



Figure 11-30 Hemangiomas. **A**, Hemangioma of the tongue. **B**, Histology of juvenile capillary hemangioma. **C**, Histology of cavernous hemangioma. **D**, Pyogenic granuloma of the lip. (**A** and **D**, Courtesy John Sexton, MD, Beth Israel Hospital, Boston, Mass.; **B**, courtesy Christopher DM Fletcher, MD, Brigham and Women's Hospital, Boston, Mass.; **C**, courtesy Thomas Rogers, MD, University of Texas Southwestern Medical School, Dallas, Texas.)

neck, and axillary subcutaneous tissues. Histologically, lymphangiomas exhibit networks of endothelium-lined spaces that can be distinguished from capillary channels only by the absence of red cells.

- **Cavernous lymphangiomas (cystic hygromas)** are typically found in the neck or axilla of children, and more rarely in the retroperitoneum. Cavernous lymphangiomas can occasionally be enormous (up to 15 cm in diameter) and may fill the axilla or produce gross deformities about the neck. Of note, cavernous lymphangiomas of the neck are common in Turner syndrome. These lesions are composed of massively dilated lymphatic spaces lined by endothelial cells and separated by intervening connective tissue stroma containing lymphoid aggregates. The tumor margins are indistinct and unencapsulated, making definitive resection difficult.

Glomus Tumor (Glomangioma). Glomus tumors are benign but exquisitely painful tumors arising from modified smooth muscle cells of the glomus bodies, arteriovenous structures involved in thermoregulation. Although they may superficially resemble hemangiomas, glomangiomas arise from smooth muscle cells rather than endothelial cells. They are most commonly found in the distal portion of the digits, especially under the fingernails. Excision is curative.

Bacillary Angiomatosis. Bacillary angiomatosis is a vascular proliferation in immunocompromised hosts (e.g.,

patients with AIDS) caused by opportunistic gram-negative bacilli of the *Bartonella* family. Lesions can involve the skin, bone, brain, and other organs. Two species are implicated:

- *Bartonella henselae*, whose principal reservoir is the domestic cat; this organism causes *cat-scratch disease* (a necrotizing granulomatous disorder of lymph nodes) in immunocompetent hosts.
- *Bartonella quintana*, which is transmitted by human body lice; this microbe was the cause of "trench fever" in World War I.

MORPHOLOGY

Skin lesions are red papules and nodules, or rounded subcutaneous masses; histologically, there is capillary proliferation with prominent epithelioid endothelial cells exhibiting nuclear atypia and mitoses (Fig. 11-31). Lesions contain stromal neutrophils, nuclear dust, and the causal bacteria.

Although difficult to cultivate in the laboratory, the *Bartonella* culprits can be unequivocally demonstrated using molecular methods such as polymerase chain reaction with species-specific primers. All the species are able to adhere to endothelial cells and are internalized in vacuoles. With *B. henselae* infection, the vascular proliferation results from induction of host hypoxia-inducible factor-1 (HIF-1) by the bacteria, which in turn drives