Facial Necrotizing Fasciitis: A Rare Complication of Maxillary Sinusitis

Gupta N*, Varshney S†, Gupta P‡

ABSTRACT

Necrotizing fasciitis is an uncommon infection of the fascia and subcutaneous tissue, which is extremely rare in head and neck region because of high vascularity. Necrotizing fasciitis arising as a complication of maxillary sinusitis is exceptionally rare. We present the case of a 50-year-old female patient who was immunocompetent and developed facial necrotizing fasciitis as a sequel of maxillary sinusitis. She was effectively managed by surgical debridement and antibiotics. To the best of our knowledge, this is the second case report in English literature presenting as necrotizing fasciitis secondary to maxillary sinus infection.

Keywords: Maxillary, sinusitis, facial, necrotizing, fasciitis

Maxillary sinus lies close to the orbit superiorly, nasal cavity medially, teeth inferiorly, pterygopalatine fossa posteriorly, and facial skin anteriorly. Complications occurring as sequelae of maxillary sinusitis can involve all these structures but with the advent of highly effective antibiotics, it is rare to see them in the modern era. Necrotizing fasciitis of facial region is even a rarer occurrence, especially in an immunocompetent patient. The most common causes of cervicofacial necrotizing fasciitis are of odontogenic origin. Maxillary sinusitis is an uncommon cause of necrotizing fasciitis. The onset is often insidious in the form of nonspecific regional facial swelling, erythema, and fever. Thus, clinical distinction from more benign inflammatory conditions of the neck, such as cellulitis, may be impossible at an early stage. Without immediate surgical treatment, however, necrotizing fasciitis of the head and neck invariably leads to mediastinitis and fatal sepsis. Therefore, it is important to establish the correct diagnosis at an early stage. Contrast-enhanced computed tomography (CECT) scan is the investigation of choice to evaluate the extent of the disease. The diagnosis of necrotizing fasciitis should be suspected if the inflammatory signs on CT scan are not limited to cellulitis, but include widespread fasciitis of the superficial and deep fascia. Antibiotic treatment alone is insufficient; prompt and aggressive surgical exploration and debridement are imperative to prevent a fatal outcome.

CASE REPORT

A 50-year-old female presented in the ENT OPD with swelling over right cheek and upper lip for the last 3 days. Swelling was sudden in onset, rapidly progressive in size, associated with severe pain and fever for 2 days and black discoloration of the skin. Patient also complained of obstruction and purulent discharge in right nasal cavity. Vision and examination of cranial nerves was normal.
normal except for hypoesthesia over right cheek. The patient was hospitalized and started on broad-spectrum intravenous antibiotics (Ceftriaxone, Gentamycin, and Metronidazole) along with analgesics, antipyretics, and nasal decongestants. Pus was sent for culture and sensitivity. Routine blood examination was suggestive of leukocytosis while other tests (urine, random blood sugar, and serum creatinine) were within normal range. Enzyme-linked immunosorbent assay (ELISA) test for human immunodeficiency virus (HIV) was negative. CECT scan of the nose and paranasal sinus (PNS) was done, which revealed air–fluid level in right maxillary sinus along with mucosal thickening in bilateral maxillary, ethmoid, and frontal sinuses, and a soft tissue swelling of right cheek extending to temporal region. There was marked thickening of superficial and deep fascia of this region (Fig. 2). Considering the clinical and CT scan findings, a diagnosis of necrotizing fasciitis was made. The patient was posted for emergency surgery where debridement of the wound and follow-up wound care was done. Pus culture revealed growth of β-hemolytic streptococci Group A, Pseudomonas spp., and Staphylococcus aureus that were sensitive to the prescribed antibiotics. Surgery and postoperative period was uneventful. Pain and swelling subsided considerably after 48 h. Histopathological examination of the tissue was suggestive of acute abscess. A postoperative CT scan done 5 days after surgery was normal and had no inflammatory signs (Fig. 3).

DISCUSSION

The term “necrotizing fasciitis” is used to describe a severe, acute, and potentially life-threatening inflammatory condition caused by streptococcal or mixed bacterial infection and propagating continuously within soft tissues. Necrotizing fasciitis is a rare infection of the fascial planes, which is less common in head and neck because of higher vascularity in the region. The most common causes of necrotizing fasciitis are dental infections (dental abscess, gingivitis, and pulpits), blunt trauma, radiotherapy, and tonsillitis. Maxillary sinusitis is an uncommon cause of necrotizing fasciitis. The predisposing factors for the development of necrotizing fasciitis are diabetes, hypertension, obesity, malnutrition, peripheral vascular diseases, severe liver disease, alcoholism, and acquired immunodeficiency syndrome (AIDS). Although necrotizing fasciitis has been described mainly in elderly and immunocompromised patients, it recently has been observed increasingly in young, otherwise healthy, individuals. Normally, infection progresses rapidly and can involve the vascular structures causing small vessel thromboses. The most common clinical presentations are painful edema, erythema, warmth, tenderness, and crepitation. Patients can develop mediastinitis and consequent septic shock.
CT scan has been advocated for detecting gas, identifying the spread of infection in vascular sheaths, and detecting the extension of infection to remote areas (mediastinitis and pleural or pericardial effusions). Necrotizing fasciitis is a polymicrobial infection; the most common pathogens are Streptococcus spp., but *S. aureus* and anaerobes are also present in large proportion of cases. Effective treatment and management of necrotizing fasciitis is based on early recognition aggressive surgical intervention, use of broad-spectrum antibiotics, and supportive therapy. It is important to explore and drain all involved fascial planes. Hyperbaric oxygen was found to be useful by some authors. The morbidity and mortality seems to be related to the promptness of medical and surgical intervention. The mortality rate reported in the literature ranges from 19% to 40%. The higher mortality rate is related to pre-existing systemic illness, late surgical intervention, septicemia within 24 h, old age, and mediastinal and thoracic extension of the infection.

**REFERENCES**


**Harvard Six Ways to Ease Neck Pain**

- Don’t stay in one position for too long.
- Make some ergonomic adjustments. Position your computer monitor at eye level so you can see it easily. Use the hands–free function on your phone or wear a headset. Prop your touch–screen tablet on a pillow so that it sits at a 45° angle, instead of lying flat on your lap.
- If you wear glasses, keep your prescription up-to-date.
- Don’t use too many pillows.
- Know your limits. Before you move a big armoire across the room, consider what it might do to your neck and back, and ask for help.
- Get a good night’s sleep.