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Evaluation of Parotidectomy Complications and Review Articles

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Abstract: Parotid surgery accompany with complications such as facial nerve paresis, cosmetic deformities, gustatory syndrome, salivary fistula and early complication as wound hematoma and infection. The purpose of this study is to review a single surgeon's experience with parotidectomy and evaluating of its complications and comparison with other studies. Fifty patients with benign and malignant salivary gland disease over a 6 year period were operated and evaluated about early and late complications. Then results were compared with other studies. From 50 patients in this study, 24 (48%) were male and 26 (52%) were female. Post-operative complications included transient facial paresis 6%, salivary fistulae and sialocoeles 4%, Gustatory sweating syndrome 6%, hematoma and wound infection 0% and flap necrosis 2%. Permanent facial nerve weakness dose not seen in this study due to surgery. All of the gustatory syndromes (Frey's syndrome) were in benign disease group. Results of this study were comparable with other studies and despite loss of nerve stimulator during surgery, facial nerve weakness was low therefore surgical technique is the most important factor in controlling complications such as facial nerve paresis.

Key words: Parotidectomy, complication, facial paresis, review, surgery

INTRODUCTION

Incidence of benign and malignant salivary gland tumor was 40 and 8 per 1000000 in a year (David *et al*., 2007). Although, surgery of parotid gland with usage of several techniques has advantages but this surgery had special complication (David *et al*., 2007; Patric, 2004). At the total of studies complication of parotid gland is low and incidence of each complication is not constant with a wide spectrum (Patric, 2004; Kerawela *et al*., 2008; Moody *et al*., 1999; Kuahyama *et al*., 2004). Salivary gland tumors have a relatively low prevalence and involve only 3-4% of the head and neck neoplasm. Salivary gland tumors are recognized both diagnostically and therapeutically. Over half of them are benign and 70-85% is found in the parotid gland (Hanna *et al*., 2005). Pleomorphic adenoma constituted 84% of benign tumors and 45% of all salivary gland neoplasm's (Spiro, 1986). The most common manifestation of this tumor is a painless mass in the salivary gland especially the parotid gland (Heller *et al*., 1992). Its prevalence is in the 5th decade of life and it is more common in women (Hanna *et al*., 2005). The current treatment of the tumor has been the superficial parotidectomy with the facial nerve preservation (Hanna *et al*., 2005; Rodriguez-Bigas *et al*., 1991). Complications of parotid surgery may be intra-operative or post-operative. Post-operative complications can be classified as early and late (or long-term) complications (Bailey, 2001; Laccourreye *et al*., 1994; Laskawi *et al*., 1996; Olsen, 2004; Piekarski *et al*., 2004; Dulguerov *et al*., 1999; Reilly and Myssiorek, 2003).

The purpose of this study is to review a single surgeon's experience with parotidectomy and evaluating of its complications and comparison with other studies.

MATERIALS AND METHODS

In a cross-sectional and descriptive analytical study, 50 patients with parotid tumor who underwent parotidectomy in between 2000 to 2006 were selected and their files underwent clinical and pathological examinations at the ENT ward of Emam hospital, affiliated to Tabriz University of Medical Sciences.

Bler incision was performed for all patients and flap of lower surface of Platysma and lower fascia of panoric and Sternocleidomastoid and dissection body of facial nerve and technique of surgery selected at the base of tumor expansion and pathology.

Descriptive finding reported as Mean±Standard Deviation (SD) and frequency. For analysis data, used SPSS 11.5 for windows and T-test, Chi-square test and percentage correlation. The level of meaningfulness was considered as $p<0.05$.

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RESULTS AND DISCUSSION

From 50 patients in this study, 24 (48%) were male and 26 (52%) were female. All patients were between 14-75 years and patients with benign and malignant tumor were between 14-69 and 21-75 years, respectively.

Seven of patients had malignant parotid tumor. Thirteen of patients (7 patients with benign and 6 patients with malignant underwent total parotidectomy and other patients (37) underwent superficial modified parotidectomy. The most common complication was facial nerve paresis that occurred in patients with malignant lesion; three patients with benign lesion had transient facial nerve paresis. Post-operative complications included transient facial paresis 6%, salivary fistulae and sialocoeles 4%, Gustatory sweating syndrome (Frey's syndrome) 6%, hematoma and wound infection 0% and flap necrosis 2%. Permanent facial nerve weakness due to surgery dose not seen in this study. All of the gustatory syndromes(Frey's syndrome) were in benign disease group. Frequency (%) of pathology of Parotid tumors was showed in the Table 1.

Post-operative facial nerve dysfunctions involving some or all of the branches of the nerve is the most frequent early complication of parotid gland surgery. Temporary facial nerve paresis, involving all or just one or two branches of the facial nerve and permanent total paralysis have occurred respectively in 9.3 to 64.6% and in 0 to 8% of parotidectomies, reported in the literature. The cases of transient facial nerve paresis generally resolved within 6 months, with 90% within 1 month (Laccourreye *et al*., 1994; Laskawi *et al*., 1996; Olsen, 2004; Piekarski *et al*., 2004; Dulguerov *et al*., 1999; Reilly and Myssiorek, 2003).

Transient and permanent facial nerve paresis post parotidectomy was reported in 30-60 and 2-4%, respectively (Kerawela *et al*., 2008).

Moody *et al*. (1999) study, permanent facial nerve paresis in patients, with inflammation lesion was not observed and transient and permanent parotidectomy were 2.1, 3.2, 42.5 and 52.6%, respectively and transient and permanent facial nerve paresis rate were 9 and 38% respectively.

Table 1: Frequency (%) pathology of Parotid tumors

Type	Pathology	Frequency (%)
Benign	Pleomorphic adenoma	33(66)
	Warthin's tumor	4(8)
	Inflammatory granuloma	2(4)
	Epidermal cyst	2(4)
	Facial nerve schwannoma	1(2)
	Iymphoepithelial cyst	1(2)
	Follicular hyperplasia	1(2)
Malignant	Mucoepidermoid carcinoma	3(6)
	Adenoid cystic carcinoma	1(2)
	Acinic cell carcinoma	1(2)
	Squamous cell carcinoma	1(2)

In Dallera *et al*. (1993), Gleave *et al*. (1979), MRA *et al*. (1993) and Witt (2002) studies permanent facial nerve paresis rate were 1.4, 1.3, 2.1 and 18%, respectively.

Transient and permanent facial nerve paresis rate in Laccourreue11 study were 65 and 4%, respectively.

In our study, Transient facial nerve paresis rate was 6% that occur in superficial parotidectomy and also despite uncontrolled facial nerve function trans operation, incidence of this complication was low and therefore to seem that this most important risk factor n control of parotid surgery specially. Facial nerve paresis use exact surgery technique and a dexterous surgeon.

Salivary fistulae and sialocoeles: At the present study, 4% of patients had salivary fistulae and sialocoeles that all of them occurred in patient with benign lesions.

In the Moody *et al*. (1999) study, 5.1% of patients had salivary fistulae and sialocoeles. Incidence rate of salivary fistulae and sialocoeles in Daivid *et al*. (2007), Yang *et al*. (1999) and Wax *et al*. (2000) studies were reported in 6.3, 13.3 and 14% of patients, respectively.

Hematoma, wound infection and flap necrosis: In our study, hematoma and flap necrosis was observed in 2% of patients and no wound infection was found.

In Daivid *et al*. (2007) and Moody *et al*. (1999) study, incidence rate of hematoma and wound infection were 3.8 and 1.3%.

Considering that with suitable and exact homeostasis and use of exact sterile methods trans operation that reduced rate of these complications.

Frey's syndrome: In our study, Frey's syndrome was found in 6% of patients.

In several study, incidence rate of Frey's syndrome was 5% up to 100% and middling 66%. In Kuahyama *et al*. (2004) and Shelton *et al*. (2000) study, incidence rate of Frey's syndrome with minor test were 36 and 96% respectively. In Langdon (1995), Owen *et al*. (1989), Daivid *et al*. (2007) and Mark *et al*. (2000) study, incidence rate of Frey's syndrome were 13, 11, 1.7 and 43%, respectively.

Surgery extent, pathology of tumor, surgeon's skill and surgery technique were effective in incidence of post operative complication of parotidectomy.

CONCLUSION

Results of this study were comparable with other studies and despite loss of nerve stimulator during surgery, facial nerve weakness was low therefore surgical technique is the most important factor in controlling complications such as facial nerve paresis.

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