

Thyroid Surgery In Recurrent Multinodular Goitre

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ABSTRACT

Objective To evaluate the frequency of complications in re-operative thyroid surgeries for multinodular goiter (MNG) and the difficulties encountered during the procedures.

Study design Descriptive case series.

Place & Duration of study Department of Endocrine and General Surgery Unit 5, Jinnah Postgraduate Medical Centre Karachi, From May 2017 to April 2019.

Methodology Patients who underwent re-operative thyroid surgery for multinodular goitre were included in the study. Patients having malignancy in histopathology of the specimen were excluded. Recurrent laryngeal nerves were identified and preserved in all cases, by identifying anatomy. Written and informed consents were taken from all patients and data was collected on pre designed form.

Results Thirty-seven patients were re-operated for MNG. There were 30 females and 7 males. Minimum age of the females was 35 year and maximum age 45 year, while minimum age of the male was 35 year and maximum age 40 year. No Recurrent laryngeal nerve (RLN) or parathyroid gland injury were noted. One (2.70%) male patient developed symptomatic neck hematoma which was explored and hemostasis secured. One (2.70%) male patient presented with temporary hypocalcemia and temporary hoarseness of voice, while only one (2.70%) female patient presented with temporary hoarseness of voice. Temporary hypocalcemia occurred in 2 (5.40%) patients including one male and one female. Three patients (8.10%) including one male and two females had bruise on neck. There was no wound infection noted in this series.

Conclusion Recurrent thyroid surgeries are usually safe in experienced in dedicated thyroid surgery units.

Key words Re-operative thyroid surgery, Multinodular goiter, Thyroid diseases.

INTRODUCTION:

Thyroid is an important endocrine gland located in the neck. It makes and stores hormones that helps in regulation of various functions of the body.¹ It controls growth of the cells and various chemical reactions that are essential for various functions of

the body. Thyroidectomy is one of the most important surgical procedures which involves removal of thyroid gland. Recurrent thyroid surgeries have higher incidence of complications. Postoperative complications of re-operative surgeries are usually RLN palsy and hypoparathyroidism. Such surgeries are usually performed in recurrent simple goitres, thyrotoxicosis and malignancies.² Due to fear of complications, patients with recurrent malignancy deny undergoing surgery. In redo surgeries of large symptomatic goiter, nerve stimulator is used to prevent RLN injury. RLN injury patients presents with postoperative dysphonia that may or may not be associated with deglutition or dyspnea.³

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In re-operative thyroid gland surgery patients complain of neck discomfort which occurs due to skin adhesions to trachea.⁴ Adhesive symptoms are also due to neck scarring.⁵ Reoperation is usually challenging for a surgeon in the presence of adhesions. There is difficulty in identifying tissue anatomy due to adhesions in re-operative thyroid surgery. This study was conducted to document our experience of managing patients with recurrence of MNG.

METHODOLOGY:

This descriptive case series was conducted in Surgical ward 25 Unit 5, Jinnah Postgraduate Medical Centre Karachi, from May 2017 to April 2019. Thirty-seven patients were included in the study who presented with recurrent MNG. These patients previously underwent subtotal, near total or partial thyroidectomy. Total thyroidectomy was aim of the surgery with preservation of recurrent laryngeal nerve. Variables assessed were age, gender, and complications. Written informed consent was taken.

Apart from general investigations including thyroid profile, ultrasound neck was performed in all the patients. CT scan neck and upper chest was advised for identification of residual thyroid tissue. Direct laryngoscopy was done in all patients to document status of recurrent laryngeal nerve. Serum calcium was also monitored preoperatively, 24 hours after surgery and two weeks postoperatively in follow up clinic. Intraoperatively nerve monitors were not used due unavailability. In postoperative period clinical signs and symptoms of hypocalcemia were monitored every 6 hours. In hypocalcemia situation intravenous replacement with 10% calcium gluconate was started. Patients were also put on oral calcium and vitamin D supplements. After surgery voice of the patients was also checked. Complications like hematoma, bruising and wound infections were also recorded. Descriptive statistic were used to present data.

RESULTS:

Thirty-seven patients were included in this study. Thirty patients (81.08%) were female and 7 (18.91%) male. A male patient (2.70%) presented with

temporary hypocalcemia and temporary hoarseness of voice. One (2.70%) female patient presented with temporary hoarseness of voice. Two (5.40%) patients presented with temporary hypocalcemia including one male and one female. A male patient (2.70%) presented on 3rd postoperative day with dyspnea due to hematoma formation. Patient was immediately re explored and hematoma evacuated. Three (8.10%) patients presented with bruising including (female - 2, and male – 1) which resolved in follow up period. None of the patients developed wound infection (table I).

DISCUSSION:

In thyroid surgeries number of complications occur that include bleeding, RLN injury, hypoparathyroidism, hematoma and bruising. For benign multinodular goitre, total thyroidectomy is the treatment of choice.⁶ Due to re-operative thyroid surgeries, surgeon find difficulty in identifying parathyroid anatomy and recurrent laryngeal nerve due to adhesions. In recurrent surgeries lateral site is preferably used for dissection.⁷

In retrosternal goitres, lower lobes of the thyroid glands are not palpable so it is better to perform early surgery to avoid complications. Neck collar incisions are usually preferable. In retrosternal extension choking and dyspnea are most common symptoms and CT scans should be done preoperatively and surgeries are done to relieve compression symptoms.⁸

Due to better surgical techniques and measures nowadays, chances of complications are extremely low and could be more safe by understanding the anatomy of thyroid gland.⁹ Reoperations in thyroid gland is usually difficult for the surgeon due to alteration in its anatomy and scarring of the gland and RLN is the most important structure which should be identified during surgery. When surgeries are performed again within the same gland, chances of its injury are much greater.¹⁰ Re-operative surgeries are much rare and use of intraoperative nerve monitor can prevent its injury and when they are

Table I: Complications In Re-Operative Thyroid Surgery

Complications	Number (n-%)
Temporary Hypocalcemia and Temporary Hoarseness	1 (2.70%)
Temporary Hoarseness	1 (2.70%)
Temporary Hypocalcemia	2 (5.40%)
Neck Hematoma	1 (2.70%)
Bruising	3 (8.10%)

performed complication rates are much higher due to injuries to RLN and parathyroid glands.¹¹ According to some surgeons chances of RLN and parathyroid gland injury are much greater in recurrent surgery due to fibrosis of the thyroid bed.¹² Thyroid surgeries which are performed again are generally associated with more complications than the first procedure.¹³ One of the most important complication which occur after total thyroidectomy is hypoparathyroidism which is easily managed by therapy but when it occurs in young or pregnant patients, it is difficult to manage.¹⁴ Secondary thyroid procedures have significant relationship with recurrent laryngeal nerve injury.¹⁵

A study was done in 2012 in Italy on risk factors in reoperative thyroid surgery for recurrent goitre in which 106 patients had a thyroid operation, out of which 93 patients reoperated for recurrent multinodular goitre. Temporary hypoparathyroidism occurred in 41 (38.67%) patients and definite in 7 (6.6%). Transient recurrent laryngeal nerve palsy noted in 5 (4.71%) and permanent nerve palsy in 1 (0.94%). In 3 cases (2.83%) there was postoperative hemorrhage.¹⁶ According to that study risk of complications in recurrent thyroid surgery was much higher.

CONCLUSIONS:

There are difficulties encountered in re-operative thyroid surgeries due to adhesion, but it is safe in the hand of experienced thyroid surgeons in dedicated thyroid units.

REFERENCES:

1. Shiel WC. Medical definition of thyroid gland. [Internet] available from URL <https://www.medicinenet.com/script/main/art.asp?articlekey=5778> Accessed on 30-06-2019.
2. Lamartina L, Borget I, Mirghani H, Al Ghuzlan A, Berdelou A, Bidault A, Deandreis D. Surgery for neck recurrence of differentiated thyroid cancers: Outcomes and risk factors. *J Clin Endocrinol.* 2017; 102:1020-31.
3. Lefevre JH, Tresallet C, Leen Hardt L, Jublanc C, Chigot JP, Menegaux F. Re-operative surgery for thyroid disease. *Langen Beck's Arch Surg.* 2007.392:685-91.
4. Wilson DB, Staren ED, Prinz RA. Thyroid reoperations: Indications and risks. *Am Surg.*1998.64;674-8.

5. Levin KE, Clark AH, Duh QY, Demeure M, Siperstein AE, Clark OH. Reoperative thyroid surgery. *Surgery.*1992;111:604-9.
6. Alharbi F, Ahmed MR. Experience of thyroid surgery at tertiary referral centres in Jazan hospitals, Saudi Arabia. *Interv Med Appl Sci.* 2018;10:198-201.
7. Aghajanzadeh M, Asghari MR, Mohammadi F, Darvishi H, safarpour Y. An investigations into symptoms, diagnosis, treatment and treatment complications in patients with retrosternal goitre. *J Med Primary Care.* 2018.7:224-9
8. Ben Nun A, Soudack M, Best LA. Retrosternal thyroid goitre: 15 years experience. *Isr Med Assoc J.*2006. 8:106-9.
9. Safeoleas M. Complications of Thyroid surgery. *Chirurgia (Bucur).* 2006; 101: 571-81.
10. Gurleyik E, Fuat F, Sami, Yekenkurul E, Onsal U, Gursoy F, Ipor A. Displacement of recurrent laryngeal nerve in patients with recurrent goitre undergoing redo thyroid surgery. *J Thyroid Res.* 2018;4763712, 6.
11. Benkhadoura M, Tatuk S, Alobedi R. Recurrent laryngeal nerve injury and hypoparathyroidism rates in reoperative thyroid surgery. *Turk J Surg.* 2017;33:14-7.
12. Abdou S, Regonnie EJ, Fofana A, Diandy YN, Diaye M. Indications and morbidity of reoperative thyroid surgeries in Military hospital of Senegal. *Int J Otolaryngol,* 2017. doi.org/10.1155/2017/4045617.
13. Abboud B, Sleilaty G, Eid T. Morbidity of redo surgery for thyroid disease. *Acta Chir Belg.* 2014;114:381-7.
14. Rosato L, Avenia N, Bernante P, De Palma M, Gulino G, Nasi PG, Pellizo MR, Pezzullo L. Complications of thyroid surgery: Analysis of a multicentric study on 14,934 patients operated on in Italy over 5 years. *World J Surg.* 2004;28:271-6.
15. Jesus Herranz-Gonzalez, Javier G, Jose M. Complications following thyroid surgery. *Arch Otolaryngol Head Neck Surg.*1991;117: 516-8.

16. Calò PG, Pisano G, Medas F, Tatti A, Tuveri M, Nicolosi A. Risk factors in re-operative thyroid surgery for recurrent goitre: our experience. *Giornale di Chirurgia*. 2012;33:335-8.

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REFERENCES:

1. Lunniss PJ. The anus and anal canal. In: Williams NS, Bulstrode CJK, O'Connell PR. Bailey & Love's Short Practice of Surgery. 25th ed: Lon