



Figure 16-3 Pyogenic granuloma. Erythematous, hemorrhagic, and exophytic mass arising from the gingival mucosa.

ossifying fibroma. Complete surgical excision is the definitive treatment for these lesions.

The *peripheral ossifying fibroma* is a common gingival growth that is most likely reactive in nature rather than neoplastic. As mentioned, some may arise from a longstanding pyogenic granuloma, while others develop *de novo* from cells of the periodontal ligament. Peripheral ossifying fibromas appear as red, ulcerated, and nodular lesions of the gingiva. The peak incidence is in young and teenage females. Since the lesions have a recurrence rate of 15% to 20%, complete surgical excision down to the periosteum is the treatment of choice.

The *peripheral giant cell granuloma* is an uncommon lesion of the oral cavity, particularly the gingiva. Like the peripheral ossifying fibroma, peripheral giant cell granuloma most likely represents a reactive/inflammatory, rather than neoplastic, process. It is generally covered by intact gingival mucosa, but it may be ulcerated. Histologically, these lesions contain a striking aggregation of multinucleate, foreign body-like giant cells separated by a fibroangiomatic stroma. Although not encapsulated, these lesions are usually well delimited and easily excised. They should be differentiated from central giant-cell tumors found within the jaws and from the histologically similar but frequently multiple “brown tumors” seen in hyperparathyroidism (Chapter 24).

Infections

Herpes Simplex Virus Infections

Most orofacial herpetic infections are caused by herpes simplex virus type 1 (HSV-1) but oral HSV-2 (genital herpes) infections do occur. Primary infections typically occur in children between 2 and 4 years of age, are often asymptomatic, and do not cause significant morbidity. However, in 10% to 20% of cases, primary infections can present as *acute herpetic gingivostomatitis*, with abrupt onset of vesicles and ulcerations of the oral mucosa, particularly the gingiva. These lesions are also accompanied by lymphadenopathy, fever, anorexia, and irritability.

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The vesicles range from lesions of a few millimeters to large bullae and are at first filled with a clear, serous fluid, but rapidly rupture to yield painful, red-rimmed, shallow ulcerations. On microscopic examination, there is intracellular and intercellular edema (acantholysis), creating clefts that may become transformed into macroscopic vesicles. Individual epidermal cells in the margins of the vesicle or lying free within the fluid sometimes develop eosinophilic **intranuclear viral inclusions**, or several cells may fuse to produce giant cells (**multinucleate polykaryons**), changes that are demonstrated by the diagnostic **Tzanck test**, based on microscopic examination of the vesicle fluid. The vesicles and shallow ulcers usually spontaneously clear within 3 to 4 weeks, but the virus treks along the regional nerves and eventually becomes dormant in the local ganglia (e.g., the trigeminal ganglion).

Infection is common and most adults harbor latent HSV-1. In some individuals, viral reactivation (recurrent herpetic stomatitis) occurs. The mechanisms of reactivation are poorly understood. It has been associated with trauma, allergies, exposure to ultraviolet light, upper respiratory tract infection, pregnancy, menstruation, immunosuppression, and exposure to temperature extremes. *Recurrent herpetic stomatitis* (in contrast to acute herpetic gingivostomatitis) occurs at the site of primary inoculation or in adjacent mucosa associated with the same ganglion. The lesions appear as groups of small (1 to 3 mm) vesicles on the lips (*Herpes labialis*), nasal orifices, buccal mucosa, gingiva, and hard palate. Although these lesions typically resolve in 7 to 10 days, they can persist in immunocompromised patients and may require systemic antiviral therapy.

Other viral infections that can involve the oral cavity as well as the head and neck region include herpes zoster, Epstein-Barr virus (EBV; mononucleosis, nasopharyngeal carcinoma, lymphoma), cytomegalovirus, enterovirus (herpangina, hand-foot-and-mouth disease, acute lymphonodular pharyngitis), and rubeola (measles).

Oral Candidiasis (Thrush)

Candida albicans is a normal component of the oral flora in approximately 50% of the population and is the most common fungal infection of the oral cavity. Several factors seem to influence the likelihood of a clinical infection. These include the immune status of the individual, the strain of *C. albicans* present, and the composition of an individual's oral flora. There are three major clinical forms of oral candidiasis: *pseudomembranous*, *erythematous*, and *hyperplastic*. The pseudomembranous form is the most common and is also known as *thrush*. It is characterized by a superficial, gray to white inflammatory membrane composed of matted organisms enmeshed in a fibrinosuppurative exudate that can be readily scraped off to reveal an underlying erythematous inflammatory base. The infection typically remains superficial except in the setting of immunosuppression, such as in individuals with organ or bone marrow transplants, neutropenia, chemotherapy-induced immunosuppression, AIDS, and diabetes mellitus. In addition, broad-spectrum