Journal of Nepal Dental Association (2010), Vol. 11, No. 2, Jul.-Dec., 145-149

Original Article

Post auricular approach technique of regional parotidectomy: An aesthetic point of view

Sakya PR[1], Fuyin Z[2], Bin X[3]

[1]Oral Surgeon, Peoples Dental College and Hospital, Kathmandu, [2]Professor, Oral and Maxillofacial Surgery, Dalian Medical University, 1st Affliated Hospital, [3]Professor, Oral and Maxillofacial Surgery, Dalian University.

Abstract

Background: The present study was done to evaluate the aesthetic value of the post auricular approach technique in regional parotidectomy.

Materials and Methods: Regional parotidectomy was performed in 44 patients of benign parotid tumor by using the post auricular incision technique and compared with 50 patients in whom the same surgery was performed using traditional ante grade technique.

Results: The mean visual analog score (VAS) of patient satisfaction of incision scar and aesthetics of the patients treated with the post auriculat approach technique was 6.98 ±1.37and that patients undergoing conventional technique of parotidectomy was 4.10 ± 1.16. The difference was highly significant ($p<0.001$).

Conclusion: The technique of parotidectomy with an incision at a potentially invisible area along the postauricular sulcus and hairline has a strong cosmetic advantage compared with a technique with traditional incision.

Key words: Aesthetics, Parotidectomy, Post auricular approach

Introduction

"Beauty lies in the eye of the beholder." In this modern era, however, it is our own perception of physical beauty that affects our daily lives greatly. The face and neck are the most important parts of the human body in terms of physical beauty. A small scar on the skin of these regions can have a significant impact on the social or psychological well-being of an individual. Nevertheless, surgical incisions and trauma are unavoidable in patients with pathologic lesions indicated for surgery.

Conservative parotidectomy is an effective and well established surgical technique for the treatment of parotid gland pathology[1,2]. Traditional regional parotidectomy involves **"Lazy S"** shaped or **"C"** shaped incision over lateral aspect of the face, creating obvious post surgical scar and deformity causing major cosmetic problem for the patient. In addition to that, there are complications such as visible scars, retro-mandibular depression, Frey's syndrome and facial nerve injury.

In consideration of this esthetic purpose, post auricular approach technique (a skin incision along the postauricular sulcus and hairline, a potentially less visible area of the head and neck) (Fig 1)[3] has been presented in this study, creating marked cosmetic benefits for the patients and no significant complications.

Materials and methods

The study was conducted at the Department of Oral and Maxillofacial surgery of the First Affiliated Hospital of Dalian Medical University, China. 94 patients of benign parotid tumour treated from February 2002 to February 2008 who gave written consent for this study were considered irrespective of age, race or gender. All the patients were diagnosed as benign parotid tumour using clinical evidence, preoperative incisional biopsy and parotid enhanced Computed Tomography (CT) scan.

The patients were randomly divided into two groups: Group A consisted of 44 patients aged 17 -72 years in whom the regional parotidectomy was performed using Post Auricular Approach Technique (PAAT) and Group B (control group) consisted of 50 patients aged 19-74 years who were treated by conventional technique of parotidectomy.

Correspondence
Pranay R Shakya, Oral Surgeon, Peoples Dental College and Hospital, Kathmandu

The surgeries were performed and the excised tumour mass was sent for histo-pathological examination to confirm the diagnosis. Post surgical complications were noted. At the follow up after six months of surgery, patient perception of esthetics was recorded using a visual analog scale of 1 to 10, with 1 being the least satisfaction with esthetics and 10 being the highest possible level of satisfaction with facial appearance of the surgical site.

SPSS version 11.5 was used for statistical analysis and difference of mean patient satisfaction of both the groups was compared using Mann-Whitney U test. Level of statistical significance was kept at $p<0.05$.

Surgical Method

All the patients were operated under general anaesthesia. After taking all the aseptic measures, the posterior auricular incision was made for patients of Group A (Fig 3). The incision was started posterior to the ear lobe. The incision was made up along the post auricular sulcus to the middle part of the ear, after which it was continued at an angle of 65^0 into a curved posterior superior incision about 0.5 cm inside the hair bearing area and not extending 0.5 to 1 cm beyond nape of the neck. Then the full thickness triangular flap was reflected.

Using mastoid process as a land mark to locate the facial nerve trunk, dissection was done 1cm above and deep to mastoid process to enter the parotid parenchyma. Regional parotidectomy was done according to the location of the tumour. Upper or lower pedicle of the sternocleidomastoid muscle flap was used to repair the defect[4].

The control group (B) were subjected to conventional technique in which either the traditional "Lazy S" incision (modified Blair incision) or the "C" shaped incision was applied (Blair's incision) (Fig 2). The incision was made in the pre-auricular crease. The skin flap was raised to the superior, anterior and inferior borders of the gland, after which, the parotid gland was dissected along with the facial nerve and the tumour was resected. The wound was then closed using sutures.

Results

In group A, the mean age of 11 males and 33 females was 39.8 ± 1.27. One patient had bilateral warthin's tumour, so a total of 45 tumours were treated using PAAT in this group. 21 (46.7%) of the tumours were located at the lower pole of the parotid, whereas 12 (26.7%) tumours each were located in front of pinna and around the mandible. 33 (73.3%) were less than 2cm in size and 12 (26.7%) were larger than 2cm.

In the control group (B), there were 20 males and 30 females, mean age 38.2 ± 1.17 who were treated using traditional technique of regional parotidectomy. Out of 50 tumours, 24 (48%) were located at the lower pole of the paortid, 16 (32%) in front of pinna and 10 (20%) around the angle of mandible. 35 tumours (70%) were less than 2 cm in size and remaining 15 (30%) were larger than 2cm.

The details of the types of tumours in both the groups are given in Fig 7.

Of the 44 patients undergoing PAAT technique, only 4 (9.1%) experienced complication of facial palsy. There were no cases of Salivary fistulas and salivary retention. Temporary biangular defect were still seen in the pedicle flap region which resolved by 2 to 3 months. During follow-up period of 4 months to 6 years there was no recurrence of even a single tumour, facial symmetry retained in all patients, surgical scars were not obviously noticeable as they were hidden inside the hair line of the patient. Frey's syndrome was not seen in any patient.

In sharp contrast, 29 (58%) patients of the control group had complications such as facial palsy (16%), Frey's Syndrome (28%) and facial assymetry (14%).

The mean visual analog score (VAS) of patient satisfaction of incision scar and aesthetics of group A was 6.98 ±1.37and that of group B was 4.10 ± 1.16. The difference was highly significant statistically ($p<0.001$), table 1.

Table 1: Comparison of outcome between two groups

Variables	Group A	Group B	Significance
Site of incision	Post auricular and hair line	Pre auricular and upper cervical	
Patient satisfaction of postsurgical appearance (VAS)	6.98 ±1.37	4.10 ± 1.16	p<0.001*
Hiding of scar	Yes	No	

*Mann-Whitney U Test

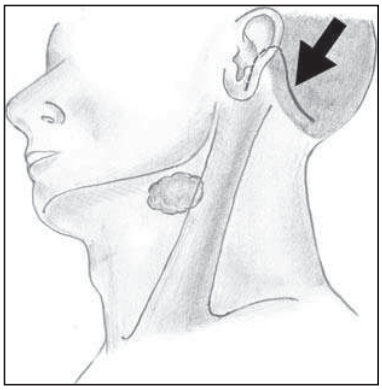

Fig 1: Diagrammatic representation of retroauricular hairline incision(arrow) for removal of upper neck masses

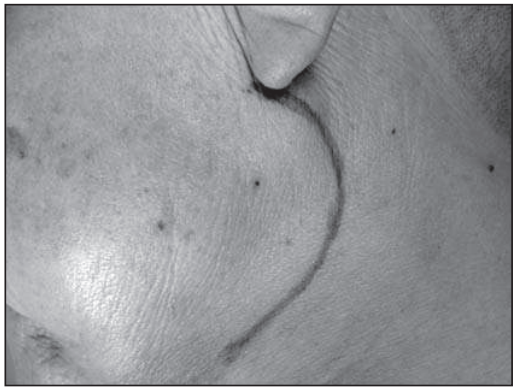

Fig 2: Blair's incision

Fig 3: The posterior auricular hairline incision shown by the arrows

Fig 4: The arrow shows the position of the tumour during removal

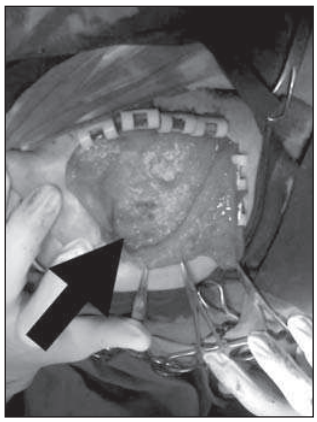

Fig 5: Arrow showing the defect area after the removal of tumour

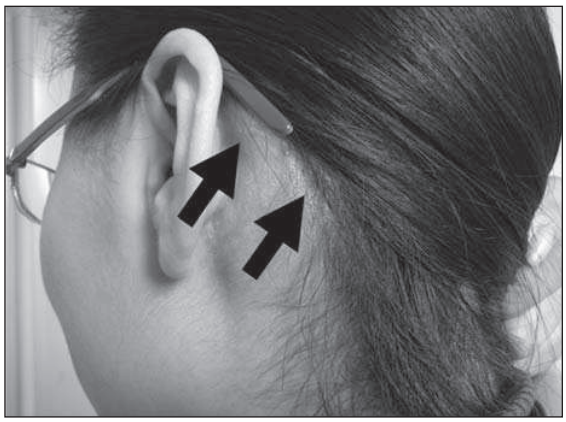

Fig 6: The post-operative healing of the incision area after 6 months follow up showing minimal scar formation (arrows)

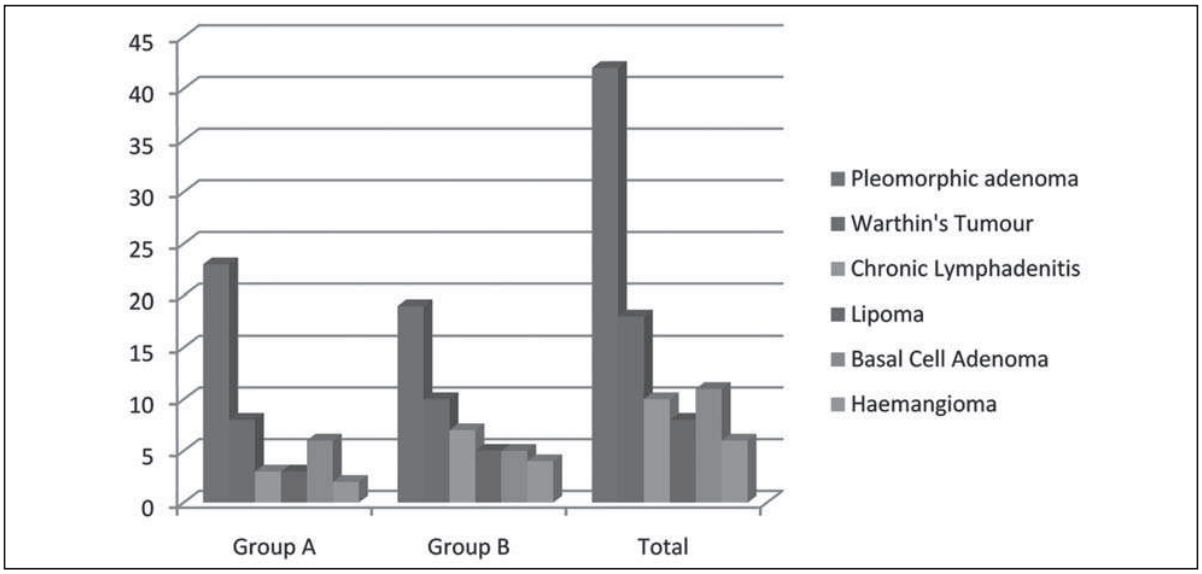

Fig 7: Distribution of tumour types in both groups

Discussion

Parotidectomy is a process in which there is the removal of the parotid gland along with the pathology associated with it, keeping in mind the functional capacity of the gland is retained. The pathology may be due to tumours, cysts, infection or trauma[5,6].

Since salivary tumours have thin and incomplete capsules (membrane), tumours can easily infiltrate inside and outside the membrane. Parotid tumour surgery, therefore, needs excision of involved parotid lobe and tumour with dissection of facial nerve.

These surgeries ordinarily use 'S' or 'C' shaped incision which has advantages of thorough tumour excision, low tumour recurrence and clean dissection of facial nerve so long term damage to facial nerve does not occur easily. Disadvantages of the incision are the necessity to give an incision at exposed part of the face, and as the facial nerve is dissected from its peripheral branches towards the main trunk, short term facial palsy cannot be avoided as peripheral branches of facial nerve are small and does not have a fixed course. Other disadvantages are dysfunction of the retained parotid tissue, deformity of the regional area and high incidence of Frey's syndrome.

Post-auricular approach to regional parotidectomy is a basic innovative improvement for regional parotidectomy. Surgery is approached by an incision behind the ear and below the hair line. Important aspect of post auricular approach to regional parotidectomy is the prompt location and dissection of the main facial nerve trunk.

In the present study, the patients undergoing parotidectomy by the posterior auricular approach technique had lesser complications than the patients undergoing surgery by the traditional technique. The finding is similar to the study in South Korea by Jong-Leyl Roh. This may be explained by the fact that facial nerve preservation is better in the PAAT technique which prevented the incidence of facial palsy and Frey's syndrome[7]. The facial asymmetry was also less after the PAAT technique as it was possible to repair the defect by sternocleidomastoid flap.

The patients of PAAT group reported higher satisfaction with the aesthetics of the surgical repair as the post surgical scar was well hidden adding to maxillo-facial cosmetic aesthetics. This too is in accordance with the finding of Roh JL[3].

Limitations

This technique has its limitations though. It can be used only in cases where the tumours are located favorably (either in the tail of the parotid or the angle of the mandible region) and cannot be accessed to pathology in the anterior border of the parotid. Another disadvantage of this technique is the narrow surgical field and slightly longer operative time.

One limitation of the present study is that it was carried out in Chinese patients of small sample size, so generalization cannot be made for Nepalese population. Another limitation of the study is that aesthetic evaluation was done only using subjective patient perception. Other facets of aesthetic evaluation like photographic analysis, surgeon perception, third person perception, peer acceptance, self esteem and emotional aspects were not considered.

Conclusion

The postauricular approach for removal of parotid tumours has been suggested in the present study. Facial appearance is a major concern of the general population and a small postoperative scar in the visible area of the face and neck can affect quality of life. Therefore, an incision at a potentially invisible area along the postauricular sulcus and hairline has a strong cosmetic advantage with no significant complications compared with a traditional incision for parotidectomy.

Though the procedure takes more operative time than the traditional parotidectomy, it is better in relation to the cosmetic point of view and less chances of facial nerve damage as the nerve can be identified from its point of exit from the stylomastiod foramen.

So, at this time when the cosmetic value is high for any individual, the posterior auricular approach technique in parotidectomy is better than the traditional incision for parotidectomy, though this technique can only be used for certain types of tumours related to the parotid gland which are located either at the tail of the parotid or near the angle of the mandible, this approach will be helpful for patients with a surgically indicated parotidectomy who hope for invisible external scars after surgery.

Acknowledgement

I would like to thank Dr. Manash Shrestha for helping me lay out this article in a small stipulated time.

References

1. Patey DH, Thackray AC. The treatment of parotid tumours in the light of a pathological study of parotidectomy material. Br J Surg 1958: 55: 477–487.
2. Roscic Z. Conservative parotidectomy: a new surgical concept. J Maxillofac Surg 1980: 8: 234–240.
3. Roh JL Retroauricular hairline incision for removal of upper neck masses. Laryngoscope. 2005 Dec; 115(12):2161-6.
4. Chow TL, Lam CYW, Chiu PWY, Lim BH, Kwok SPY. Sternomastoid-muscle transposition improves the

cosmetic outcome of superficial parotidectomy. Br J Plast Surg 2001: 54: 409–411.

5. Ho¨nig JF. Facelift approach with hybrid SMAS rotation advancement flap in parotidectomy for prevention of scars and contour deficiency affecting the neck and sweat secretion of the cheek. J Craniofac Surg 2004: 15: 797–803.

6. Patey DH, Thackray AC. The treatment of parotid tumours in the light of a pathological study of parotidectomy material. Br J Surg 1958: 55: 477–487.

7. de Ru JA, van Benthem PP, Bleys RL, Hordijk GJ. Prevention of Frey syndrome in parotid gland surgery.J Otolaryngol. 2007 Oct;36(5):291-5.