

CLINICAL IMAGE

Ludwig's angina and mask use

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A 58-year-old woman with no history of diabetes or recent dental treatment complained of a sore throat during the flu season. Many people in Japan had been wearing medical masks to prevent infectious disease transmission even before the COVID-19 pandemic.¹ On admission, the patient's mask covered her face from the nose to under the chin. She was asked to remove her mask to enable an examination of her oral cavity. She lowered the mask to below her chin, thereby obscuring the submental and submandibular areas. She was only able to open her mouth up to two fingerbreadths. The floor of her mouth contained purulent secretions possibly originating from the submandibular space. She was then asked to completely remove the mask. Further examination revealed substantial swelling in the oral cavity, extending from the lower jaw to the neck (Figure 1). Based on the clinical course and this characteristic finding, a submandibular space infection such as Ludwig's angina (LA) was suspected. An otorhinolaryngologist performed an emergency tracheotomy, and she was hospitalized for postoperative care.

Ludwig's angina is defined as a bacterial infection of the submandibular space that can spread rapidly to surrounding subcutaneous tissue. This condition may lead to airway obstruction, which can be fatal if appropriate surgical treatment and antimicrobial therapy are not administered. The risk of LA is higher in immunocompromised individuals including older adults, patients with diabetes, heavy alcohol users, injection drug users, and those with intraoral foreign bodies (e.g., oral piercings), intraoral infections, or trauma. Patients often present with initial symptoms of sore throat or submandibular pain and fever. The infection may rapidly spread to the surrounding soft tissues and airway leading to symptoms such as trismus, dysphagia, and drooling. Physical examination may reveal swelling and redness in the submandibular region and pus leakage from the floor of the mouth. Imaging is important, with computed tomography combined with physical examination having a sensitivity of 95% and specificity of 80%. Point-of-care ultrasonography is useful for detecting abscesses and for assessing airway diameter in patients who cannot lie

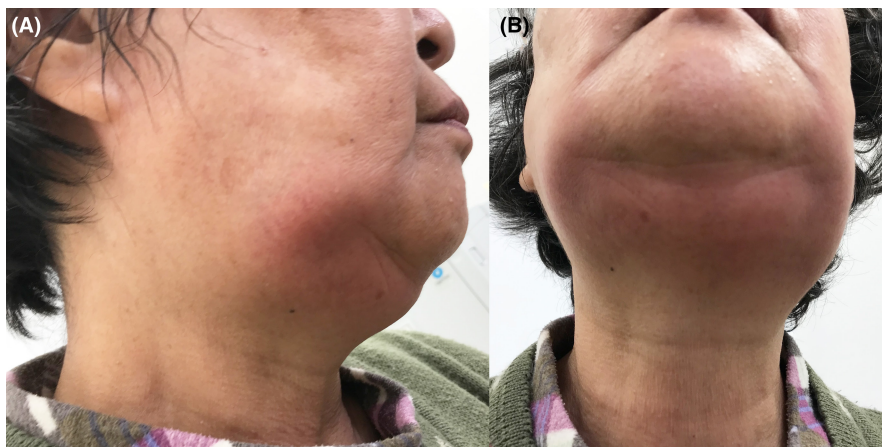


FIGURE 1 The region under the lower jaw that is erythematous and swollen, with indistinct erythematous margins, typical of Ludwig's angina.

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supine.² The World Health Organization has recommended the general public wear masks during the COVID-19 pandemic.³ However, cases of delayed detection of skin cancer due to examination while wearing a mask have been reported.⁴ In our case, the patient did not initially remove the mask during the examination, resulting in a delay in noticing the swelling below the mandible. In patients wearing protective masks, it is important to completely remove the mask during the evaluation of the head and neck area. Because respiratory viral infections, including COVID-19, present with common cold symptoms such as fever, sore throat, and joint pain, it is not possible to identify the pathogens based on clinical signs alone.⁵ A variety of rapid tests are now available for the diagnosis of infections causes upper respiratory symptoms. Some patients presenting with common cold symptoms have potentially fatal illnesses, such as LA. This case illustrates the importance of examining the patient carefully and not placing excessive reliance on tests.

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DATA AVAILABILITY STATEMENT

Not applicable.

ETHICAL APPROVAL

None.

CONSENT FOR PUBLICATION

The patient provided written informed consent for the publication of her case details and the accompanying images.

PATIENT CONSENT STATEMENT

The patient has provided written informed consent for the publication of her case details and the accompanying images.

PERMISSION TO REPRODUCE MATERIAL FROM OTHER SOURCES

Not applicable.

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