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Safety and Effectiveness of Total Thyroidectomy for Benign Multinodular Goitre

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Abstract: Total thyroidectomy is considered the best choice for thyroids carcinoma. However, it is still controversial for benign thyroid diseases because of higher complication rates. But meticulous surgical techniques by expert surgeons can avoid most of the complications and thereby avoid the risk of reoperation for any recurrences. The objective of the study was to evaluate and justify the use of total thyroidectomy in benign thyroid diseases especially in multinodular goiter and Grave's disease. We have carried out an ongoing prospective study of thyroidectomy cases for different indications over a span of 5 years, from 2012 to 2016; in the Surgery department, Al-Thowra teaching hospital, Al-Bayda. The total number of operated cases was 353. Cases were distributed according to age, sex, diagnosis and operative procedures. Various complications encountered were enlisted. Total thyroidectomy was performed in 247 cases for MNG and Thyroid malignancy. Hemithyroidectomy or lobectomy was done in 82 cases for solitary nodules. Enucleation of cysts was done in 6 cases. Operations were done for recurrent nodules in 18 cases. Overall complications were few and only minor. We recommend total thyroidectomy for all cases of MNG; which will reduce the risk of recurrence and development of malignancy in residual thyroid tissue. It also can prevent secondary thyrotoxicosis.

Keywords: MNG, Malignant thyroid, Total thyroidectomy.

INTRODUCTION

The goiter is a term used for abnormal thyroid gland enlargement which may be physiological due to repeated physiological stress as in puberty, pregnancy and during lactation or pathological. It is a common endocrine problem in especially endemic mountainous areas like our city, mainly due to iodine deficiency. The term nodular goiter either multiple or solitary which means the presence of a solitary nodule or multiple nodules termed as discrete thyroid nodules. The multinodular goiter is a common benign thyroid pathology, where the thyroid gland affected by several different size nodules which is a more common condition than diffuse enlargement goiter, thyroiditis, cysts, and solitary nodule. The functional disorders of the thyroid gland which may be due to an increase in the secretion of thyroxin (toxic) or a decrease in the hormone level in the blood (hypothyroidism). Of course, different types of thyroid carcinomas (like papillary, follicular, anaplastic and medullary carcinomas) are also seen. The main indication for total thyroidectomy is the presence of cancer in the thyroid gland, also used for multinodular goiter and grave's disease.

The increasing use of total thyroidectomy in this decade for the treatment of benign thyroid diseases because of higher incidences of recurrence which may require reoperation for thyroid gland may by dangerous and risky in such cases. Many surgeons perform conservative thyroid surgery rather than total thyroidectomy for benign thyroid diseases to decrease the risk of postoperative hypothyroidism and recurrent laryngeal nerve injury. This controversy still exists

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between thyroid surgeons regarding the use of total or conservative thyroid surgery. Yang W, Shao T on 2009 stated; total thyroidectomy provides decisive advantages over partial or subtotal thyroidectomies in terms of recurrence and reoperation rate with comparable postoperative complications (Tezelman et al., 2009; Yang et al., 2009). Efremidou El, Papageorgiou MS, 2009 reviewed 932 total thyroidectomies performed for benign thyroid diseases when surgery was indicated. And inferred that, total thyroidectomy is safe and is associated with a low incidence of disabilities and complications comparable with the endocrine surgery unit (Efremidou et al., 2009).

(Mauriello et al., 2016) stated that the Dunhill procedure seems to be a good compromise between radially and prevention of complications, avoiding reoperation for recurrence or completion thyroidectomy for incidental thyroid carcinoma but needs more study for benign thyroid diseases (Mauriello et al., 2016). This study aimed to evaluate and justify the use of total thyroidectomy in benign thyroid diseases especially in multinodular goiter and diffuse hyperplastic goiter.

MATERIALS AND METHODS

This study was carried out in El-Thowra teaching hospital, Al-Bayda, Libya over a span of 5 years, starting from 2012 up to 2016. This has been an ongoing prospective study.

The total number of cases that were operated on was 353. Year, age and sex were studied. The investigations carried out are routine hematological investigations CBC, Thyroid function test, and FNAC, Chest X-Ray, ECG, and indirect laryngoscopy in a selected number of cases where there were compression symptoms (23 cases). FNAC was done in all cases of solitary thyroid nodules or dominant thyroid nodules or cysts; before surgery to exclude malignancy. Diagnosis of Thyroid disease cases are presented in Table 1.

Indications for thyroidectomy: goiter with compression features, multinodular goiter with toxicity, patient demand: because of huge size, and fear of developing toxicity or malignancy and malignant neoplasm. The surgical procedures carried out: total thyroidectomy (247) cases, hemi thyroidectomy / lobectomy (82) cases, enucleation of cysts (6 cases) and re-operation for recurrent thyroid nodule (18 cases). Different surgical procedures carried out are presented in Table 1

RESULTS

The total number of cases operated for thyroid disease was 353. Out of which; total thyroidectomy was done in 247 cases for MNG and malignancy. Hemi thyroidectomy or lobectomy was done in 82 cases for solitary nodule. Enucleation of cysts was done in 6 cases; where the cysts were either composite or recurred after 3 times aspiration. Operations was done for recurrent nodules in 18 cases. Overall complications were minor and few.

Complications encountered in our study: Hematoma: 3 cases, which appeared within 48 hours after removal of drain. All, hematoma cases were evacuated under GA. Hypocalcaemia: 4 cases showed clinical features of tetany 5 days postoperatively and were hospitalized for treatment with injectable calcium gluconate. They have recovered. Hoarseness of voice: 9 cases of which 3 cases were operated for recurrence of goiter or tumors. Initially, they were put on injectable Hydrocortisone for 3 days with a tapering dose and subsequently slowly tapered. All of them recovered within a span of 8 to 12 weeks. Wound infection: 2 cases, where one of them was put on antibiotic treatment. Complications encountered in our study are presented in Table 1.

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Table:(1). Diagnosis, surgical procedures and complications

diagnosis	Number of cases	percentage
MNG	221	62.60%
Solitary adenoma	82	23.22%
Composite cyst / recurrence after 3 aspirations	6	1.69%
Recurrence of thyroid nodule	18	5.09%
Malignancy	26	7.37%
Toxicity	39	11.04%
Types of surgery		
-Total thyroidectomy	247	69.97%
-Hemithyroidectomy/ lobectomy	82	23.22%
-Enucleation of cyst	6	1.69%
-Reoperation for recurrent thyroid nodule	18	5.09%
Complications :		
-Haematoma formation	3	0.84%
-hypocalcaemia	4	1.13%
-Hoarseness of voice	9	2.54%
-Wound infection	2	0.56%

DISCUSSION

Normally partial or subtotal thyroidectomy is done in cases of MNG; to avoid complications such as injury to the RLN or parathyroid glands. Secondly, patients have to take thyroxine lifelong; which is costly and the patient must be educated enough to understand the importance of continuing the medicine regularly. Padur AA, Kumar N in 2016 stated in their review article regarding the appropriateness and safety of total thyroidectomy and compared with sub-total thyroidectomy and other thyroid surgeries. Many retrospective studies and few prospective studies suggested that the incidence of transient hypocalcaemia is higher after total thyroidectomy than after subtotal thyroidectomy, but the incidence of other complications including recurrent laryngeal nerve palsy and postoperative haematoma is not significantly different between the two procedures (Padur et al., 2016). Hence, in our review study, we found that total thyroidectomy is safe and cost-effective with low complication rates and provides a small yet significant advantage of being a safer procedure compared to subtotal thyroidectomy. (Rosto et al., 2000) have reviewed 14,934 thyroidectomies performed in 42 surgery units in Italy; compared the complications associated with total thyroidectomy versus subtotal thyroidectomy with unilateral and bilateral remnants.

The cases reviewed consisted of 9,599 TT (64%0, 3,130 TLI (21%) and 757 ST-BR (5%), 13,023 (87%) cases were suffering from benign diseases and 1,911 (13%) from malignancies. Recurrent laryngeal nerve injuries were present in 4.3% of TT with 2.4% transient and 1.35 definitive (as against 3% in ST-BR and 2% in ST-UR with 1.4% and 1.1% transient and 1% and 0.6% definitive). Hypocalcaemia after TT was transient in 14% and definitive in 2.2% (as against transient rates of 5% in ST-BR and ST-UR and definitive in 0.6% and 0.8% respectively). Haemorrhage occurred in 1.6% of TT cases (as against 2.1%, 0.5% and 0.4% in ST-BR, ST-UR respectively) (Rosto et al., 2000). Circchi R, Trastulli S. in 2015 inferred that goitre recurrence had reduced following total thyroidectomy (Cirocchi et al., 2015). Gangappa RB, Kenchannavar MB, in 2016 stated that total thyroidectomy shows benefits in eradicating multinodular goitre, alleviating Grave's ophthalmopathy, treating Hashimoto's thyroiditis and preventing recurrence (Gangappa et al., 2016). Agawal G, Aggarwal V in 2008 inferred that total thyroidectomy is the procedure of choice for the surgical management of benign multinodular goitre (Agarwal & Aggarwal, 2008).

Whereas (Thomusch et al., 2003) mentioned; total thyroidectomy is associated with an increased rate of RLN palsies, hypoparathyroidism and postoperative morbidity in comparison to less extensive thyroid surgery. (Thomusch et al., 2003). We have carried surgical procedures irrespective of the political instability and financial constraints in our country. Hence the number of surgeries varied in different years. In our study, we did carry out total thyroidectomy for our be-

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nign multinodular goiter cases with bare minimum complications.

CONCLUSION

The study carried out Total thyroidectomy for all cases of MNG and Malignant thyroid. We have encountered very few complications including RLN palsy and injury to parathyroid glands. Textbook advice for MNG is partial or subtotal thyroidectomy. But we recommend total thyroidectomy for MNG cases; because complications will be very few if proper surgical techniques are used.

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أمان وكفاءة الازالة الكاملة للغدة الدرقية للغدة العنقودية الحميدة

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المستخلص: الازالة الكاملة للغدة الدرقية في حال وجود الاورام الخبيثة أمر متفق عليه أما في الحالات الحميدة لازال محل خلاف حيث ان معدل المضاعفات يكون أعلى في الازالة الكاملة. دقة الجراحة عن طريق جراح خبير تمكننا من اجتناب اغلب المضاعفات ومن ثم تجنب اجراء جراحات متكررة الغدة. هدف هذه الدراسة لمعايرة وتبرير الازالة الكاملة للغدة للأمراض الحميدة خاصة في الغدة العنقودية ومرض غرايفس. أجرينا دراسة استطلاعية لحالات عمليات غدة درقية على مدى 5 سنوات من فترة 2012 حتى 2016 في قسم الجراحة مستشفى الثورة البيضاء–لعدد 353 حالة. وزعت الحالات حسب العمر والجنس والتشخيص ونوع العملية المستخدمة. واجهنا مضاعفات مختلفة تم دراستها. عدد حالات الازالة الكاملة للغدة الدرقية 247 حالة للغدد العنقودية واورام الغدة. ازالة نصف الغدة أجريت في 82 حالة لكتلة وحيدة في الغدة. إزالة كيس فقط في الغدة اجري في 6 حالات. اجريت عمليات على غدة متكررة في 18 حالة. المضاعفات العامة كانت قليلة وبسيطة. نحن نوصي بالإزالة الكاملة للغدة لجميع حالات الغدة العنقودية لإنقاص خطر التكرر وتطور الاورام الخبيثة في بقايا أنسجة الغدة. وكذلك لمنع تسمم الغدة الثانوي.

الكلمات المفتاحية: الازالة الكاملة للغددة، اورام الغدة الخبيثة، الغدة العنقودية.

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