

Three factors influence the origins of these neoplasms: (1) heredity, (2) age, and (3) infection with EBV. Nasopharyngeal carcinomas are particularly common in some parts of Africa, where they are the most frequent childhood cancer. In contrast, in southern China, they are very common in adults but rarely occur in children. In the United States they are rare in both adults and children. In addition to EBV infection, diets high in nitrosamines, such as fermented foods and salted fish, as well as other environmental insults such as smoking and chemical fumes, have been linked to the disease. In the nonkeratinizing form, most patients have anti-EBV antibodies against early antigens or viral capsid antigens.

### MORPHOLOGY

On histologic examination, the keratinizing and nonkeratinizing squamous cell lesions resemble usual well-differentiated and poorly differentiated squamous cell carcinomas arising in other locations. The undifferentiated/basaloid variant is composed of large epithelial cells with oval or round vesicular nuclei, prominent nucleoli, and indistinct cell borders disposed in a syncytium-like array (Fig. 16-10B). Admixed with the epithelial cells are abundant, mature, normal-appearing lymphocytes, which are predominantly T cells. In addition, EBV genomes can be detected in the serum by PCR, or EBV encoded RNAs such as EBER-1 or proteins such as LMP-1 can be identified in the malignant epithelial cells by in situ hybridization (Fig. 16-10C) or immunohistochemistry, respectively.

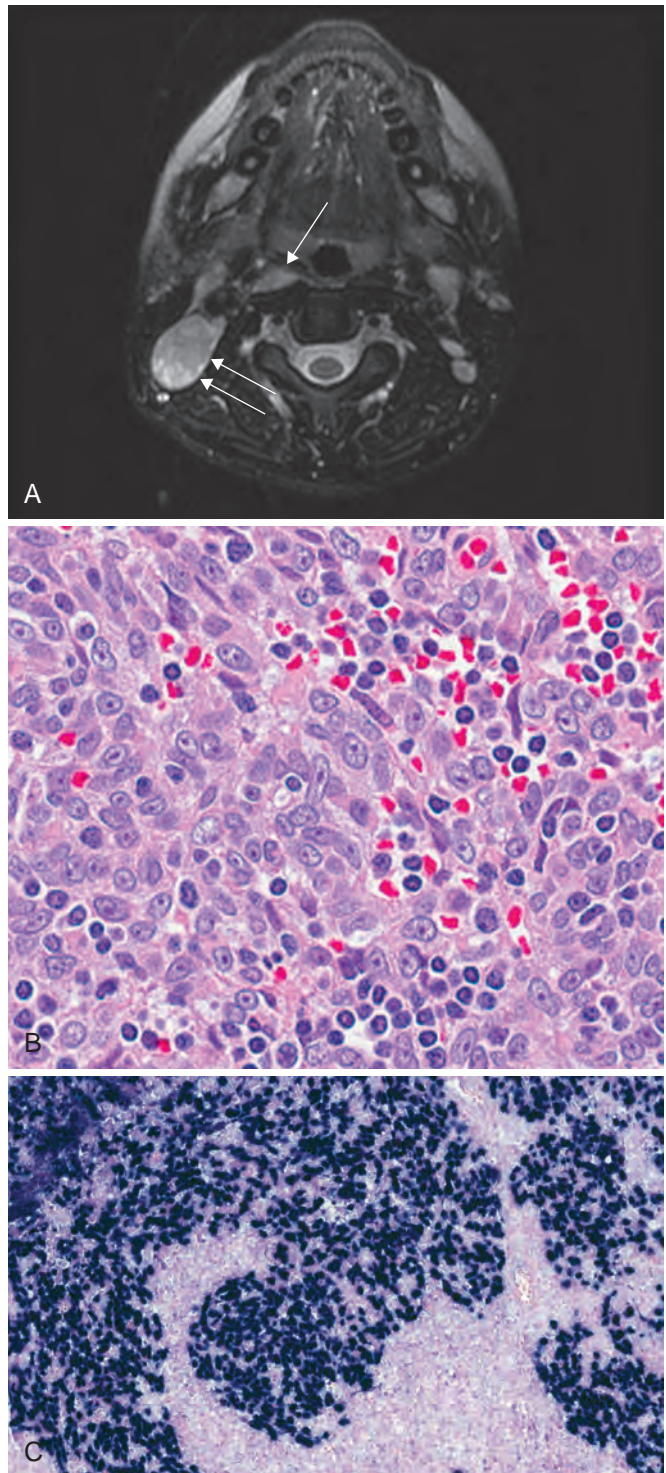
Primary nasopharyngeal carcinomas are often clinically occult for long periods, and present with nasal obstruction, epistaxis, and often metastases to the cervical lymph nodes in as many as 70% of the patients. Radiotherapy is the standard treatment. For all types, there is an overall 5-year survival of approximately 60%. Depending on stage, the 5-year survival for the nonkeratinizing type is 70% to 98%, while the 5-year survival for the keratinizing form is approximately 20%. These differences in survival have been attributed to the fact that the undifferentiated carcinoma is the most radiosensitive, while the keratinizing squamous cell carcinoma is the least radiosensitive.

### Larynx

The most common disorders of the larynx are inflammatory. Tumors are uncommon but are amenable to resection, though often at the price of loss of natural voice.

#### Inflammations

Laryngitis may occur as the sole manifestation of allergic, viral, bacterial, or chemical insult, but it is more commonly part of a generalized upper respiratory tract infection or the result of heavy exposure to environmental toxins such as tobacco smoke. It may also occur in association with gastroesophageal reflux due to the irritating effect of gastric contents. The larynx may also be affected in systemic infections, such as tuberculosis and diphtheria. Although most infections are self-limited, they may at times be serious, especially in infancy or childhood, when mucosal congestion, exudation, or edema may cause



**Figure 16-10** Nasopharyngeal carcinoma, undifferentiated type. **A**, Computed tomography study demonstrating thickening of the nasopharyngeal region (arrow) and an enlarged cervical lymph node (double arrow). **B**, The syncytium-like clusters of epithelium are surrounded by lymphocytes. **C**, In situ hybridization for EBER-1, a small nuclear RNA encoded by EBV.

laryngeal obstruction. In particular, in infants and young children with their small airways, laryngoepiglottitis, caused by respiratory syncytial virus, *Haemophilus influenzae*, or  $\beta$ -hemolytic streptococci may induce such sudden swelling of the epiglottis and vocal cords as to constitute a medical emergency. This form of disease is uncommon