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KEYWORDS

• Neck infection • Abscess • Incision and drainage

KEY POINTS

- Understanding fascial planes and potential spaces within the neck is integral to determining routes of spread and mandatory when surgical intervention is necessary.
- Imaging is critical in the stable patient to determine the location and severity of infection as well as provide a guide when surgery is indicated.
- Pharmacologic treatment initially includes empiric broad-spectrum antibiotics against gram-positive, gram-negative, and anaerobic bacteria—later refined based on culture and sensitivity results.
- Surgical intervention is reserved for complicated or unstable patients, or those who are unresponsive to medical therapy.

Etiology

Most neck infections arise from extension from the upper aerodigestive tract. Dental infections are the most common etiology, followed by oropharyngeal infections.^{1–5} Occasionally, cervical lymphadenitis can lead to neck abscess, especially in undertreated or inadequately treated infections. Surgical manipulation of the upper airway and pharynx can cause spread of oral and oropharyngeal flora to the deep neck spaces, thus potentiating infection. Other causes of neck infection include spread of infection from the paranasal sinuses, mastoid, and skin, as well as intravenous drug use, penetrating trauma, foreign bodies, malignant necrotic lymph nodes, and congenital cysts.

Anatomy

Regardless of the source of infection, understanding the fascial planes and potential spaces of the neck is key to diagnosis and management of neck infections (Figs. 1 and 2, Table 1). The fascial planes provide real and potential spaces (Table 2) for the containment and/or spread of infection from the neck to other parts of the body.⁶

Microbiology

Oropharyngeal flora, including aerobic and anaerobic bacteria, are the most common isolates seen in culture from neck

infections.^{2,7–9} Common bacteria and fungi cultured from neck infections are shown in Box 1.

Treatment of these organisms requires an understanding of the responsiveness of the bacteria or fungus to antibiotics. For instance, atypical *Tuberculosis* and *Mycobacteria* often cause chronic fistulae if treated surgically, while *Staphylococcus* and *Streptococcus* species usually respond more favorably to surgery when required.

Diagnosis

History

Recent dental or surgical procedures in the upper aerodigestive tract; sick contacts; animal and insect exposures; intravenous drug use; trauma; and past medical history, including immunomodulating medicines, allergies, and human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), hepatitis, diabetes, malignancy, and chemotherapy.

Symptoms include:

- Onset and duration of symptoms
- Pain, fever, and redness at the site
- Dysphagia, odynophagia, drooling, hot potato voice, trismus, otalgia

Physical examination should include

- Palpation of the neck mass, evaluating for tenderness, fluctuance, crepitus
- Nasal cavity, oral cavity, oropharynx, and ear canal visual inspection (see Fig. 3)
- Bimanual examination of the oral cavity and oropharynx and teeth
- Flexible fiberoptic awake upper airway evaluation

See Table 3 for findings associated with neck infections.

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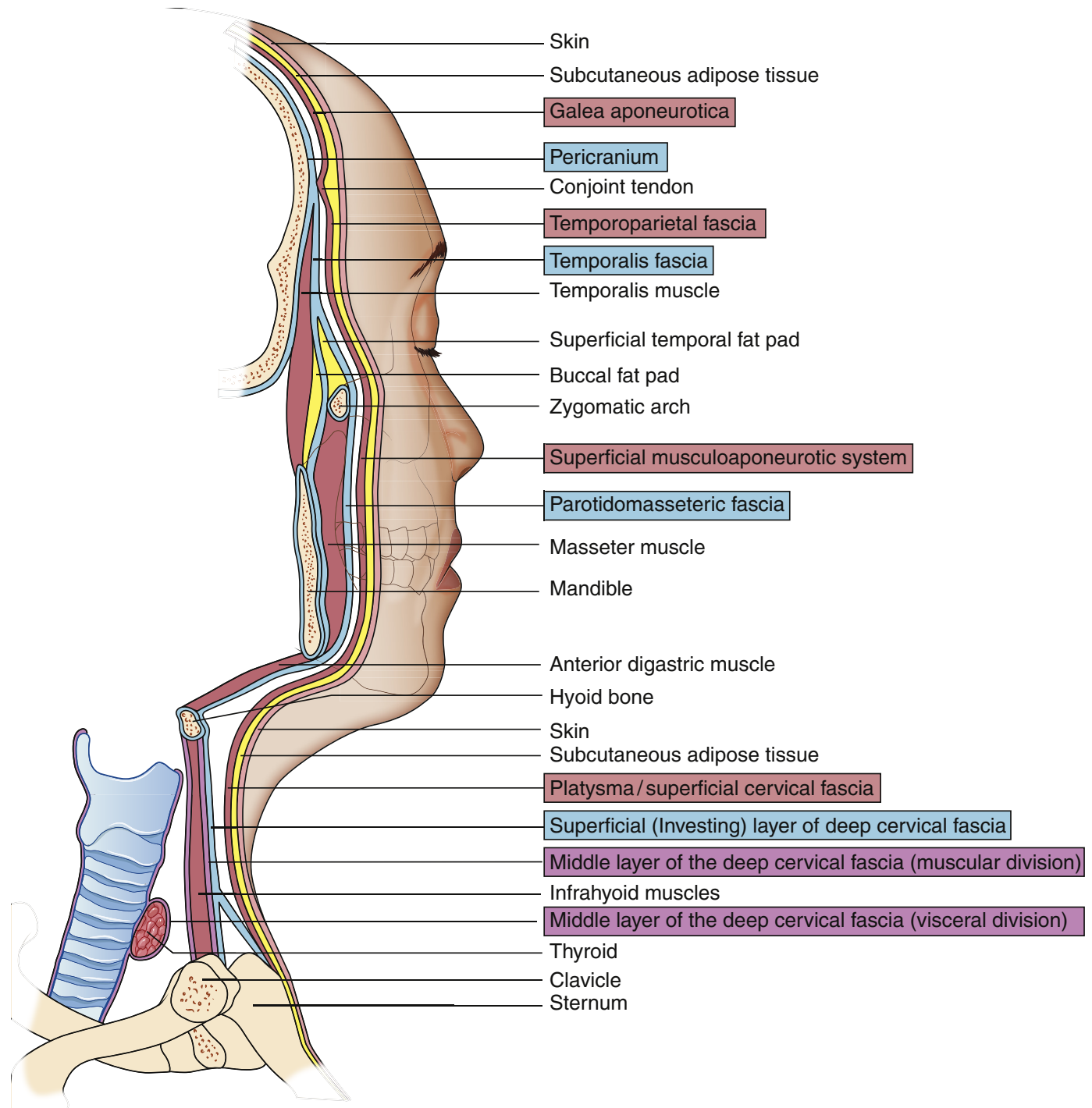


Fig. 1 Anatomic representation of head and neck fascial planes. The superficial fascia (*maroon*) and deep fascia (superficial/investing layer, *blue*; middle layer, *purple*) of the head and neck are depicted. The white layer between the superficial and deep cervical fascia represents a potential space/surgical plane.

Laboratory evaluation should include

- Complete blood count: evaluate presence of leukocytosis and pancytopenia
- Complete metabolic panel: evaluate for hyperglycemia, renal function, and hydration status

Imaging

Plain films have excellent clinical utility in neck infections. The retropharyngeal space and supraglottis are easily evaluated

with lateral neck radiographs. A panoramic radiograph can help identify dental root abscesses not seen on physical examination.^{6,8} Chest films should be obtained for stable patients with dyspnea, cough, and/or tachycardia to help rule out mediastinitis and pneumonia.

Computed tomography (CT) of the face and neck is critical in the stable patient for evaluation of neck infections. Physical examination alone often misidentifies or underestimates the extent of infection that can be seen on CT.^{10–12} CT imaging can also help guide surgical planning by identifying involved spaces to be drained. Intravenous contrast should be used to

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