Efficacy and safety of Total thyroidectomy in Multi Nodular Goitre management: a review of 172 cases.

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Abstract

Background: Multinodular goiter is a common endocrine disorder worldwide. It presents mainly in the 4th and 5th decade of life and is more common in women. Etiopathologically iodine deficiency is implicated as most common factor. For Multinodular goiter and thyroid cancers Total or near-total thyroidectomy is currently the preferred treatment. Postoperative complications like hypoparathyroidism and recurrent laryngeal nerve damage, many surgeons opt not to conduct a com plete thyroidectomy to treat benign thyroid diseases.

Objectives: Our study aimed to evaluate whether the outcomes of total thyroidectomy are safe and can be considered as the optimal surgical approach for the treatment of Multinodular goiter.

Materials and Methods: This was a retrospective analysis conducted on patients of Thyroid surgeries from 1st January 2014 to 31st th December 2019 in ENT department Hayatabad Medical Complex Peshawar. Total no of 172 patients were included in this study. We excluded patients with thyroid cancer, suspicion of thyroid malignancy and recurrent cases.

Results: Patient aged from 10 years to 60 years were recorded. Highest no of 65 (37.3%) patients was in the age group of 31 to 40 years. In included cases 101 (86.6%) were female and Diagnoses before surgery were multinodular goiter. Postoperative complications in the period of 1st week were noted. The incidence of bilateral recurrent laryngeal nerve palsy was 0%, and that of unilateral recurrent laryngeal nerve palsy was 1.7%, Hypocalcemia occurred in 2.9%, of patients. Hemorrhage requiring repeat surgery occurred in 1.1% of patients. Only one case 0.58%, developed Seroma and postoperative mortality was 0%.

Conclusion: Total thyroidectomy plays a considerable role in the treatment of patients with multinodular goiter. Total thyroidectomy avoids the recurrence of pathology in benign diseases and reduces risk of secondary operations for same disease.

Keywords: Multinodular goiter, Total thyroidectomy, recurrent laryngeal nerve, Hypoparathyroidism.

Introduction

Thyroid gland in general is homogenous in its structure, but often nodules may form in its substance[1]. The incidence of goiter, both diffuse and nodular, is highly dependent on the population's iodine intake status. Multi nodularity develops frequently in areas of iodine deficiency and results in high prevalence of goiter. Incidence of multinodular goiter has been documented in areas where iodine is sufficient. [2]

Thyroid disorders are most prevalent endocrine diseases and treatment of choice remains surgical resection. Total thyroidectomy is recommended for treatment of thyroid malignancies and benign condition such as large symptomatic goiters. [3]

Total thyroidectomy has potential complications. The major postoperative complications are hypoparathyroidism, hematoma, wound infection, and recurrent laryngeal nerve (RLN) injury.[4] The most important postoperative complication of total thyroidectomy is hypocalcemia, causing potentially severe symptoms and increasing hospitalization time. Hypoparathyroidism is the usual cause of hypocalcemia, mainly results from accidental injury to parathyroid glands, or its removal, or devascularization. Recurrent Laryngeal nerve injury causes hoarseness, and is one of the common complications of thyroid surgeries. Majority of these complications negatively affects quality of patient's life leading to an increase in an individual's health-care costs and requiring a lifelong alternative therapy.[5]

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Materials and Methods

This was a retrospective study conducted on patients of Thyroid surgeries from 1st January 2014 to 31st December 2019 in ENT department Hayatabad Medical Complex Peshawar. Total no of 172 patients were included in this study. In our study record of 467 patients operated for different thyroid pathologies were collected from the ward, and operating room registers. 172 cases were included with ultrasonic features of Multinodular goiter, biopsy reports were available and total thyroidectomy performed, with postoperative complications and daily progress report documented. All those patients where the record was available but biopsies were missing, suspected malignant cases, completion or revision thyroidectomy were excluded from our study.

Results

In our study record of 172 patients with ultrasonographic evidence of multinodular and pathological report of multinodular goiter were included.

Patient aged from 10 years to 60 years were recorded. Highest no of 65 (37.3%) patients was in the age group of 31 to 40 years. 3 (1.7%) cases in age group 10-20 years, 39 (22.6%) cases in 21-30 years, in age group 41-50 total no of 32 (18.6%) cases and 21 (12.2%) in 6th decade, shown in table 1. In included cases 149 (86.6%) female and 23 (13.3%) were male shown in table 2. Postoperative complications in the period of 1st week were noted. The incidence of bilateral recurrent laryngeal nerve palsy was 0%, and that of unilateral recurrent laryngeal nerve palsy was 1.7%, Hypocalcemia occurred in 2.9% of patients. Hemorrhage requiring re exploration occurred in 1.1% of patients. Seroma noted in single patient (shown in table 3).

Table 1. Age of Patient

Age of patient	**Total**
10-20	3 (1.7%)
21-30	39 (22.6%)
31-40	65 (37.7%)
41-50	32 (18.6%)
51-60	21 (12.2%)
61-70	12 (6.9%)
Total	172

Table 2: Gender

Gender	**Total**
Male	**23 (13.3%)**
Female	**149 (86.6%)**
Total	**172**

Table 3: Complications

Complications	No of patients	Percentage
Uni. recurrent laryngeal nerve palsy	**3**	**1.7 %**
Bil. recurrent laryngeal nerve palsy	**0**	**0 %**
Hypoparathyroidism	**5**	**2.9 %**
Wound Hematoma	**2**	**1.6 %**
Seroma	**1**	**0.58 %**

Discussion

Most patients undergoing surgery for multinodular goiter require resection of both lobes of thyroid gland, however consensus is lacking at present on what the most appropriate procedure is.[6] In recent past subtotal thyroidectomy has been the surgical treatment of choice for Multinodular Goiter, but it does have several inconveniences, among which is a high rate of recurrence (10 to 30%)[7]. Though total thyroidectomy does not have these disadvantages, but it does involve a higher potential risk of complications. Historically, the risks associated with total thyroidectomy and the problems of adequate hormonal replacement deterred surgeons from performing total thyroidectomies. Although the procedure remains arguable, it is increasingly being performed, and current indications include cancer, toxic and nontoxic multinodular goiter and Graves disease.[8]

With the aim to analyze the complications of total thyroidectomy in a high volume center, we collected data from records to see the efficacy of total thyroidectomy.

In our series of cases, majority of patients were female (87%) out numbered male cases similar to findings published by Tunbridge et al. in a comprehensive population survey with a female/male ratio of 13:1.[9] Multi nodular goiters usually grow very slowly over many decades and present in late ages. We in our study noticed the majority of our patients were in 4th decade, contrary to the findings reported in the literature, found a prevalence of Multinodular goiter in 5th and 6th decades of life. [10]

A common complication after total thyroidectomy is postoperative hypocalcemia, which may cause uncomfortable symptoms that result in longer stay in the hospital and ongoing laboratory tests.[11,12] Moreover, patients with postoperative hypoparathyroidism often are anxious about the possibility of permanent hypocalcemia, requiring life-long treatment with calcium and/or vitamin D.

In our study hypoparathyroidism occurred in only 2.9% of patients. Though a figure of 2.9% is on the higher, we were not able to exclude temporary cases in this number. Identification of laryngeal nerves during mobilization and dissection of thyroid lobes helped to prevent accidental injury, and visualization of the parathyroid glands and preservation of their blood supply minimized inadvertent damage to these structures. In all cases, we preserved the superior parathyroid glands. Out of five cases with hypocalcemia one case presented on 6th day . Asari R et al. reported transient Hypocalcemia in 10% to 50% of persons who undergo total thyroidectomy while a study by Walker Harris et al. reported permanent Hypocalcemia lasting more than six months occurs in 0.5% to 2% of patients comparable with our study. [13,14]

In our study, 3 (1.7%) patients were observed hoarse in the postoperative period and on laryngeal exam noted with unilateral recurrent laryngeal nerve palsy. In comparison, Bulent Aytac et al. recorded Unilateral vocal cord problems occurred in 16 (3.8%) cases and in 6 (1.2%) cases it became permanent. [15] While contrary to our findings, Delbridge et al. in a series of 3089 thyroidectomies reported only 0.5% permanent RLN palsy. [16]

There were not a single case of bilateral recurrent laryngeal nerve palsy recorded.

We agree with other authors that hemostasis can be better achieved with total thyroidectomy. [17,18] In our study, postoperative hemorrhage requiring re-exploration occurred in 2 patients (1.6%), the bleeding source was from branches of the middle thyroid vein in 1 patient and in the other patient from branch of inferior thyroid artery.

There was a single case of wound seroma, though in all our cases prophylactic antibiotics were used in our study.

Our data suggest that total thyroidectomy can be carried out with minimum morbidity by surgeons with experience in thyroid surgeries among patients with benign thyroid conditions, including multinodular goiter when surgery is indicated.

Conclusion

Total thyroidectomy is safe when performed by high volume thyroid surgeons with minimal complications. In addition, total thyroidectomy seems to be the optimal procedure when surgery is indicated for multinodular goiter, as total thyroidectomy has the advantages of immediate and permanent cure and no recurrences.

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