Temporal Bone Histopathology Case of the Month

Facial Nerve Invasion by Basal Cell Carcinoma

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CASE REPORT

A 66-year-old woman presented with 2 weeks of bloody discharge from a 10 × 8-cm lesion that encompassed her left cheek and auricle (Fig. 1). Although the lesion had been present for 20 years, 3 years before presentation, it began enlarging rapidly and ulcerating with concomitant loss of facial nerve function. Her left House-Brackmann score was VI/VI. Preoperative MRI showed a large, ulcerative mass of the left parotid with soft tissue invasion of the sphenoid and temporal bones and intracranial extension.

She underwent left temporal bone excision, parotidectomy, hemimandibulectomy, neck dissection, craniectomy, and TRAM flap reconstruction. Frozen section identified perineural invasion of the facial nerve at the stylomastoid foramen, so it was decompressed and excised to the second genu with negative margins. Final histologic examination revealed dense nests of basaloid cells demonstrating peripheral palisading and slit-like separation from stroma with focal areas of squamous keratinization (Fig. 2A) and long thin strands and islets of tumor cells with infiltrative edges and sclerosis. Because of these findings, a mixed infiltrating sclerosing and keratotic basal cell carcinoma (BCC) was diagnosed. The neoplastic cells had invaded the underlying muscle, left auricle including cartilage, sphenoid and temporal bone (Fig. 2B), facial nerve (Fig. 2, C and D), and 2 of 6 lymph nodes. Postoperatively, the patient’s clinical course was uncomplicated, and she was treated with external beam radiation.

DISCUSSION

BCC is the most common human cancer and most commonly involves the head and neck. It usually grows slowly without metastasizing and is treated by surgical excision with or without adjuvant radiation. BCC is characterized histologically by nests of hyperchromatic uniform basaloid cells with peripheral palisading and separation from surrounding stroma. Immunohistochemical stains for Ber-EP4 and bcl-2 help to differentiate BCC from trichoepithelioma and squamous carcinoma. Features of more aggressive forms of BCC include large size, greater duration, preauricular, medial canthal, and nasal alar location, histologic subtypes other than superficial or nodular, incomplete initial excision, and perineural or perivascular invasion (1).

Perineural invasion is present in only 1% of cases of BCC, most often in recurrent cancer and with periauricular or cheek lesions (2). Balamuki et al. (3) found that of 109 SCC and BCC patients with clinical or radiologic evidence of perineural invasion, the facial nerve was initially involved in 26%. Our review of the English-language literature found 4 reports of facial nerve invasion...
by BCC, three of which described facial nerve paralysis in the setting of recurrent tumors (1,4,5). Boss et al. (2) reported a case of unilateral facial nerve paralysis due to a primary BCC. Our case is remarkable for the size and invasiveness of the tumor. Not only was there perineural invasion; the tumor had actually infiltrated into the nerve fibers. Neoplastic spread along the nerve is a poor prognostic factor and indicates an aggressive lesion for which wide margins are necessary. In a cutaneous malignancy presenting with facial nerve impairment, the surgeon should be prepared to resect both extratemporal and intratemporal segments of the nerve.

REFERENCES