



A rare case of peritonsillar abscess resulting in cervical necrotizing fasciitis



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ABSTRACT

Objectives: Necrotizing fasciitis of the head and neck region is a rare but lethal complication of any head and neck infection. We present a case of cervical necrotizing fasciitis secondary to peritonsillar abscess requiring a large neck debridement and bilateral mastectomies that was treated in our institution.

Case report: A 38-year-old male presented with a history of sore throat which progressed to right neck swelling and bilateral chest pain. Blood work was only significant for a white blood cell count of $22.0 \times 10^3/\mu\text{L}$. Computed tomographic imaging of the neck and chest demonstrated a right peritonsillar abscess involving the right masticator space and carotid space which had dissected laterally and superficially to involve the right sternocleidomastoid and bilateral pectoralis muscles. The patient was taken emergently to the operating room for wide excision resulting in a neck debridement, right total mastectomy, and left partial mastectomy. After multiple debridements, intravenous antibiotics, and dressing changes the patient underwent split thickness skin grafting to his neck and chest wounds and was subsequently discharged from the hospital 45 days after initial presentation.

Conclusions: Necrotizing fasciitis of the head and neck demands a high index of suspicion involving a multidisciplinary team, rapid diagnostic measures and aggressive surgical and antibiotic management as the mainstay of treatment in reversing this potentially fulminant and lethal disease process. In this rare case of peritonsillar abscess resulting in cervical necrotizing fasciitis, the infection spread across cervical fascial planes onto the anterior chest wall rather than dissecting as usual to the parapharyngeal, retropharyngeal spaces or mediastinum. Extensive and potentially disfiguring debridements may be necessary to obtain negative margins with frequent reoperations until the patient is ready for reconstruction.

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Introduction

Necrotizing fasciitis is a progressive, life-threatening infection which can involve the skin, soft tissue, superficial and deep fascia and muscles. It is characterized by a rapidly spreading necrotic disease to any part of the body including the head, neck, trunk, extremities, perineum or scrotum [1,2]. As this fulminant disease progresses, necrosis of the overlying skin and underlying fascia or muscles occurs due to thrombosis of penetrating arterial feeding vessels [3,4]. The term “necrotizing fasciitis” was first used in 1952 to describe the dominant features of the disease, namely inflammation and necrosis of the subcutaneous fat and deep fascia, often with sparing of the skin and muscle [5]. Several mechanisms have

also been identified that may cause the patient to develop necrotizing fasciitis, including surgical and traumatic wounds, insect bites, needle punctures, burns, frostbite, and steroid injections [1,2]. Various systemic diseases have been considered as predisposing to necrotizing fasciitis, including diabetes mellitus, renal failure, human immunodeficiency viral infection, and the immunocompromised states.

Necrotizing fasciitis of the head and neck region is a rare disease that may involve the face, periorbital region, scalp, ears, and neck [6,7]. Necrotizing fasciitis secondary to dental infections or facial trauma may invade into the neck, however, cervical necrotizing fasciitis due to peritonsillar abscess (PTA) is an even rarer phenomenon [7]. As of 2005 only 18 cases of PTA [1981 to 2005] leading to necrotizing fasciitis have been reported in the world's literature [8,9]. While PTA's occur in 1 in 10,000 patients, they represent the most frequent head and neck infection presenting to the emergency department [10,11]. We present a case of cervical necrotizing fasciitis secondary to peritonsillar abscess leading to a

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neck debridement and bilateral mastectomies treated in our institution.

Case report

A 38-year-old male presented to the emergency department with a 6-day history of a sore throat after snorting cocaine which subsequently progressed to include right neck and bilateral chest swelling. He reported associated odynophagia and pain to palpation as well as the development of erythematous and firm black lesions along the skin of his right neck and across the bilateral anterior chest. He denied a history of fevers, chills, recent trauma, or dental procedures.

On admission, his temperature was 37.2C but with a heart rate of 120 beats per minute. All other vital signs were within normal limits. Blood work was significant for a white blood cell count of $22.0 \times 10^3/\mu\text{L}$ with 84% neutrophils. Physical examination demonstrated erythema, induration, and crepitus extending from the angle of the right mandible, inferiorly to the right 3rd rib and scattered black eschars along the right chest. Oropharyngeal examination demonstrated mild right tonsillar erythema, normal uvula, and good dentition. There was no tonsillar enlargement, mechanical trismus or dental caries. Computed tomographic (CT) imaging of the neck demonstrated a 7.6×6.7 cm right peritonsillar abscess involving the right masticator space, carotid space, and right parotid gland which had dissected inferiorly to involve the right sternocleidomastoid and bilateral pectoralis muscles (Figs. 1 and 2). There was significant free air lateral to the abscess with direct communication to the lateral neck (Fig. 3.)

The patient was taken emergently to the operating room for wide excision of the skin, subcutaneous tissue, and muscles of the right neck with surgical resection extending medially to the right submandibular space, carotid sheath and distally over the bilateral chest requiring a right total mastectomy and a partial left mastectomy (Fig. 4). Intraoperative findings included turbid, foul-smelling fluid and necrotic subcutaneous tissue, fat, fascia, and muscle that extended from the right submandibular space to the bilateral



Fig. 2. Dissection of peritonsillar abscess extended centrally to involve the pectoralis muscles.

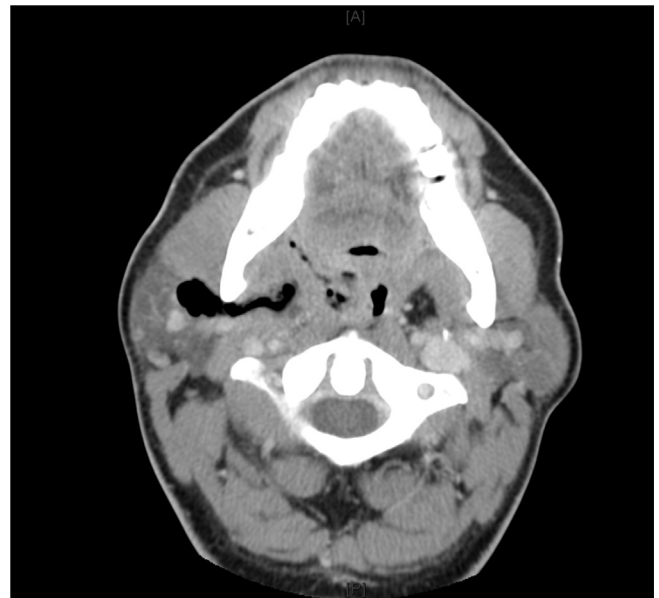


Fig. 3. Significant free air lateral to the abscess with direct communication to the lateral neck.



Fig. 1. Large right peritonsillar abscess involving right masticator and carotid spaces, and right parotid gland, with involvement of the right sternocleidomastoid muscle.

thoracic 4th intercostal space. The cervical strap muscles and pectoral muscles were involved with the necrosis and debrided while the right anterior jugular vein and the right thyrocervical trunk were ligated. The process did not extend into the mediastinum after exploration of the superior aspect of the manubrium and right medial clavicular joint. The surgical field was irrigated and a 1-inch flexible drain was placed into the right submandibular space. There was no obvious communication from the abscess cavity encountered in the right neck leading into the oropharynx, right tonsil or the tonsillar fossa. Purulent drainage was only noted to extend medially, and intraoperative esophagoscopy and bronchoscopy were unremarkable thus tonsillectomy was deferred during the first operation given concerns for the development of possible oropharyngeal fistula (see Fig. 5).

Tissue pathology revealed extensive inflammation and necrosis of the subcutaneous tissue and muscles of the neck and chest consistent with necrotizing fasciitis, with infiltration of numerous bacterial organisms. Microbiology cultures returned positive for the presence of *Streptococcus constellatus*, *Peptostreptococcus*, and *Prevotella*.

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