



pharyngeal space, the retropharyngeal space, and the submandibular and sublingual space (e.g., Ludwig's angina). These infections are medical emergencies and need to be dealt with surgically as well as with antibiotic treatment. Ludwig's angina is characterized by swelling in the submandibular space, an elevated tongue, and difficulty eating (Fig. 91-2). Treatment consists of surgical decompression and drainage and intravenous antibiotics. Table 91-4 lists neck space infections requiring drainage and decompression.

### Aphthous Ulcers

Aphthous ulcers are shallow ulcerations typically lasting for several days to weeks located on the anterior structures of the mouth. The cause is unknown. Treatment is symptomatic except for individuals with extensive persistent disease in whom steroids or thalidomide may be indicated.

### Thrush

Thrush refers to superficial *Candida albicans* infection of the tongue, hard and soft palate, and pharynx, which results in a sore

mouth and oropharyngeal pain on swallowing. On inspection there are creamy white plaques on the tongue, hard and soft palates, and the pharynx. Patients who are immunocompromised secondary to corticosteroid treatment or underlying conditions such as HIV are susceptible. Treatment is typically topical antifungal agents or oral fluconazole for 5 to 7 days.

### Bacterial Epiglottitis

Acute bacterial epiglottitis caused by *H. influenzae* was previously an uncommon but life-threatening illness of children under the age of 5. With widespread use of the *H. influenzae* vaccine in children, the incidence has decreased by 99% in children. More often, the disease occurs in adults in whom a variety of bacteria are responsible, including *S. pneumoniae*, *Staphylococcus aureus*,  $\beta$ -hemolytic streptococci, and *Klebsiella pneumoniae*. Patients typically present with fever and toxicity, drooling, dysphagia, and holding the head extended. Speaking is painful and the laryngeal tracheal area is very tender. Examination may reveal a cherry red visible epiglottitis. Coordinated care, if necessary in the OR, is critical to maintain the airway. Broad-spectrum antibiotics are indicated. Steroids are commonly used but data are lacking to support their use.



**FIGURE 91-2** Early appearance of a patient with Ludwig's angina, who has a brawny, boardlike swelling in the submandibular spaces. (From Megran DW, Scheifele DW, Chow AW: Odontogenic infections, *Pediatr Infect Dis* 3:262, 1984.)

**TABLE 91-4** PARAPHARYNGEAL SOFT TISSUE SPACE INFECTIONS AND INDICATIONS FOR SURGICAL DRAINAGE

INFECTION	INDICATIONS FOR SURGERY
Peritonsillar abscess (quinsy)	Abscess or respiratory compromise
Lateral pharyngeal space abscess	Abscess
Jugular vein septic thrombophlebitis	Febrile after 5-6 days of medical therapy
Retropharyngeal abscess	Abscess or respiratory compromise
Ludwig's angina	Abscess or respiratory compromise

## ACUTE BACTERIAL OTITIS EXTERNA AND MEDIA

### Acute Bacterial Otitis Externa

Acute localized otitis externa is a superficial infection of the outer portion of the ear canal usually related to furunculosis caused by *S. aureus*. It can be treated with oral anti-staphylococcal antibiotics. Acute diffuse otitis externa (i.e., swimmer's ear) begins with itching and progresses to moderate/severe pain on manipulation of the pinna or tragus. The canal is erythematous and swollen. The usual organism is *Pseudomonas aeruginosa*. Treatment consists of acetic acid and alcohol lavage with or without topical antibiotics such as ciprofloxacin or neomycin plus polymyxin.

Malignant otitis externa is a rare infection usually found in elderly diabetic patients that progresses over weeks to months. It is characterized by deep seated pain, otorrhea and granulation tissue on the posterior inferior wall of the external canal. CT scan is the initial imaging modality of choice. The infection can progress to skull-based osteomyelitis and meningitis and has a significant mortality. Treatment is surgical débridement and antipseudomonal systemic therapy.

### Acute Bacterial Otitis Media

#### Definition and Epidemiology

Acute bacterial otitis media is an acute bacterial infection of the middle ear. Almost all children have at least one episode of otitis media in the first 10 years of life, making it the most common bacterial infection seen in children. It accounts for one fourth of all office visits and is the second most common reason for surgical procedures in children (the most common is circumcision). It appears that about one third of children are prone to infection and have multiple episodes, another third have intermediate susceptibility, whereas another third will be relatively resistant.