

Parotid Mucoepidermoid Carcinoma with Extensive Intravenous Metastases

Overview Mucoepidermoid carcinoma (MEC) usually metastasises via lymphatic spread. We here report an unusual case of a parotid mucoepidermoid carcinoma (MEC) with extensive ipsilateral intravenous metastasis.

Case Report A 57-year-old otherwise well male presented with a 6-month history of a progressive right parotid swelling, associated with occasional right-sided tinnitus and headaches. There was normal cranial nerve function and no cervical lymphadenopathy. Fine needle aspiration cytology demonstrated MEC. MRI and CT scans showed a 1.5cm tumour within the superficial lobe of the right parotid gland and bulky tumour within the markedly distended retromandibular vein (RMV) and its tributaries within the masseter muscle and those that extended medially around the vertical ramus of the mandible into the infratemporal fossa towards the pterygoid plexus. The tumour within the distended RMV and common facial vein (CFV) extended into the internal jugular vein (IJV) from the level of the angle of the mandible to the level of the cricoid cartilage (Fig. 1). The RMV was not connected with the external jugular vein, which was free of tumour. Staging CT showed no nodal metastasis or disease elsewhere.

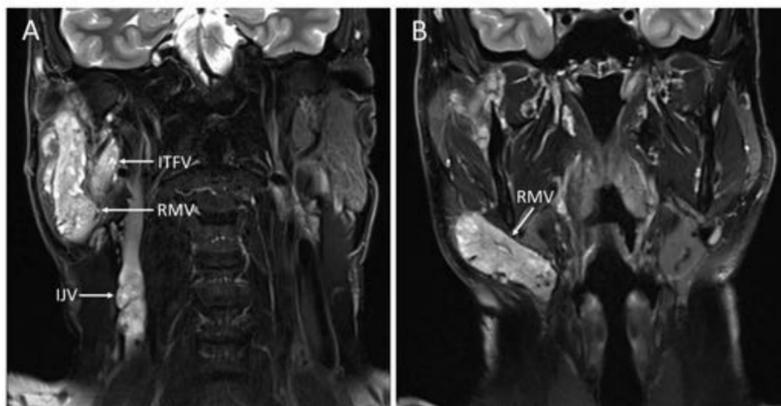


Fig. 1 T₂ coronal MRI scan through the parotid gland (A) and more anteriorly (B)

Management The patient underwent a right total parotidectomy with facial nerve preservation and ipsilateral modified radical neck dissection. The IJV was ligated superiorly below the skull base and inferiorly below the level of the hyoid bone, and was removed *en bloc* with the parotidectomy and neck dissection specimen (Fig. 2). The tumour appeared entirely within the greatly distended venous network as one contiguous metastatic deposit without obvious parotid gland involvement.

Histopathology Microscopically, the tumour had a mixed solid and cystic architecture comprising a mixture of predominantly intermediate and squamous cells, surrounding pools of mucin in a cribriform architecture with microcysts (Fig. 3A). Sheets of necrosis were present within the tumour. The tumour cells were predominantly mildly to moderately pleomorphic, with occasional markedly pleomorphic cells. PASD staining showed intracytoplasmic mucin. The tumour was present at a resection margin within a vein deep to the masseter muscle (Fig. 3B). There were no nodal metastases.

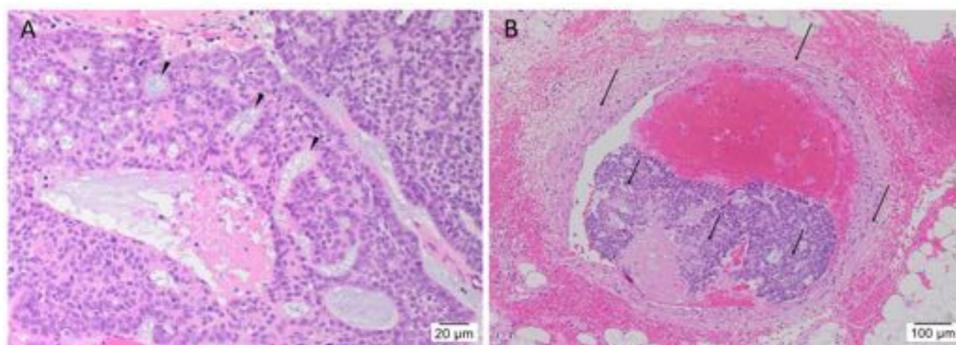


Fig. 3 H&E staining. Original magnifications: A:100x; B: 200x

Outcome The transient facial nerve neuropraxia resolved, and completed adjuvant radiotherapy, with full recovery of the facial nerve with no evidence of recurrences 12 months following surgery (Fig. 4).

Discussion MEC tends to disseminate initially via lymphatic channels which are typically thin-walled and are leaky, compared with the multi-layered blood vessel walls. Similarly, cancer cells that spread haematogenously enter the small capillaries then to larger vessels via the venous networks. The propensity for lymphatic or haematogenous invasion with metastatic MEC has not been fully identified but is thought to be related to tumour cell markers and enzymes. Tumours that commonly metastasise intravascularily include renal cell carcinoma and hepatocellular carcinoma. Histological evaluation may identify penetration of small vessels adjacent to the primary tumour which suggests the development of metastatic disease. In the case presented, the behaviour of the tumour was unusual – a small primary tumour with extensive intravenous involvement without direct invasion of the veins, perivascular or lymphatics. Although it is possible that lymphatics could have carried the tumour cells into the neck veins via small connecting channels, neither lymphatic nor capillary involvement was observed.

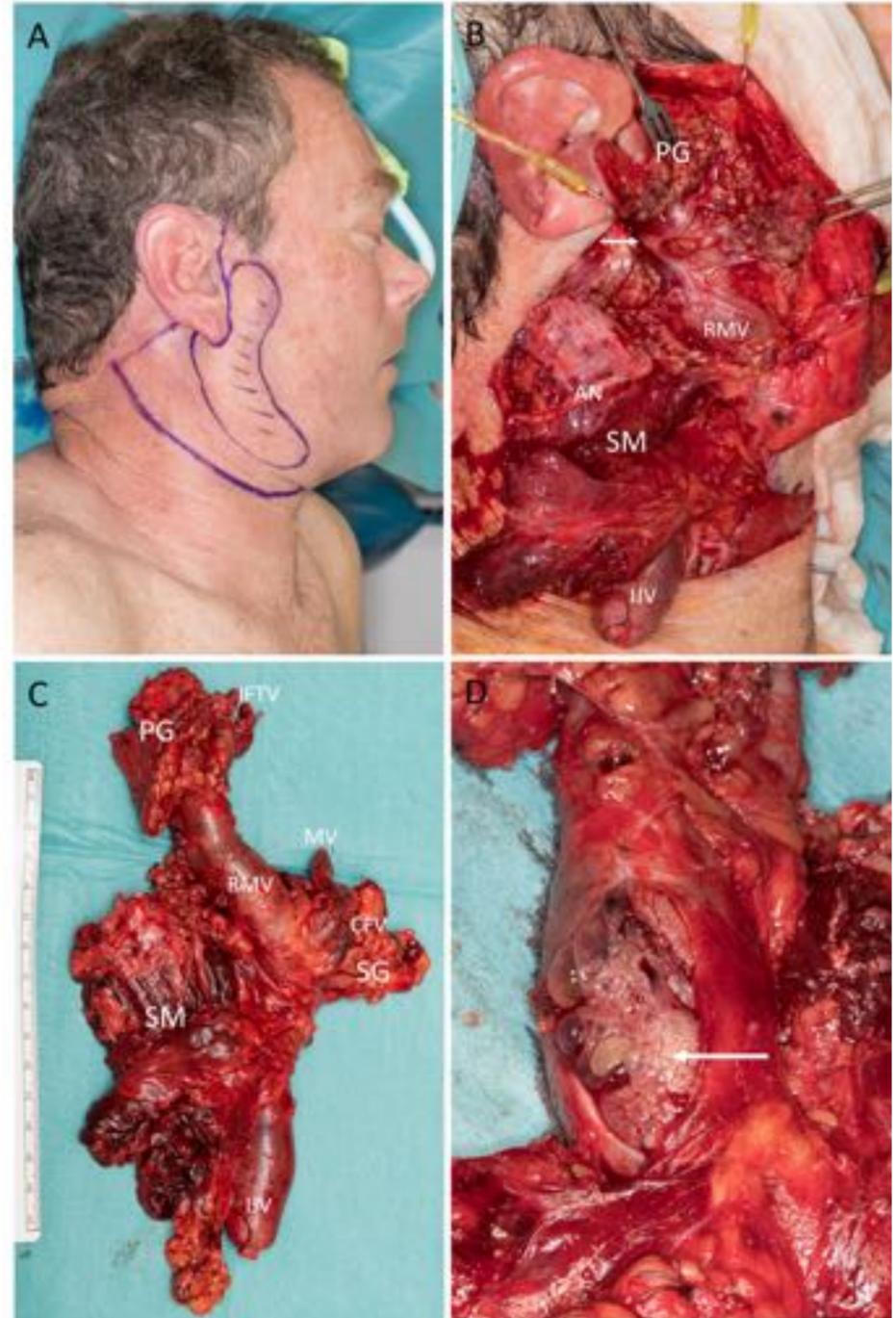


Fig. 2 (A) Surgical markings with shaded area indicating the palpable tumour within the distended RMV. (B) The facial nerve (*arrow*) overlying the greatly distended RMV with the parotid gland (PG) retracted superiorly. The sternocleidomastoid muscle (SM) was resected preserving the accessory nerve (AN) and IJV was ligated. (C) Lateral view of the surgical specimen demonstrating the distended RMV, its tributaries within the masseter muscle (MV), and the infratemporal fossa (ITFV), joined by the CFV as they drained into the IJV. (D) Intravascular tumour within the distended RMV (*arrow*)



Fig. 4 Photographs 12 months post-operatively (with permission)