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Imaging of Acute Non-Traumatic Head and Neck Conditions

SHORT ABSTRACT

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The main head and neck clinical conditions that bring patients to the emergency room are cervical swelling, dysphagia, dyspnea, and sensory (especially visual) loss or deficit. These syptoms are often related to infections and their complications, but they may also be associated with inflammatory, tumoral or vascular etiologies or pathologies.

Infections in the head and neck region are quite frequent and usually have a good prognosis, even though their complications may sometimes be severe and life-threatening, especially when they occur in immunocompromised, elderly or frail patients. Some of these conditions are more frequent in specific age groups, especially children and newborns. The overall mortality for head and neck infections is between 0.5% and 1%.

The role of imaging in the evaluation of head and neck non-traumatic conditions is of great value, as misdiagnosis or delayed diagnosis may result in higher morbidity and mortality rates. Indeed even minor events affecting this particular anatomic region may lead to serious consequences. Therefore, radiologists should be familiar with the complex anatomy of the head and neck region and with its pathologic conditions and potential complications.

Contrast-enhanced computed tomography (CT) is the examination of choice in the acute setting, due to its wide availability and its ease to be performed, even with poor patient cooperative capability. In selected patients, dedicated magnetic resonance (MR) may contribute to improved assessment of the extension of the process and to evaluate vascular complications, but the MR examination should not delay medical treatment or surgical approach.

Acute non-traumatic conditions of head and neck can be distinguished in four entities, according to their localization: the oral cavity and neck, the sino-nasal cavities, the ear, and the orbit. Nevertheless, the classification is somewhat arbitrarily, and awareness of anatomic connections is crucial; the close relationships between these different sites requires particular attention.

The radiologist's report must include the description of the source of the problem, the entrance site, and the likelyhood of the possible spreading to brain, mediastinum, lung and spine. Assessment whether surgery or drainage would be a therapeutic option must be mentioned in the report. Special attention must be paid to airway patency and to the presence of vascular complications.

Odontogenic infections and tonsillar/peritonsillar abscesses are the most frequent conditions in the emergency setting. Epiglottitis, descending mediastinitis, angioedema and neck haemorrhage are the most serious and life threatening situations. Invasive fungal sinusitis, external malignant otitis and skull base osteomyelitis are much more frequent in immunocompromised patients. Vascular complications, such as vasculitis or venous thrombosis, as well as intracranial empyema or abscess, are mainly associated to otomastoiditis and sinusitis.

Finally, the site of the primary infection may predict the pathway of its potential spreading and the localization of the subsequent complications.

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COMPETING INTERESTS

The author has no competing interests to declare.

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