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Visual Diagnosis in Emergency Medicine

LUDWIG'S ANGINA TRIAGED AS AN ALLERGIC REACTION

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CASE REPORT

A 59-year-old female presented to an emergency dental clinic with dental pain and minor left buccal and mandibular swelling. She was found to have fractured tooth 18. She was given clindamycin and told to return in several days for extraction. Overnight, she was febrile to 102°F and the swelling worsened to include her tongue. Believing this to be an allergic reaction to the antibiotic, she presented to the emergency department the following morning. Her vitals were normal with SpO₂ 92% on room air. The physical examination revealed bilateral submental erythema extending to the anterior neck, a muffled voice, mild tongue elevation with firm, and tender brawny edema to the floor of the mouth (Figure 1). Despite the swelling and erythema of her neck, her airway was stable (Figure 2). Laboratory studies revealed a minor leukocytosis. Computed tomography (CT) of the neck was done at the request of the oral surgery consultant and revealed an ill-defined fluid density measuring 1.77 cm without ring enhancement in the sublingual area bilaterally and above the mylohyoid muscles (Figure 3). Clindamycin and dexamethasone were started. She was taken to the operating room for incision and drainage of the submental space and extraction of the tooth. Culture of the purulent fluid revealed polymicrobial anaerobes including *Peptostreptococcus*.

DISCUSSION

Ludwig's angina is a potentially fatal infection diagnosed clinically as a quickly spreading cellulitis that originates intraorally and involves the bilateral supramylohyoid and inframylohyoid spaces (1). The most common cause is dental infection due to the location of the lower molar roots below the mylohyoid ridge (2). Affected individuals are typically 20 to 60 years old and there tends to be a male predominance. This is a clinical diagnosis made



Figure 1. Arrow shows sublingual cellulitis. This tends to be firm and have a texture similar to wood.



Figure 2. Ludwig's angina, arrow shows anterior neck edema and early cellulitis.

on history and physical examination. A mild dental infection can rapidly progress to brawny bilateral induration of the upper neck with pain, trismus, and tongue elevation. Fever and dysphagia are also common. The most serious complication of Ludwig's angina is airway obstruction due to expanding edema of the soft tissues of the neck. Impending obstruction may be signaled by increasing anxiety, tachypnea, stridor, and the assumption of a "sniffing" position (3). CT or magnetic resonance imaging scans are helpful in defining the extent and location of infection, but should not slow treatment (4). There must be cellulitis of the submandibular space that is usually bilateral. The infection tends to produce gangrene with serosanguineous, putrid infiltration but little frank pus (4). There is seldom involved abscess (our patient had ill-defined fluid, but no obvious abscess). Treatment consists of open surgical incision and drainage with appropriate antibiotic coverage (5). Monitoring and protection of the airway are also important components of treatment.



Figure 3. CT scan of neck with i.v. contrast showing ill-defined sublingual density in the sublingual space. This was measured by the radiologist to be 1.77 cm. It was not defined as an abscess.

If the airway becomes compromised, intubation or tracheostomy may be required (4).

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