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Case report

Necrotizing fasciitis of the cervico-facial region due to odontogenic infection

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ABSTRACT

Necrotizing fasciitis (NF) of cervical region is an uncommon sequelae of odontogenic infection. It has been described in the past with different names such as hospital gangrene, necrotizing erysipelas, haemolytic streptococcal gangrene, suppurative fasciitis, bacterial synergistic gangrene and acute dermal gangrene [1,2].

It is a highly aggressive infectious process characterized by spread along the fascial planes. It can rapidly involve overlying skin, subcutaneous tissues, muscle, and other adjacent soft tissue structures. The most frequently involved areas are the thorax, limbs, perineum, abdomen, and groin [3,4]. Occurrence in the head and neck region is relatively rare.

The most common causes of cervical necrotizing fasciitis are odontogenic infection, blunt trauma, radiotherapy, and necrotizing fasciitis of unknown origin. It is a debilitating condition, with a high mortality rate and poor prognosis is aggravated with development of mediastinitis and septic shock.

The predisposing factors include diabetes mellitus, steroid administration, arteriosclerosis, chronic renal failure, hypothyroidism, obesity, alcoholism, cancer, cirrhosis, drug abuse, and a poor nutritional state, as it involves suppression of host defence mechanism. We present two cases of NF, originating from odontogenic infection, successfully managed in our department.

1. Case reports

1.1. Case one

A 56-yr-old male was referred with a severely suppurative surgical wound over the left submandibular region and perforation of skin over the anterior mid-line and left side of neck with exposure of underlying tissue (Fig. 1). He had a restricted mouth opening of approximately 20 mm.

The individual had a history of pain over the lower left back teeth since 2 weeks which he ignored. Subsequently, he developed swelling over the left lower jaw extending till the neck for which he reported to a private clinic. An incision & drainage and extraction of tooth numbers 35, 36 and 37 had been carried out under local anaesthesia and patient was discharged thereafter with no subsequent follow-up. His past medical history revealed he was a known case of chronic alcoholism with liver cirrhosis.

On reporting to our department, the individual was febrile and toxic appearing. He had a severely suppurating, foul smelling wound over the left sub-mandibular region extending approximately 2 cm below the lower border of the mandible from the left angle to parasymphyseal region, indicative of an incision and drainage of the left sub-mandibular space abscess. The skin over the anterior mid-line and left side of the neck was perforated in multiple areas with foul smelling discharge and exposure of the underlying fascia. The swelling and erythema was extending till the mid-sternal notch and left clavicular region. Clinically he was diagnosed as necrotizing fasciitis of the cervico-facial region.

Emergency investigations revealed that he was anaemic with Hb level of 7.7 mg/dl. TLC was grossly elevated at 22,400 cells/mm^3 indicating septicaemia and liver enzymes were deranged with increased serum albumin and bilirubin levels. Random blood sugar report revealed a normal report of 128 mg/dl. Samples for culture and ABST were drawn and despatched to department of microbiology. Meanwhile, the patient was administered empirical broad spectrum antibiotics comprising of third generation cephalosporin, amikacin and metronidazole.

Urgent radiographs (PA view chest) & CT scans of the neck and thorax were taken and mediastinitis was ruled out.

Patient was taken up for emergency surgical debridement under general anaesthesia. Fibre-optic assisted intubation was used to place the endo-tracheal tube. After part preparation, extensive debridement of the skin and necrotic superficial fascia and deep fascia was done, exposing the complete midline and left posterior triangle of neck till level of sternocleidomastoid and trapez-

☆ AsianAOMS: Asian Association of Oral and Maxillofacial Surgeons; ASOMP: Asian Society of Oral and Maxillofacial Pathology; JSOP: Japanese Society of Oral Pathology; JSOMS: Japanese Society of Oral and Maxillofacial Surgeons; JSOM: Japanese Society of Oral Medicine; JAMI: Japanese Academy of Maxillofacial Implants.

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Fig. 1. Necrotic, suppurative wound over anterior midline and left side of neck.

Fig. 2. Debridement of necrotic tissue.

ius. Debridement and excision of necrotic mass was carried out extending from submandibular space till sternal notch and mid clavicular region (Figs. 2 and 3). The specimen was sent for histopathological examination.

Thorough irrigation was carried out using hydrogen peroxide and normal saline and external dressing of Gamjee pads secured. Post-operatively, he was continued with the empirical antibiotics which were later replaced by injection Meropenem 1 g per 8 hrs,

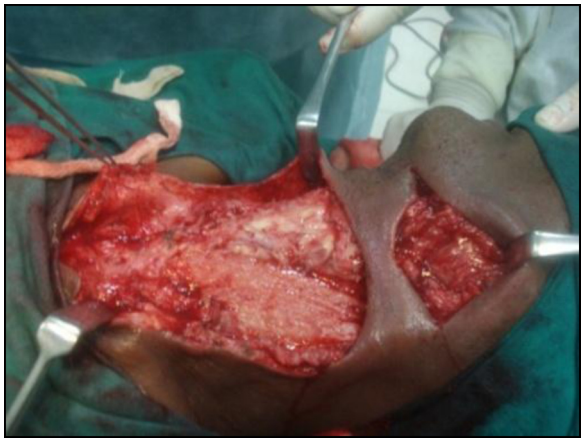

Fig. 3. Complete necrotic fascia and muscle dissected with healthy underlying tissue.

Fig. 4. Healthy granulation tissue – 5th post-op day.

Metronidazole 500 mg per 8 hrs and Vancomycin 1 g per 8 hrs as per the antibiotic sensitivity report. Culture report revealed polymicrobial growth of *Streptococcus* (β-haemolytic) and *Pseudomonas aeruginosa*. Religious irrigation using 2% hydrogen peroxide and 1% glacial acetic acid solution was carried out and dressing changed twice a day. High protein diet with a calorific value of approximately 5000 kcal per day was delivered by nasogastric tube. Monitoring and support of systemic status of the patient was done by the physician concomitantly.

On the third post-op day, individual was taken up for further debridement of necrotic tissue under local anaesthesia. By 5th post-op day, the wound started improving with healthy granulation tissue (Fig. 4).

Investigations carried out on 5th post-op day revealed blood Hb level of 8.9 mg/dl, serum creatinine of 1.2 mg/dl and potassium 3.4 mequiv./L, thus indicating stabilizing of liver function and serum electrolyte balance. Injection Vancomycin was stopped on 6th post-op day with continuation of injection Meropenem and Metronidazole till 10th post-op day along with regular wound irrigation and dressing. On 11th post-op day, the surgical wound appeared completely healthy with absence of any suppuration (Fig. 5) along with improvement of systemic condition.

Patient was thus withdrawn from all injectables and kept on oral antibiotics (azithromycin), multivitamin and autrin with high protein diet. On 15th post-op day, all antibiotics were withdrawn. By the 40th post-op day, the wound had healed completely with no contracture (Fig. 6) and no restriction of neck movements (Fig. 7). The patient was subsequently discharged from the hospital.

The histopathology report revealed necrotic fibrous tissue with mixed inflammatory infiltrate comprising predominantly of polymorphonuclear cells, ulcerated stratified squamous epithelium and oedematous and inflamed subepithelial tissue with mixed acute and chronic inflammatory infiltrate along with granulation tissue and necrotic debris (Fig. 8). No granulomas or cellular atypia was noted. The descriptive histopathology report confirmed the diagnosis of necrotizing fasciitis.