

Case Report

Gas Gangrene in the Neck Caused by an Odontogenic Infection-A Case Report

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Abstract

Gas gangrene, though relatively common in the extremities is a relatively rare affliction of the head and neck. However, they warrant prompt recognition and immediate treatment because of their potential risk of rapid spread to the deep neck spaces, thrombophlebitis, mediastinitis and cardiac tamponade. They have been classified based on the causative organism as non clostridial and those due to clostridial perfringens anaerobic gram positive bacilli. Herein we report a case of gas gangrene of the neck and mediastinum in a poorly managed Type II diabetic with concomitant odontogenic infection. Despite the burden of co-morbidities and the gravity of the illness, the patient was successfully treated and remained free of complications in the long term.

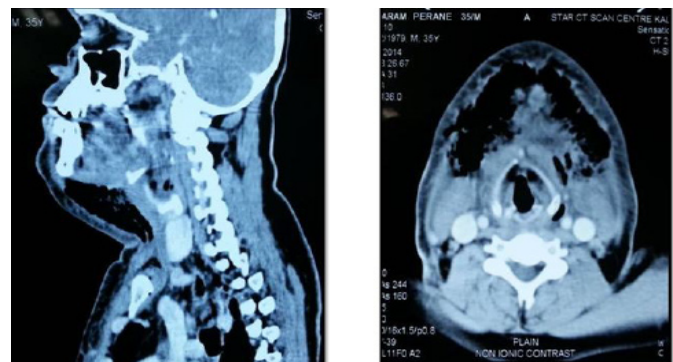
Keywords: Gas Gangrene in Neck, Odontogenic, Surgical Drainage

Case Report

A 51-year-old male, known to be suffering from Type II diabetes mellitus (DM) and hypertension was admitted to the hospital with complaints of pain and swelling in the submandibular region for 3-4 days, together with a high grade fever. Patient had noticed a swelling in the left submandibular region 3-4 days back with a painful 38. The swelling progressively increased crossing the mid-line and extending down the neck up to the upper mediastinum. Skin over the swelling was warm, erythematous, and pitting under pressure (Figure 1).



The swelling was firm and tender with areas of crackling sensation. Intraorally the floor of the mouth was raised with areas of gangrenous necrosis on the left side medial to 38. The patient had difficulty in breathing and deglutition He was toxic with WBC counts on admission being 27,000, SPO2 was around 92% and temperature was 102 degrees F. Fasting blood sugar was 187mg/dl. Axial and sagittal sections of Computed tomographic scans showed air pockets in the bilateral submandibular and sublingual spaces which was descending along a subcutaneous plane in the neck upto the sternum suggestive of gas gangrene (Figure 2A & 2B).



An incision and drainage of these abscesses was promptly performed through a submental incision extending laterally into the submandibular spaces (Figure 3).



There was minimal purulent discharge. However there was exuberant discharge of foul smelling blackish necrotic tissue. The offending tooth 38 was extracted. Blood, urine, and necrotic tissue specimens were sent for culture and sensitivity and the patient was empirically started on intravenous Meropenem 1gm 8 hourly, InjAmikacin 1.5 g and InjMetrogyl 100ml. Culture revealed *Ps. aeruginosa* and *K. pneumoniae*. Blood culture revealed *K. pneumoniae*. *K. pneumoniae*, while urine culture grew *Pseudomonas* and *E. coli*. No anaerobes were seen to grow in any of the blood or urine cultures. The antibiotics were continued for three weeks. The swelling reduced and clinical signs subsided within 2 weeks

Discussion

The involvement of neck spaces by gas gangrene have been reported in literature as a sequel to acute pharyngolaryngeal inflammation (46%), dental causes (27%), trauma (8%) and unknown etiology (19%) [1,2]. The causative organism in gas gangrene is *Clostridium perfringens* in 80–95% of cases. However, other *Clostridium* species and microbes such as *E. coli* have also been isolated [3]. In our case, culture of the pus only grew *Pseudomonas aeruginosa* and *Klebsiella pneumoniae*. Gas gangrene can rapidly progress to serious morbidity and even mortality, and prompt surgical intervention is clearly indicated. Management of non-clostridial gas gangrene of the neck is a challenge not just for the thoracic surgeon, but additionally for the infectious disease physician [3]. For the surgeon the challenge lies in ensuring access to such extensive areas of involvement in the neck, which houses major vessels and vital structures and in ensuring complete drain-

age. For the physician, prompt but accurate institution of empirical multimodal therapy while waiting for the bacterial culture reports is no less than a decent challenge. Notably, many clinicians including us are unconvinced about the worth of hyperbaric oxygen therapy due to inconclusive research findings [4]. However, Sugihara et al have recently recommended its use in tandem with antibiotics for soft tissue infections [5]. In light of our case, as well as review of the current literature, we conclude that gas gangrene of the neck needs to be diagnosed quickly and managed aggressively for desirable results to follow. Management pitfalls include a low index of suspicion, undue reliance on conservative management and hence, undue delay in surgical debridement.

Conclusion

In light of our case, as well as review of the current literature, we conclude that gas gangrene of the neck needs to be diagnosed quickly and managed aggressively for desirable results to follow. Management pitfalls include a low index of suspicion, undue reliance on conservative management and hence, undue delay in proceeding to surgery.

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