower lip.

II. CASE REPORT

A twenty years old male reported to our hospital with a history of swelling over the lower lip for 06 day and blackish discoloration of lower lip for last three days. The swelling appeared following scraping of furuncle over the left aspect of the lower lip and associated with pain and fever. The patient was initially treated as a case of inflammation of the lower lip at a peripheral hospital with an oral antibiotic and NSAID on OPD basis. The clinical scenario worsened speedily with progressive swelling over the lower lip, difficulty in speaking with a feature of sepsis. He was transferred to our hospital for further evaluation and treatment.

On examination, the patient appeared sick, dehydrated, febrile (Temperature-101^0 F), and have tachypnea (Respiratory Rate-24/min), tachycardia (Heart Rate-110/min), hypotension (BP-94/50 mmHg) and oxygen saturation of 92 percent at room air. On local examination, swelling involving the lower lip, chin, and submental region with small open wound with pus discharge on the left aspect of the lower lip (fig 1). Mouth opening was painful and restricted. Epidermal and mucosal necrosis over the lower lip.

On systemic examination, there were basal crepitations auscultated over the right side of the chest. His abdominal, cardiovascular and neurological examinations were normal. Complete blood analysis showed neutrophilic predominance (88%), leucopenia of 3500/cmm (4000 to 11000/cmm), mild anemia with Hb of 10/dL (normal: 13 to 17 gm%) and thrombocytopenia of 44000 (150000-400000/cmm). He had a serum Na of 134 meq/L (normal:135 to 145 meq/l) and serum K of 5.9 meq/L (normal: 3.5 to 5.5 meq/L) ,serum creatinine of 1.4 mg/dl (normal: 0.8 to 1.5 mg/dl), urea 66 (15-45 mg/dl), random glucose a 100 mg/dL (normal: 79 to 140), and C-reactive protein 184 mg/l (normal: 80mg/dl). The LRENIC score was eight. X-ray chest revealed patchy consolidation right lower lobe, and X-ray PNS view was normal.

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On the basis of history, clinical examination and lab-parameters the diagnosis of NSTI of lower lip was made. After fluid resuscitation, he was put on triple IV antibiotics cover. Emergency incision and drainage along with debridement of necrosed tissue done and the counter incision was given over the submental region for drainage and decompression (Fig 2). Post op platelets transfusion was given. After correction of thrombocytopenia, bone marrow aspiration was done and which was normal. Triple IV Antibiotics continued till his WBC count became normal (Post-op day 10), and open wound was managed with daily normal saline dressing till it completely healed with secondary intention. He recovered well after three weeks without any complications (Fig 3).

Fig 1:- Patients having swelling and blackish discoloration of lower lip

Fig 2:- Intra-op photograph showing mucosal necrosis

Fig 3:- Patient appearance after 03 week

III. DISCUSSION

Necrotizing Soft-Tissue Infections (NSTIs) are a rare, speedily progressive infectious process that primarily involves the fascia and subcutaneous tissue. The infection usually results in occlusion of the cutaneous microcirculation, severe sepsis, and multisystem organ failure. The main problem in NSTI is difficult to establish the diagnosis. The unremarkably concerned sites are [leg 33% and hand 7.5%] trunk, genitals and perineum (20.2 %). Within the head and neck region, cervical necrotizing fasciitis is rare (5.3 %) [6].In our case, the patient had lower lip involvement which is rarely involved in NSTI cases. Events unremarkably predisposing patients to NSTIs include minor trauma, insect bites, drug reactions, illicit drug injections, perirectal abscesses, major traumas, and surgical procedures. NSTI's patients are generally having an underlying risk factor and 30% of the NSTIs do occur in healthy people. In this report, the patient had no predisposing factors, and it was developed after the scrapping of furuncle with fingernail over the lower lip. The initial nonspecific signs like tenderness, swelling, erythema, and pain at the affected site mimic non-severe soft tissue infections like cellulitis and erysipelas [7]. This was similar to our case. Among them, the cardinal manifestation is severe pain at onset out of proportion to physical findings [8]. Fever (>38^0 C) is found in around 44% of the cases and tachycardia (>100 beats/min) is sometimes found in 59% cases however in our case-patient was febrile and had tachycardia. Infected sites have erythema(80%), induration(66%), tenderness (54%), fluctuance (35%), skin mortification (23%), and bullae (11%) [9]. The initial physical findings of NSTI are typically erythematous and ecchymotic skin lesions, however, these might speedily evolve into hemorrhagic bullae, that indicate the occlusion of deep blood vessels within the fascia or muscle compartments. Extensive subcutaneous gas effusions detected as crepitation on palpation characterizes the clostridial infections. A seropurulent, foul-smelling “dishwater” like discharge

characterizes NSTIs. If not suspected and managed, the disease progresses into sepsis, septic shock, and multiorgan dysfunction syndrome[7]. In this case, when he reported to our hospital, he had the feature of sepsis with dearranged electrolytes and which was corrected with IV antibiotics and crystalloids infusion. A laboratory risk indicator for necrotizing fascitis score conjointly referred to as LRINEC score was devised by assigning scores to a certain set of laboratory variables (Table 1) [10]. The six independent variables enclosed were serum CRP levels, total white cell count, Hb level, serum Na, serum creatinine, and blood sugar levels. The whole score ranges from zero to thirteen and patients could be categorized into three groups supported the chance of NSTI. It had been found that for intermediate and high risk- patients, the score had a positive predictive value of 92% and a negative predictive value of 96%. However, LRINEC score is helpful solely within the context of a diagnosed or powerfully suspected severe soft tissue infection. An LRINEC score of eight was detected in our case. Imaging tools are helpful if the diagnosis of NSTI is uncertain. These are though non-invasive, but sometimes they unnecessarily delay the diagnosis of clinically evident NSTI. Presence of subcutaneous gas is a typical X-ray finding but is not a sensitive finding [11]. The CT scan findings suggestive of NSTI include the extent of abnormal soft tissue gas dissecting on the fascial planes, fascial stranding, and uneven thickening of fascial planes [12]. The sensitivity of CT to identify NSTI is 100%, specificity is 81%, the positive predictive value is76%, and negative predictive value is 100%[13]. The Gd contrast-enhanced MR imaging is helpful in stable, conscious, cooperative, and not in seriously ill patients [14]. In our case, we have only done X-ray PNS view and which was normal. Treatment of NF consists of the early and aggressive debridement of dead tissue, along with broad-spectrum IV antibiotics and fluids support. It's important to mention that NF can progress insidiously and by the time it's been diagnosed the condition would have progressed to a late stage. In this case, immediate surgical debridement of the whole necrotic tissue was done until the healthy tissue was visible and decompression and exploration of all involved compartments were done. In this case, initial triple IV antibiotics treatment were continued until the normalization of leucocytes counts and healthy appearance of the wound because in this case debrided tissue have negative bacterial culture growth. The daily dressing was performed, and debridement was kept to the minimum essential to minimize the tissue loss that may result from generous tissue removal. Facial NF is mostly due to a dental or pharyngeal abscess, radiation therapy, or an unknown cause [15]. Lower lip NF is rare. However, lip cellulitis as a result of chin acne is common, particularly in young adults. In our case, it was an initially started as a furuncle over lower lip and triggering factor as minor trauma like fingernail scraping resulted in extensive NSTI of the lower lip.

Variable (units)	Score points
C-Reactive Proteins(CRP) mg/dl	
<150	0
>150	4
White blood cell count(perm)	
<15	0
15-30	1
>25	2
Haemoglobin(g/dl)	
>13.5	0
11-13.5	1
<11	2
Serum Na(meq/l)	
≥135	0
<135	2
Serum Creatinine(mg/dl)	
≤1.6	0
>1.6	2
Blood Glucose(mg/dl)	
≤180	0
>180	1

Risk	Probability	Total score
High	<50%	≤5
Intermediate	50-75%	6-7
low	>75%	≥8

Table 1:- Laboratory Risk Indicator For Necrotizing Fascitis (LRINEC) Score

IV. CONCLUSION

NSTI of the lower lip is a rare entity and can be fatal when not recognized early, and timely initiation of fluid, triple IV antibiotic therapy and surgical debridement with wound care has markedly reduced morbidities and mortality. Whenever clinician is treating lip swelling's patient should they have a high index of suspicion of developing NF in their broad list of differential diagnosis of lip swelling.

CONFLICT OF INTEREST

The authors have none to declare.

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