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View from Beneath—Pathology in Focus

Primary haemangiopericytomas of the parotid gland

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Abstract
Haemangiopericytomas involving the parotid gland are uncommon and those arising from the gland itself are rare. Three examples of *primary* parotid gland hemangiopericytoma are presented. The biological course of parotid or periparotid haemangiopericytomas does not differ from that manifested by their counterparts arising from somatic soft tumours.

Introduction

The head and neck ranks third, behind the lower extremities and the retroperitoneum-pelvic fossae, as a generative anatomical region for haemangiopericytomas (Eninger and Smith, 1976; Güdrüm, 1979). Neck, perioral soft-tissues, and the sinonasal tract, in that order, are the head and neck sites with the highest incidence (Batsakis and Rice, 1981). Primary haemangiopericytomas of the major salivary glands are rare (Yamaguchi *et al.*, 1977; Massarelli *et al.*, 1980; Pagliaro *et al.*, 1988). This report presents three cases of primary (intrinsic) haemangiopericytomas of the parotid gland.

Case reports

Each of the cases were accessioned and diagnosed by the consultative service of the Department of Pathology, The University of Texas M.D. Anderson Cancer Center. All treatment was performed at the referring hospital and follow-up information was obtained from the respective hospitals.

Case 1. A 79-year-old woman presented with a slowly growing, painless mass in the left parotid gland. At surgery, a 4.8 cm mass was found in the deep lobe of the parotid gland. The tumour was completely within the gland without extraparotid extension. The margins of excision were negative for tumour. Examination revealed a firm, moderately compressible grey-white tumour that was surrounded by uninvolved parenchyma (Fig. 1). By light-optic examination the tumour was composed of spindled or polygonal cells having a perivascular orientation (Fig. 2). A rich reticulin network surrounded the cells and confirmed their extravascular disposition (Fig. 3). Mitoses and necrosis were absent and cellular pleomorphism was minimal. The patient is well, without recurrence, one and a half years after surgical removal of the tumour.

Case 2. A 38-year-old woman with a painless lump in her left pre-auricular region was admitted to hospital where she underwent a superficial parotidectomy. Within the parotid was an oval, apparently encapsulated 1.3 cm tumour. Microscopically, the tumour manifested an appearance similar to that of Case 1. Non-epithelial cells were aligned around vascular channels, most of which had thick, hyalinized walls (Fig. 4). There was a gradual transition to less cellular areas where an oedematous stroma

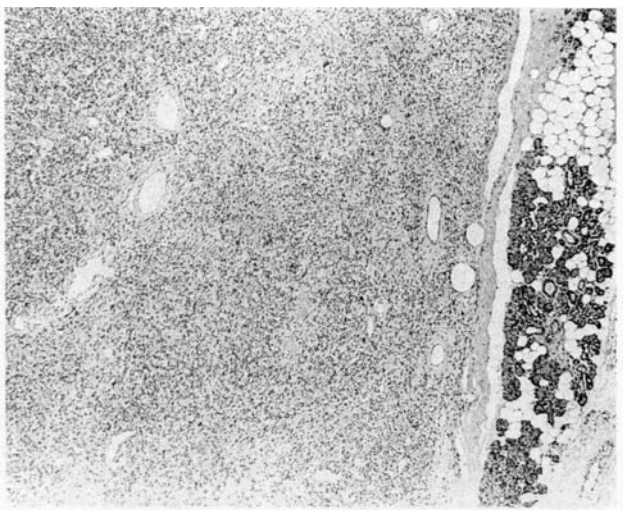

FIG. 1

Case 1. Haemangiopericytoma of the parotid gland. In this field, the neoplasm is separated from parotid parenchyma by a thin capsule. (H&E ×40)

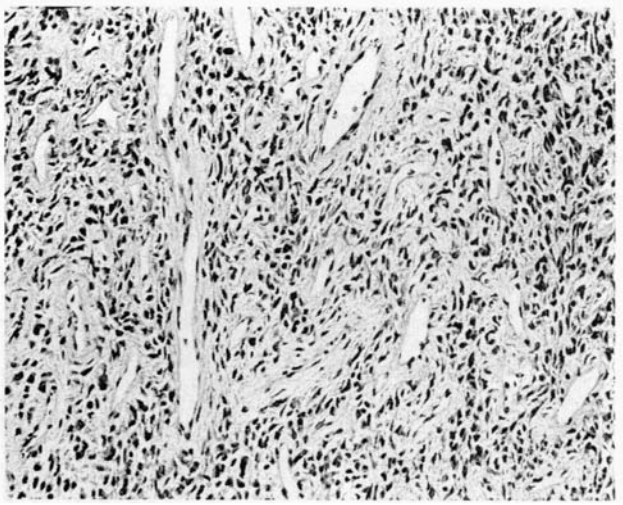

FIG. 2

Case 1. Proliferating cells are arranged about tumoural vessels. (H&E ×160)

From Department of Pathology, The University of Texas, M.D. Anderson Cancer Center, Houston, TX.

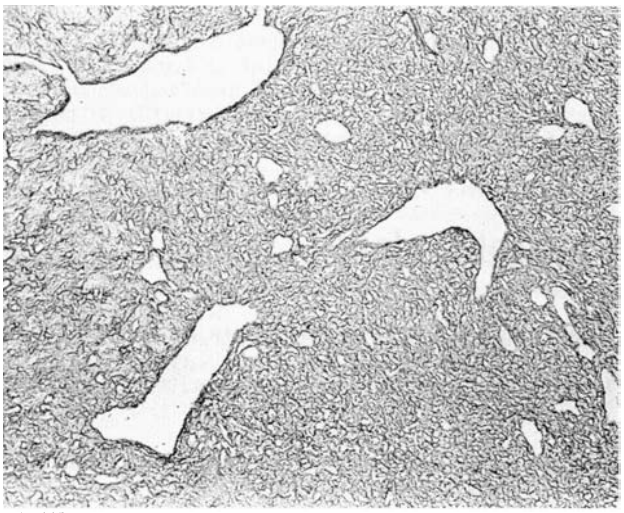

FIG. 3

Case 1. The perivascular alignment of the haemangiopericytoma cells is reinforced by reticulin network ×40.

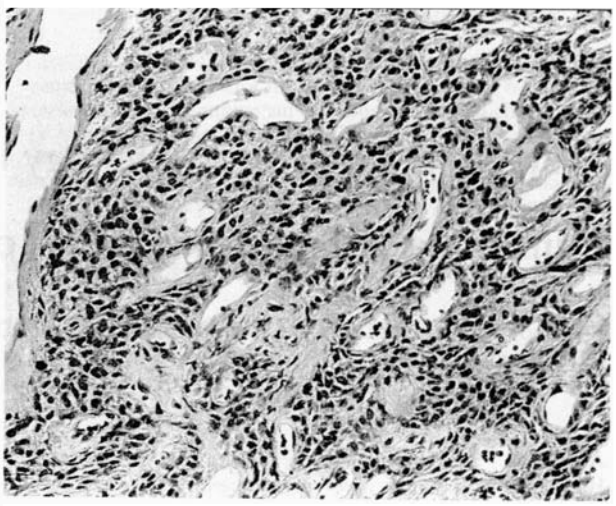

FIG. 4

Case 2. Haemangiopericytoma of the parotid gland. Note the thickened vessel walls surrounded by pericytoma cells. (H&E ×200)

dominated. A pericytic pattern was evident in both cellular and hypocellular areas. Necrosis and pleomorphism were not seen.

The patient is well, without recurrence, one and half years after surgical removal of her tumour.

Case 3. A slowly growing (one year) right parotid mass prompted admission for a 27-year-old man. A superficial parotidectomy was performed and a circumscribed, intraparotid tumour that measured 3.4 cm in greatest dimension was removed. The lesion manifested a typical haemangiopericytoma pattern with a 'staghorn-like' vascularity and perivascular stromal cells (Fig. 5a & b). Necrosis, cellular pleomorphism, and mitoses were not seen. A five month follow-up finds the patient free of recurrence.

Discussion

Haemangiopericytomas arising from or secondarily involving the major salivary glands must be considered uncommon to rare neoplasms. To date, 27 examples have been recorded in the literature, most often as single case reports (Cernea *et al.*, 1969; Neal and Starke, 1973; Yamaguchi *et al.*, 1977; Massarelli *et al.*, 1980; Bertrand *et al.*, 1984; Baiocco *et al.*, 1985; Auclair *et al.*, 1986; Seifert *et al.*, 1986; Tatum *et al.*, 1986; Pagliaro *et al.*, 1988). Single institution or registry data also speak of the novelty of haemangiopericytomas of the major salivary glands. The Salivary Gland Register of the Pathology Institute of the University of Hamburg contains only three haemangiopericytomas among 120 mesenchymal tumours in salivary glands collected over a 20 year period (Seifert *et al.*, 1986). Among 67 sarcomas and sarcomatoid lesions of salivary glands collected at the Armed Forces Institute of Pathology (AFIP), there are three haemangiopericytomas (Auclair *et al.*, 1986). The University of Texas M.D., Anderson Cancer Center has not treated a patient with a primary haemangiopericytoma of major salivary glands in its 50 year history (Luna *et al.*, 1991).

Of the 27 reported cases, it is unclear how many were intrinsic (primary) in the major salivary glands or only secondarily involving the glands from periglandular soft-tissues. What is clear, however, is that the parotid gland region is almost singularly involved; the submandibular gland has been cited only once (Pagliaro *et al.*, 1988). In our cases, the neoplasms were confined to the parotid glands so there is no ambiguity over the site of origin.

Major salivary gland involvement by haemangiopericytomas

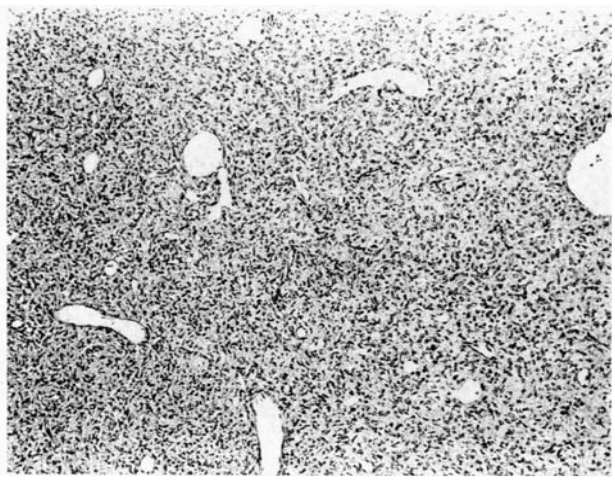

FIG. 5a

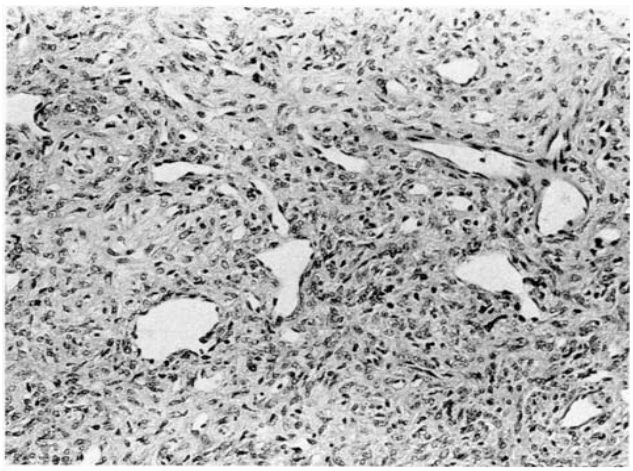

FIG. 5b

Fig. 5

Case 3. Haemangiopericytoma of the parotid gland. Dilated vascular spaces are surrounded by a cellular pericytic cell proliferation. H&E ×60 (a) and ×200 (b)

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is almost exclusively an affliction of males. The two women in the present report are the exceptions. Patients have been in their second to seventh decades of life at the time of histopathological diagnosis.

The biological course of nine of the 27 reported parotid gland/parotid region haemangiopericytomas was aggressive with locoregional recurrences or distant metastasis, especially to lungs and bones. Death, attributed to the neoplasms, has occurred after intervals varying from 16 months to 11 years (Pagliaro *et al.*, 1988). Seven of the haemangiopericytomas have had a more favourable clinical behaviour, without recurrence or lethality after more than a ten year follow-up. Post-therapy surveillance of 11 tumours has been too short for judgment.

On the basis of the aforestated, it seems that, with the exception of those occurring in the sinonasal tract (El-Naggar *et al.*, 1992), haemangiopericytomas of the head and neck including those of the parotid gland or its environs, do not behave differently than their counterparts in other somatic soft-tissue areas.

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