Salivary duct carcinoma.

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Salivary duct carcinoma is a high-grade adenocarcinoma that resembles breast ductal carcinoma. It is believed to be derived from intra- and interlobular excretory ducts. Salivary duct carcinoma may arise de novo or as a relatively common malignant component of a carcinoma ex pleomorphic adenoma. It accounts for about 9% of all malignant salivary gland tumors. Although there is a wide age range at presentation, most patients present in the seventh decade of life; men are affected much more frequently than women (4:1).

The vast majority of cases arise in the parotid gland, where they usually manifest as a rapidly growing mass, often with ulceration and facial nerve palsy. Patients with carcinoma ex pleomorphic adenoma may have a history of a long-standing mass with recent enlargement.

Because lymph node metastasis occurs frequently, aggressive multimodality therapy is required; surgery, radiotherapy, and chemotherapy yield the best outcomes. Administration of trastuzumab may be useful in patients with HER-2/neu-positive tumors. The overall prognosis is poor, as rates of recurrence and metastasis are high and 5-year survival is less than 35%.

The average size of these tumors is 3.5 cm. They are predominantly solid, with a generally white, gray, or tan cut surface. Cysts, necrosis, and hemorrhage are frequently seen. Invasion is easily identified (figure 1), although it is more common in de novo tumors than in those that arise from carcinoma ex pleomorphic adenoma. There is significant lymph-vascular and perineural invasion (figure 2), which is often associated with positive resection margins. Stromal fibrosis or infarction and inflammatory infiltration is often conspicuous.

**Figure 1.** Left: Widely invasive tumor exhibits a solid-glandular architecture. Right: High-power view demonstrates a highly pleomorphic population with comedonecrosis.
Salivary duct carcinomas are similar to both intraductal and infiltrating ductal carcinomas of the breast. They feature large ducts with solid, papillary, and comedonecrosis areas (figure 1). Cribriform and "Roman bridge" configurations are common (figure 2). The tumor cells exhibit remarkable pleomorphism, with pink, granular cytoplasm surrounding irregular nuclei with prominent nucleoli (figure 2). Oncocytic change is common. There are usually many mitoses, including atypical forms. Several variants are recognized, including spindled, sarcomatoid, mucin-rich, micropapillary, and osteoclast-type giant cells.

**Figure 2.** Left: Slide shows peri- and intraneural invasion by a cribriform neoplasm. Right: Central comedonecrosis is seen within a duct space. There is moderate nuclear pleomorphism.

The neoplastic cells are reactive with several keratins, including CK5/6, EMA, and CEA, while demonstrating a strong and diffuse membranous HER-2/neu immunoreaction and strong nuclear positivity for androgen receptor (figure 3). In general, salivary duct carcinoma must be distinguished from metastatic breast carcinoma, poorly differentiated squamous cell carcinoma, cystadenocarcinoma, and oncocytic carcinoma.
Figure 3. Left: Immunohistochemistry reveals a strong, diffuse, circumferential membranous reaction with HER-2/neu. Right: A strong nuclear reaction with androgen receptor is seen in most tumor nuclei by immunohistochemistry.

Suggested reading


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