

Parotid Mass: A 5-Year Review of Parotid Surgery

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SUMMARY

This study is to analyze the incidence of facial nerve paralysis after parotidectomy and the type of pathologic condition involved in Hospital Pakar Sultanah Fatimah, Muar between 2002 and 2006. There were 20 parotidectomies done on 20 patients over this period of time. Fourteen were done for tumour and six for inflammatory conditions. The pathology involved were pleomorphic adenoma 9 (45%) cases, Kimura disease 2 (10%) cases, carcinoma 5 (25%) cases and inflammatory condition 4 (20%) cases. Out of 20 parotidectomies done (13 for superficial and 7 for total), 4 (20%) patients had complication of facial nerve paralysis, 2 Malignant tumour, 1 benign tumor and 1 was inflammatory condition. In conclusion, preservation of the facial nerve and its function, wherever possible, is very important to reduce social and functional morbidity.

KEY WORDS:

Parotid mass, Parotidectomy, Facial nerve palsy

INTRODUCTION

Approximately 2% of all tumours in the neck / facial area are represented by parotid neoplasia¹. The parotid gland neoplasia is relatively common, representing about 80% of cases of salivary gland tumours². The majority of parotid tumours are benign, mostly affected by pleomorphic adenoma. Pleomorphic adenoma shows a varying incidence of between 60.6% to 76.2% with respect to other parotid neoformations³.

The aim of parotid surgery is to eradicate the pathologic process and at the same time preserving the integrity of the facial nerve. Benign tumours and inflammatory conditions of the parotid gland rarely invade the facial nerve and cause dysfunction. Therefore when parotidectomy is performed for these conditions, the facial nerve preservation is mandatory. However, malignant parotid tumour may invade the facial nerve. This may lead to weakness or facial nerve paralysis even before surgical intervention. Under these circumstances, it is necessary for facial nerve resection in order to completely remove the neoplasm. Nerve graft can be done if the facial nerve was resected. The graft can be taken from the great auricular nerve or the sural nerve.

Facial nerve paresis or paralysis can also occur after parotidectomy even in benign condition. Clinical opinions will vary considerably on an acceptable or appropriate incidence of post parotidectomy facial weakness. Some surgeons may regard facial nerve paresis is common post parotidectomy⁴.

The aim of this study is to analyze the incidence of facial nerve paralysis after parotidectomy and the type of pathologic condition involved.

MATERIALS AND METHODS

Between January 2002 and December 2006, 20 parotidectomies were done on 20 patients. Fourteen were done for tumour and six for inflammatory conditions. Patients included 11 males and 9 females, with ages ranging from 31 to 74 years. All cases underwent first time parotidectomy with no cases done for recurrent disease.

All patients had thorough medical examinations and all had fine needle aspiration cytology (FNAC) and computed tomographic scanning done.

Skin incision and flap were standardized in all cases. A preauricular incision was made, curved behind the ear lobe, and carried into an appropriate skin crease in the neck, away from the course of marginal mandibular nerve. Two methods of identifying the facial nerve trunk were used. In some cases, both techniques were used to locate the facial nerve trunk. The first technique was an approached along a plane in front of the anterior margin of the external meatus cartilage. The trunk emerges from the stylomastoid foramen, just deep to the junction of the cartilaginous and bony parts of the external meatus, about 1cm above and medial to the upper end of the posterior belly of digastric muscle. The cartilage in this region has a slight arrow-headed projection that points downwards to the emerging nerve trunk. The stylomastoid branch of the posterior auricular artery is superficial to the facial nerve and is a guide to its proximity. But there is one case that the facial nerve cannot be located with this technique. The facial nerve was traced from a peripheral branch. Dissection of parotid tissue at a plane superficial to the facial nerve trunk and branches was then carefully performed using mosquito artery forceps. Parotid tissue elevated from the nerve was divided with fine dissecting scissors. Bipolar diathermy and ligation were used for hemostasis throughout the operation. Facial nerve stimulator was used to assist in identification of facial nerve.

RESULTS

The pathology involved were pleomorphic adenoma in nine (45%) cases, Kimura disease in two (10%) cases, carcinoma in five (25%) cases and inflammatory condition in four (20%) cases. Hence, 14 (70%) parotidectomies were performed for tumour and 6 (30%) parotidectomies for inflammatory disease. Out of 20 parotidectomies done (13 for superficial and 7 for

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total), 4 (20%) patients had complication of facial nerve paralysis, three of them were tumour cases and one was inflammatory condition. The three tumours were adenocarcinoma, mucoepidermoid carcinoma and pleomorphic adenoma. In those two malignant cases, the facial nerve was infiltrated by the tumour. But the patients had no facial nerve palsy prior to the operation. The part of facial nerve involved was resected in those cases. The pleomorphic adenoma and the chronic sialolithiasis with lipomatosis were large and involving the deep lobe.

Two patients (10%) had facial nerve paresis but the function was back to normal within six months post surgery. These two cases were not included in the final result of the facial palsy above.

DISCUSSION

In this analysis of parotidectomies, the extent of surgery had a clear correlation with the risk of facial nerve injury. The deeper the mass, the closer it associated with the facial nerve and the risk of facial nerve injury is higher after parotidectomy. Temporary postoperative facial weakness occurred in two cases (10%) in which the nerve was normal before and preserved during surgery. This percentage is lower than 2 studies, which stated 13 (41.9%) of 31 cases⁵ and 67 (29%) of 230 parotidectomies done had facial nerve paresis and recovered⁶.

The incidence of permanent weakness was 20% (4 out of 20 cases). This percentage is higher in comparison with other study; 9.7% (3 of 31 cases)⁵, 5.6% (13 of 230 cases)⁶ and 1.3% (2 of 150 cases)⁷. The high percentage of permanent facial nerve palsy can be attributed to the cases with facial nerve infiltration by the tumour. One of the recognized factors for this is the delayed presentation to our department. Some patient sought alternative medicine for the parotid mass. They came to our department only when the alternative medicine failed and the mass getting bigger. By this time, the tumour already infiltrated the facial nerve and the nerve need to be sacrificed.

In resection of deep lobe parotid tumours, removing tumour between the branches of the facial nerve involves extensive exposure and manipulation of the facial nerve. This carries high risk of facial nerve injury intraoperatively. The facial nerve weakness can occur despite the preservation of the nerve. This is reflected by the two cases where the pleomorphic adenoma and the chronic sialolithiasis were huge and involving the deep lobe.

The most common neoplasm of the parotid gland is a pleomorphic adenoma (mixed parotid tumour). Our study supported this by having 9 (45%) cases. The choice of treatment of this tumour depends on the aggressiveness and extension of the tumour, and its relation with the facial nerve.

The surgical treatment of benign tumour of the parotid gland can consist of enucleation, enucleoresection, and superficial or total parotidectomy with preservation of the facial nerve, where possible.

In accordance with the opinion of Arshad⁸, Aljamo⁹, Mehle¹⁰, Ward¹¹, and Woods¹², the superficial parotidectomy and / or total parotidectomy with preservation of the facial nerve gives excellent results in the excision of the neoplastic mass with very low incidence of facial nerve palsy. The two cases of Kimura's disease were presented with parotid swelling. This is rare benign condition presenting with papules on the skin of the head and neck.

Kimura's disease is a deep soft tissue and subcutaneous lesion which presents with enlarged cervical lymph nodes with an unusual eosinophilic epithelioid granulomatous reaction¹³. We had difficulties in determining the preoperative diagnosis from FNAC and incisional biopsy, as both did not give the proper diagnosis. The proper diagnosis was finalized after the pathologist review the whole of parotid specimen.

CONCLUSION

In parotid surgery, the risk of facial nerve palsy is related to the size and extend of the tumour and hence the extend of the resection done. In benign disease, it is necessary to preserve the facial nerve and its function. In malignant diseases, infiltration of the facial nerve warranted resection of the nerve and patient would have permanent facial nerve palsy. Our aim is to preserve the facial nerve and its function wherever possible, to reduce social and functional morbidity.

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