

## A bleeding cervicofacial necrotizing fasciitis masquerading as upper gastrointestinal bleeding: a case report

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### Abstract

*Necrotizing fasciitis is a common debilitating disease usually presenting in a patient that is immunocompromised patients due to malnutrition, immunosuppression, elderly, diabetes mellitus, etc. It is a fulminant rapidly progressive infection secondary mainly to mixed organisms (both aerobic and anaerobic organisms). Necrotizing fasciitis of the neck usually follows Ludwig's angina this arises from neglected dental caries or ruptured caseous cervical lymphadenopathy in patients with pulmonary tuberculosis. We present an 81-year-old woman, who presented with a fungating ulcer on the left side of the neck and significant, effortless, bleeding from the upper gastrointestinal system of 2 episodes. There was an antecedent history of dental pain and swelling which was treated with antibiotics and analgesia purchased over-the-counter. The swelling subsequently ruptures leading to the fungating ulcer. There was an associated history of passage of melaena and hematochezia. There was an initial misdiagnosis of massive upper gastrointestinal bleeding in this index patient with necrotizing fasciitis following ruptured Ludwig's angina. She was later investigated (indirect laryngoscopy) and bleeding was identified in the hypopharynx on the left side.*

*Keywords: Bleeding neck necrotizing fasciitis, Ludwig's angina, dental caries, upper gastrointestinal bleeding.*

### Introduction

Necrotizing fasciitis is a clinical entity that results from the skin, subcutaneous tissue, and fascia-eating infection that leads to the exposure of the underlying muscles. Most of the necrotizing fasciitis occur as a result of mixed organisms. Necrotizing fasciitis can present in any part of the body. The common sites include the perineum (Fournier's gangrene) anterior abdominal wall (Meleney's gangrene), the perioral region (cancrum oris), the leg, and the side of the neck especially following neglected dental caries resulting in ruptured Ludwig's angina. The most common type of

the necrotizing fasciitis is the polymicrobial type that account for about 70-80% of all cases.

Cervicofacial NF complicating Ludwig angina have been reported in several studies. However, there is a study that stated that Ludwig's angina is a separate entity, though rapidly progressive and fulminant, with high mortality rate, it never progresses to NF. None of these studies has ever mention anything about bleeding associated with NF.

### Case

An 81-year-old woman presented to the emergency room accompanied by her son with a foul-smelling, purulent discharging ulcer of the right jaw extending to the neck, high grade fever, and body weakness. She was well until two (2) months before presentation

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when she suddenly noticed a severe recurrent right molar toothache. One month thereafter, she noticed a progressive swelling of the right jaw extending to the neck with lockjaw. She was placed on antibiotics and analgesics by a community nurse, when she declined to come to the hospital. The swelling ruptured and resulted in a progressive increasing ulcer discharging foul-smelling purulent effluent about 2 weeks before presentation. The swelling and the pain subsequently resolved. There was associated generalized body weakness, weight loss, and two (2) episodes of hematemesis. On examination, she was a chronically ill-looking elderly woman, pale, anicteric with tachycardia and tachypnea. There were 2<sup>nd</sup> right molar tooth caries and an irregularly-shaped ulcer extending from the parotid region to the neck with sloughy and unhealthy granulation tissue floor, undermined edge, and foul-smelling purulent discharge. A diagnosis of necrotizing fasciitis of the right side of the face and neck in a patient with resolving Ludwig's angina due to neglected right molar tooth caries was made.

She was reviewed by the Maxillofacial Surgery Unit and had the right molar tooth removed and was subsequently referred to the Plastic Surgery Unit for the management of the necrotizing fasciitis. The hemogram came back with a hematocrit of 5g/dl. She was commenced immediately on transfusion of five (5) units of fresh whole blood. During the transfusion, she had 3 episodes of effortless hematemesis of about 500mls each. The post-transfusion hematocrit was 6g/dl. A tentative diagnosis of massive upper gastrointestinal bleeding was made and the surgical gastroenterology unit was called who passed the nasogastric tube to decompress the stomach. Then the medical gastroenterology unit was informed to prepare the patient for an upper gastrointestinal endoscopy. However, the upper GI endoscopy was not done because the nasogastric tube was draining clear gastric fluid, except when it was blood -stained immediately after episode.

The Maxillofacial Surgery Unit was reinvited for the possibility of the bleeding from the site of the tooth extraction and on examination, the site was already healing. She was transfused with another four (4) units of blood. She still had another two (2) episodes of hematemesis.

The otorhinolaryngology Unit was invited to examine the hypopharynx. The oropharyngeal examination and indirect laryngoscopy revealed a rent with slough and blood stain measuring about 1cm in the lateral aspect of the right side of the posterior pharyngeal wall just short of the epiglottis discharging serosanguinous fluid. Most likely from the capillary networks of the ascending pharyngeal artery and branches of the facial artery. The melaena was most likely a result of the swallowing of blood from the eroded vessel in the hypopharynx.

The nasogastric tube was discontinued and she continued on intravenous antibiotics. The ulcer progressively got clean and started contracting. The bleeding resolved and the patient was discharged home with a hematocrit of 9g/dl.

Since discharge, she has never attended any clinic appointment



At presentation: NF in evolution



Day 3 on admission: 2 days post tooth extraction



Day 7 on admission: clean wound



Day 12 on admission: wound contraction

## Discussion

Necrotizing fasciitis (NF) is called a flesh-eating disease /infection of the fascia and the subcutaneous tissue. It is a rapidly progressive infection along the fascia plane, leading to thrombosis of the perforating and subdermal plexuses, resulting in necrosis of the fascia and the overlying subcutaneous tissue and the skin<sup>1-3</sup>. It usually presents with features of inflammation and release of a significant quantity of chemo-active substances from the breakdown of the extensive necrotic tissue which can lead to systemic inflammatory response syndrome (SIRS) and multiple organ dysfunction syndrome (MODS)<sup>10</sup>. The symptoms and signs of NF are similar to those of cellulitis but more severe when compared to the presentation on the skin. The pain is usually out of proportion. NF is

broadly divided into four (4) types based on the aetiology<sup>2</sup>

Type 1 – polymicrobial in origin. It is usually due to mixed organisms (involving both aerobic and anaerobic organisms). It accounts for 70%-80%.

Type 2—monomicrobial. This is usually due to either Group A  $\beta$ -hemolytic streptococcal infection or methicillin-resistant staphylococcus aureus. Some fungal infections, like actinomycosis and mucormycosis, have also been isolated. This account for 20%-30%.

Type 3 – Gram-negative (often marine related organisms)

Type 4 – Trauma related necrotizing fasciitis. Occur in immunocompetent patients

NF affects different parts of the body i.e., the facial NF (cancrum oris or noma), abdominal NF (Meleney's ulcer/gangrene), perineal NF (Fournier's gangrene), and those on the extremities. NF of the chest wall has also been reported in neonates as being an extension of the omphalitis and cervicofacial NF secondary to Ludwig's angina from neglected dental caries or abscesses.

NF has been commonly presented in the extreme of age (Neonates and elderly) and immunocompromised young adults (those with HIV, malnutrition, diabetes mellitus, organ transplanted, renal disease, liver disease, on steroid or non-steroidal anti-inflammatory drugs.

Cervicofacial NF is largely reported as a complication of Ludwig's angina from neglected dental caries or abscesses. Some researchers have reported that cervicofacial NF is an entity different from cervicofacial cellulitis called Ludwig's angina. However, the severity and progression of Ludwig's angina are similar to the evolution and rapidity of necrotizing fasciitis. Ludwig's angina presents with extensive overlying skin and subcutaneous tissue necrosis.

Cervicofacial NF has also been associated with caseous necrosis of cervical lymph nodes in a patient with undiagnosed pulmonary tuberculosis.

The index patient is an elderly woman with possible immunocompromised status, it is one of the factors that predisposes her to NF. The cervicofacial NF followed a neglected right 2<sup>nd</sup> molar tooth dental abscess. This progresses to extensive cervicofacial swelling, pain, and trismus. This presentation is similar to that of Ludwig's angina. Most of the teeth involved in the evolution of the cervicofacial NF have been molar teeth.

The skin overlying the area of the swelling became dusky and finally necrosed. The excruciating pain gradually reduced as the swelling was suppurated and ulcerated to result in extensive cervicofacial ulcer with purulent foul-smelling discharge. The resolution of the pain may be a result of the necrosis of the nerves in the necrosed area. The ulcer reveals the underlying muscles (sternocleidomastoid muscles) of the right anterior triangle of the neck.

Bleeding is rarely associated with NF. However, the index patient presented with episodes of significant effortless hematemesis which was initially thought to be due to an upper gastrointestinal bleed. The nasogastric tube passed to decompress the stomach had minimal blood-stained effluent immediately after each episode and subsequently became clear. There was no frank bloody or coffee-brown drain. This suggests that the bleeding must be proximal to the stomach and oesophagus.

On indirect laryngoscopy, the bleeding spot was identified in the hypopharynx just beneath the area of the cervicofacial NF. The bleeding area may have been involved during the necrosis of the overlying skin and subcutaneous tissue. This may be due to erosion of the underlying hypopharynx and bleeding from the capillary plexuses from the superior thyroid and lingual vessels.

The main purpose of this article was to inform about the possibility of bleeding cervicofacial NF presenting like upper gastrointestinal bleeding. This should be considered in these patients so that timely and appropriate management can be instituted.

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