

## Facial nerve paralysis secondary to Warthin's tumour of the parotid gland

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### Abstract

Facial nerve paralysis associated with a parotid gland tumour classically denotes malignancy. Only a few case reports have indicated benign parotid tumours as a cause of facial nerve palsy. We present a new case of facial nerve paralysis secondary to Warthin's tumour of the parotid gland. It is important for clinicians to be aware that, on rare occasions, facial nerve dysfunction may result from benign parotid disease.

**Key words:** Neoplasms; Parotid; Adenolymphoma; Facial Paralysis

### Introduction

Facial nerve paralysis associated with a parotid mass suggests the presence of a malignant neoplasm. Eneroth<sup>1</sup> reviewed 2158 cases of parotid gland neoplasms. Forty-six of these patients presented facial nerve paralysis. All of them had malignant parotid tumours.

Only a few reports have documented benign parotid tumours as a cause of facial nerve palsy.

We present one new case of facial nerve paralysis consequent to Warthin's tumour of the parotid gland. The mechanisms underlying such a presentation are discussed in addition to diagnostic and therapeutic problems.

### Case report

An 86-year-old man presented to our Clinic in June 2001 with a three-day history of a painful parotid swelling. He had been treated with oral antibiotics without improvement: the mass grew in size and became even more painful; facial palsy appeared over the following days.

Physical examination revealed a painful parotid mass of 8 cm in diameter and the facial palsy was staged as grade V on the House-Brackmann (HB) Scale. The remainder of the ENT examination was normal. An ultrasonographic scan revealed a 6 × 3 cm dishomogeneous, hypoechoic mass located in the right deep parotid region.

A computed tomographic (CT) scan showed a 6 cm mass in the deep parotid lobe, compressing the internal jugular vein. The lesion density was less than soft tissue density; the mass was surrounded by an area of increased vascularity (Figure 1). Aspiration of the mass withdrew 10 ml of purulent exudate: bacterial and fungal cultures performed on this fluid failed to yield any organism.

The day after admission, the patient underwent surgical drainage of the abscess; fine-needle aspiration biopsy was inconclusive. The patient was treated with metronidazole and cefazolin; within 10 days the mass decreased in size. Two months later, the patient underwent total right parotidectomy. During the operation, a cystic mass was found medially to the main facial nerve trunk, that

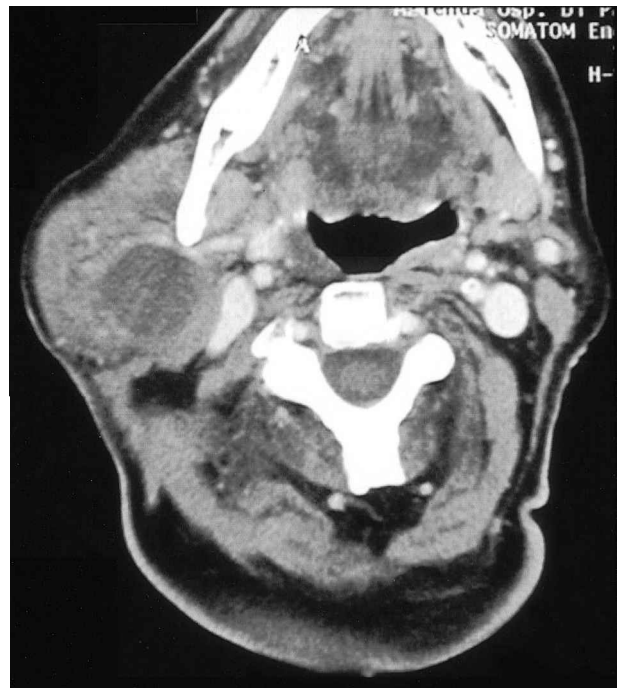


FIG. 1

Axial CT scan showing a mass in the right deep parotid lobe, compressing the internal jugular vein.

appeared to be flattened and stretched over the convexity of the neoplasm. The tumour extended into the deep parotid lobe, reaching the parapharyngeal tip of the gland. The whole parotid was removed, with preservation of the facial nerve. The surgical specimen was sent for histopathologic examination, which revealed a lesion with a pluricystic pattern, lined by pluristratified cylindrical epithelium. A significant amount of lymphoid tissue, with

germinal centre-like structures, was visible around the cystic spaces, indicating the classic histological configuration of Warthin's tumour (Figure 2).

Post-operative recovery was uneventful. Eight months after parotidectomy, the patient showed no signs of disease but his VIIth cranial nerve had not resumed functioning (grade V, HB Scale). At 22nd month follow-up partial recovery was described (grade II, HB Scale).

- This paper reports a single case of Warthin's tumour of the parotid that caused facial nerve paralysis
- The case is not unique as over 20 such cases have been previously recorded in the literature
- It is published since it was felt that this is an important reminder that facial nerve paralysis can be caused by benign disease in the parotid gland

### Discussion

Non-malignant diseases of the parotid gland are rarely associated with facial nerve palsy.

To the best of our knowledge, 22 cases of histologically benign non-neurogenic neoplasms of the parotid gland causing facial nerve paralysis have been described. Considering only the cases with sufficient information, facial palsy occurred in 11 males and nine females, average 63 years (standard deviation 18 years, range nine to 82 years). Age-group distribution indicated that 18 out of 21 cases (85 per cent) were aged between 55 and 82 years. Considering only the cases with sufficient clinicopathological information, 11 (50 per cent) were Warthin's tumours,<sup>2-12</sup> nine (41 per cent) pleomorphic adenomas,<sup>3,6,11,13-17</sup> one was an oncocytoma,<sup>18</sup> and one a lipoma.<sup>19</sup>

Incomplete facial nerve palsy was described in 16 of the 21 patients (76 per cent) with available data, and complete paralysis in five patients (24 per cent). Of the 18 patients with documented treatment, 12 (67 per cent) underwent total parotidectomy (in one case with neck dissection), four (22 per cent) superficial parotidectomy, one resection of the tumour and one surgical exploration and evacuation of necrotic debris. There was no evidence of invasion of the nerve by any of the neoplastic lesions. The facial nerve was identified and preserved in eight cases. Branches of the facial nerve or the facial nerve itself were sacrificed in nine cases. Six patients underwent reconstruction of the facial nerve by great auricular or sural nerve graft. Considering the cases described in sufficient detail (17 cases), complete functional recovery of the facial nerve was reported in four cases (23 per cent), partial recovery (residual weakness in one or more branches) in seven cases (41 per cent), marked lack of muscular tone in two cases (12 per cent), and no recovery in four cases (24 per cent).

The mechanisms that determine facial nerve paralysis in association with benign parotid mass lesions are thought to be:

- (1) compression or stretching of the nerve by enlargement of the mass;
- (2) direct extension of the mass into the fallopian aqueduct via the stylomastoid foramen;<sup>17</sup>
- (3) kinking of the nerve tissue as it enters the firm parotid fascia;<sup>13</sup> or
- (4) impairment of facial nerve functioning caused by acute infection, thrombosis of perineural vessels, oedema formation or direct neurotoxic effect due to inflammatory mediators.

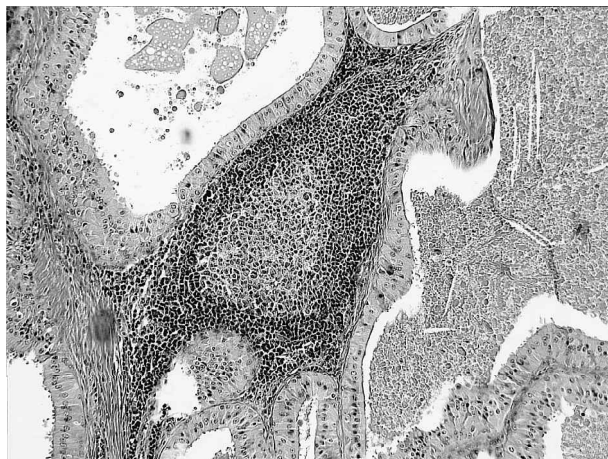


FIG. 2

A clear-cut germinal centre circumscribed by cystic structures lined by pluristratified epithelium (H&E; ×120).

Pre-operative imaging and fine-needle aspiration cytology (FNAC) are useful in differentiating benign from malignant parotid masses associated with facial nerve paralysis. Ultrasound can distinguish whether the parotid lesion is an actual mass or an inflammatory swelling of the gland. Magnetic resonance (MR) imaging is indicated in the examination of soft tissue masses, including ones in the deep parotid region, because of its excellent soft tissue resolution and characterization, and its multiplanar capacity. The superiority of MR over computerized tomography (CT) in locating and defining parotid tumour margins has been described.<sup>20</sup> Nevertheless, MR imaging cannot completely replace FNAC (accuracy of 90–98 per cent) for diagnosing parotid masses.<sup>21</sup> Combinations of imaging (MR or CT) and FNAC did not prove to be significantly more specific or more accurate than either study used alone.<sup>20</sup>

Although facial-nerve palsy associated with a parotid mass has proved to be a reliable indicator of malignancy, clinicians have to be aware that on rare occasions, facial nerve paralysis may result from benign parotid tumours.

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Dr G. Marioni takes responsibility for the integrity of the content of the paper.

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