An occult MRI-negative primary parotid melanoma masquerading as an atypical Bell’s palsy: a surgical case report

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Abstract
In this case, reported in line with the SCARE criteria, we describe an acute facial palsy, presenting in a similar manner to Bell’s palsy, albeit with minor differences. Although clinical suspicion for malignancy was raised and gold standard serological and radiologic tests were requested, no abnormalities were found preoperatively. However, as a prelude to a planned babysitter procedure, as the facial nerve was explored, multiple masses were found in both the superficial and deep lobes of the parotid gland. This was later proven to be a malignant melanoma tumor. On review of literature, it is evident that although rare, about 1% of parotid cancers can present with facial paralysis as the sole symptom. Rarer still, is the underlying etiology; primary parotid melanoma in this case, which carries a very poor prognosis. On the basis of this, we propose extra vigilance when dealing with such cases and suggest a clinical protocol for use to aid diagnosis and subsequent surgical management.

Keywords: Occult parotid malignancy, Parotid melanoma, Facial palsy

Introduction
Bell’s palsy accounts for the majority of cases in facial palsy but as this is a diagnosis of exclusion, it is essential to take a salient history and perform a thorough examination. On occasions, their symptoms and signs, do not match up and baseline serological and radiologic screening are requested as per atypical facial palsy[1,2]. Even so, there are rare situations when all manner of clinical, radiologic, and serological tests cannot detect an underlying pathology and yet, a sinister etiology is in motion[3–5]. In this report, we discuss one such case.

Patient information and timeline
A 76-year-old man, with no notable past medical, drug, family, or social history, initially presented to otolaryngologists with staggered onset of facial palsy, starting with weakness of eye closure, followed 2 weeks later by worsening oral function and smile asymmetry. Post-onset, at his first appointment at the facial palsy multidisciplinary meeting, it was noted that the patient had no return of residual tone and had dense facial palsy, which was slightly unusual.

Diagnostic assessment and clinical findings
A thorough clinical examination revealed no evidence of neck masses, parotid enlargement, or any cranial nerve abnormalities at the time. Non-contrast-enhanced magnetic resonance imaging (MRI) scans detected no abnormality. On the basis of these findings, otolaryngologists diagnosed the patient as having Bell’s palsy and referred him to the facial palsy unit at our institution for facial rehabilitation. Given the suspicious staggered onset of facial palsy, a further, higher resolution contrast-enhanced MRI brain and internal acoustic meatus was performed, which also detected no abnormality (Fig. 1).

Therapeutic intervention
On the basis of these findings and, more specifically, given the absent residual tone and movement on the affected side, a provisional plan was made for a consultatant-led masseteric-to-facial nerve procedure to help jumpstart facial nerve regeneration, at 9 months’ postonset.

Preoperatively, the patient was thoroughly assessed with detailed history, full external examination, and routine investigations, after which the procedure was scheduled to go ahead as planned.

Intraoperatively, we unexpectedly found preauricular lymph nodes, subcutaneous nodules, and multiple parotid masses. Multiple biopsies were performed, which identified a primary melanoma embedded within the parotid gland but with no lymph node involvement.

Postoperatively, there were no complications reported.
Follow-up and outcomes

A postoperative computed tomographic (CT) scan revealed a 2 cm hyperdense superficial parotid lump with infiltration extending toward the stylomastoid foramen. No other lesions suggestive of melanoma were identified with staging CT scans.

The patient subsequently underwent a radical parotidectomy, during which, the tumor was found to extend beyond the stylomastoid foramen into the skull base, requiring a further debulking procedure, alongside a fascia lata sling for static reanimation. As shown in Figure 2, the facial nerve was found to have been infiltrated by melanoma deposits. Postoperative palliative radiation therapy was then instituted as part of oncological treatment.

Discussion

Parotid carcinomas commonly present with facial palsy, particularly adenoid cystic and mucoepidermoid carcinomas, as these have a predilection for proliferating around the facial nerve. These malignancies are however, more commonly detected clinically due to rapid growth patterns and are more easily detectable on high-resolution MRI or CT scans.

Malignant melanoma of the parotid gland on the other hand is a rare entity. When it develops, many clinicians presume it to be of metastatic origin. It must be noted that parotid melanomas can be of primary origin. Woodward’s criteria for the diagnosis of primary parotid melanoma are as follows: (a) the tumor epicenter has to be within the parotid gland; (b) no malignant lymph nodes within the mass; (c) no evidence of malignant melanoma elsewhere; and (d) no evidence of progression of malignant melanoma or pigmented lesions.

Occult parotid malignancies, particularly those arising from the deep lobe of the parotid gland have been shown to be difficult to detect, both clinically and with contrast-enhanced MRI scans, but based on clinical experience, there are tell-tale signs that help to differentiate them. Broderick found a 9% incidence of occult parotid malignancy in a cohort of 54 parotid malignancies.

Figure 1. The clinical presentation of atypical Bell’s palsy at 9 months’ postonset, showing dense facial paralysis with no evidence of a parotid lump or any sinister oncological features.

Figure 2. Intraoperative image of the facial nerve (marked with the stitch) being infiltrated by the primary parotid melanoma along its course.
A consistent clinical pattern observed was a triad of facial palsy, paraesthesia in the ophthalmic and maxillary divisions of the trigeminal nerve, and ear pain. However, this pattern may not be observable in all occult parotid malignancies\[6\]. Regardless of this, the investigative mainstay remains the same—surgical exploration followed by intraoperative biopsies.

On the basis of this experience, we have now developed a clinical protocol for atypical facial palsy presentations with suspicion of occult parotid malignancies, depicted in Figure 3.

In summary, for cases of atypical facial palsy where there is a suspicion of occult parotid malignancies, we have devised a clinical protocol, whereby the patient is first investigated via an extended MRI scan of the brain, internal acoustic meatus, parotid gland, and face. If these are negative, intraoperative parotid gland biopsies adjacent to the facial nerve are performed. Biopsy-positive cases are then referred to head and neck oncology for further investigation and treatment while biopsy-negative cases can proceed to facial reanimation procedures, provided that baseline serological investigations for facial nerve pathology\[7\] are negative.

Through the wider use of this clinical protocol, we hope to see reduced rates of incidental occult parotid malignancy diagnoses, thereby allowing a shorter timescale between definitive diagnosis and surgical intervention as well as reducing the risk of metastasis to distant sites.

**Ethical approval**

Informed consent was given by the patient for the use of this case for publication.

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