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Modified Sistrunk's Operation

Objective:

To find out the outcomes of Modified Sistrunk's Operation for thyroglossal cyst/fistula at the Department of ENT-Head & Neck Surgery, Tribhuvan University Teaching Hospital (TUTH), Kathmandu, Nepal.

Methods:

It was a hospital based, prospective, cross-sectional, case series, conducted among the patients, suffering from thyroglossal cyst/fistula, from Jan 2005 to July 2009. Altogether 47 patients underwent classical Sistrunk operation. Among them 13 patients were operated with "Modified Sistrunk Operation" by the author which is specially designed for this pathology. No recurrence was noted during the entire follow up period. The data were analyzed by using simple mathematical tools like percentage and frequency.

Results:

Out of thirteen patients treated with modified Sistrunk operation no recurrence was noted till the follow up of minimum 6 months and maximum four and half years.

Conclusion:

The results of this study so far indicate that modified Sistrunk operation is one of the most effective treatment methods for thyroglossal cyst/fistula without any recurrence.

Key words: thyroglossal cyst/ fistula, Sistrunk's operation, modified Sistrunk operation, body of hyoid.

INTRODUCTION:

Thyroglossal cyst/fistula represents the most common congenital anomaly of the neck.¹ It accounts 2-4 % of all neck masses.² But they may be formed as many as 7% of the population.³ It arises from a persistent epithelial tract, the thyroglossal duct, formed with the descent of the thyroid gland from the foramen caecum to its final position, in front of the neck. The duct so formed can give rise to cyst (commonest), sinuses and fistulae (rare). Thyroglossal cysts occur in six different variants: infrahyoid, suprahyoid, juxtahyoid, intralingual, suprasternal and intralaryngeal cysts (extremely rare). Most commonly it is present in first decade of life. However they are seen in adult also.³ Symptoms can arise from the swelling itself or from complications, the most significant of which is infection. Most of the time cyst will be infected leading to abscess formation after which it will convert into fistula either due to spontaneous rupture or incision and drainage of the infected cyst. Diagnosis is made on the basis of clinical examination, USG and cytopathological investigation. Treatment of choice of this pathology is the Sistrunk operation. The recurrence rate for thyroglossal duct cysts after a Sistrunk operation is 5%, compared with 20% if the body of the hyoid is not removed.⁴ The complete Sistrunk procedure solves the problem in the majority of patients, but in cases with infrahyoid extension, tracing of the extension is required and failure of this may result recurrence of the disease even after Sistrunk operation.⁵ Therefore, author has designed modified Sistrunk operation, specially focusing the recurrence after Sistrunk operation due to infrahyoid extension or second duct towards hypopharynx or dissemination and implantation of remnant cells into the surrounding tissues during either spontaneous rupture or manipulation of abscess during incision and drainage.

MATERIALS AND METHODS:

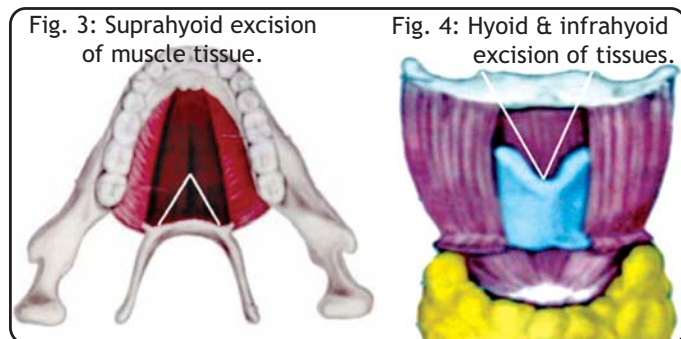
All clinically suspected cases of thyroglossal cysts, attending to OPD of ENT-Head and Neck Surgery of TU Teaching Hospital, Kathmandu, Nepal from January, 2005 to July, 2009 were advised for USG neck and FNAC to confirm the diagnosis, where as fistulas were advised for fistulogram. Reports were analyzed and after conforming diagnosis by a faculty member, these patients were posted for surgery. Altogether 47 patients underwent Sistrunk operation by different faculty members of the department. Among them 13 patients were operated by the author with modified Sistrunk operation technique. So data were analyzed only of these 13 patients and special focus was made on the recurrence of the disease during the entire follow up period. In this modified Sistrunk operation technique, after infiltration of 5ml injection of lignocaine and adrenaline (1: 200,000), a horizontal skin incision along the skin crease, (fig.1) preferably on top of the swelling is made for the cyst. But for the fistulas and disease with ugly scar, an elliptical incision, (fig.2) enclosing the fistulous tract and ugly scar preferably along the skin crease, was given and sub-platysmal flaps were raised superiorly just above the body of the hyoid bone and inferiorly up to the thyroid notch. superior boarder of hyoid



Fig. 1: Incision for TG cyst.

Fig. 2: Incision for TG fistula

bone was exposed. Likewise inferior dissection is carried out along the midline enclosing midline tissues of the neck up to the thyroid notch and thyrohyoid membrane medially. Once superior boarder of body of hyoid bone was identified an inverted "V" shaped incision was made pointing towards the foramen caecum. Now from the thyroid notch, superficial to the thyrohyoid membrane, dissection was carried out superiorly and body of the hyoid was made free from the medial side. Once muscles attached to the body of hyoid was made free, the entire cysts/fistula/scar tissue along with body of hyoid bone, elliptical midline tissue of infrasound region and inverted V shaped muscle tissue of suprahyoid region pointing towards foramen caecum was removed in toto in a single block (Fig.3&4).



Proper haemostasis was achieved by electric diathermy and wound was closed in layers with or without draining. Stitches were removed on 6th post operative day and follow up was instructed to each patients.

RESULTS:

A cohort of 13 patients, age ranged from 3.6 yrs to 31 yrs, consisting of 9 male and four females presented mainly either with neck swelling (cyst), or discharging fistula or ugly scar with repeated infection were taken for the study. All patients underwent modified Sistrunk operation under GA. None of these patients had recurrence after surgery by this technique till the maximum follow up period of four and half years and minimum of six months.

DISCUSSION:

As thyroglossal duct remnant is the congenital pathology, possibility of recurrence will be there even after Sistrunk operation and its different modifications. Nir et al reported that even after Sistrunk operation, the recurrence rate was 1.9%.⁶ Even higher recurrent rate was found by Turkyilmans et al in their study which was 3.7%.⁷ Sattar et al reported a case of two years child who was referred to them for recurrent thyroglossal duct cyst even after complete and adequate resection and was successfully treated without further recurrence by core excision of the foramen caecum.⁴ In most of the recurrence cases it was observed that recurrence was either due to incomplete removal of remnant near foramen caecum or infrahyoid extension or rarely double tract of the pathology. Likewise, recurrence could be due to infection of the cyst and spontaneous rupture of the cyst which may lead to dissemination and or implantation of epithelial cells of the tract in to the surrounding tissues which could be missed during the surgical procedure and latter on appeared as a recurrence of the disease. Therefore targeting all these possibilities, author has designing

this modified Sistrunk operation which covers up and incorporates all these possibilities of remnant cells, which could be left behind during surgical procedure, resulting no recurrence of the disease. By this procedure author did not find any recurrence during entire follow up. More or less similar result was observed by Merlin et al without any recurrence done in twenty nine patients with follow up period of one year.⁸ Similarly, Patel et al reported result of six patients, extending the Sistrunk operation with an anterior wide local excision remaining within normal tissues enables removal of the entire thyroglossal tract remnant that lead to no recurrence.⁹

CONCLUSION:

The results of this observation indicate that modified Sistrunk operation is one of the best surgical procedures for the treatment of thyroglossal duct pathology specially to prevent the recurrence. With this surgical technique no recurrence was observed even after treatment of recurrent cases.

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