

Outcomes of Total Thyroidectomy in Multinodular Goitre: Insights from a Tertiary Care Centre in Kashmir

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ABSTRACT

Background: Multinodular goitre (MNG) continues to be a common surgical problem in regions with a history of iodine deficiency, including the Kashmir valley. Although iodisation programmes have reduced the overall prevalence of goitre, patients frequently present late with large, symptomatic multinodular goitres requiring definitive surgical management.

Objectives: To analyse the demographic profile, clinical presentation, surgical outcomes, and postoperative follow-up of patients undergoing total thyroidectomy for benign multinodular goitre at a tertiary care centre in the Kashmir valley.

Methods: A retrospective observational study was conducted on 40 consecutive patients who underwent total thyroidectomy for benign multinodular goitre between January 2021 and December 2024. Demographic data, clinical presentation, thyroid functional status, operative details, histopathology, and postoperative outcomes were analysed descriptively.

Results: Of the 40 patients, 36 (90%) were female. The mean age was 46.2 ± 10.7 years (range 20–66 years). Long-standing neck swelling was the most common presentation (87.5%), while 35% of patients had compressive symptoms and 20% had toxic multinodular goitre. All patients underwent total thyroidectomy. Transient hypocalcaemia occurred in 8 patients (20%), and transient recurrent laryngeal nerve (RLN) palsy in 2 patients (5%). One patient had permanent RLN palsy. No patient developed permanent hypoparathyroidism or mortality.

Conclusion: Total thyroidectomy for benign multinodular goitre in the Kashmir valley is a safe and effective procedure with low permanent morbidity when performed in experienced hands. It offers definitive treatment with minimal risk of recurrence and acceptable complication rates.

Keywords: Multinodular goitre, total thyroidectomy, hypocalcaemia, recurrent laryngeal nerve injury, Kashmir

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INTRODUCTION

Multinodular goitre (MNG) is one of the most prevalent thyroid disorders worldwide and remains a frequent indication for thyroid surgery. Its occurrence is particularly high in regions with current or historical iodine deficiency, such as the Himalayan belt and the Kashmir valley¹⁻³. Although implementation of universal salt iodisation has led to a decline in overt goitre prevalence, nodular thyroid disease continues to be encountered in adult populations, especially in previously endemic areas^{2,3}.

Benign MNG usually follows a prolonged course and commonly presents with anterior neck swelling, cosmetic deformity, pressure symptoms including dyspnoea and dysphagia, or manifestations of thyrotoxicosis due to

autonomously functioning nodules^{4,5}. Surgery remains the definitive treatment for large goitres, compressive symptoms, toxic multinodular goitre refractory to medical therapy, and nodules with suspicious cytology⁶.

The optimal extent of thyroidectomy in benign MNG has been debated for decades. While subtotal thyroidectomy was historically favoured to reduce surgical complications, numerous studies have demonstrated high recurrence rates requiring technically challenging reoperations associated with increased morbidity^{7,8}. Consequently, contemporary evidence increasingly favours total thyroidectomy for bilateral benign MNG, particularly when performed in

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high-volume centres with experienced surgeons, as it virtually eliminates recurrence without a significant increase in permanent complications⁷⁻⁹.

Data describing outcomes following total thyroidectomy for MNG from the Kashmir valley are limited. Given the region's unique epidemiological background and delayed patient presentation, reporting institutional experience is important. This study presents our four-year experience with total thyroidectomy for benign multinodular goitre, highlighting demographic features, clinical presentation, surgical outcomes, and postoperative follow-up.

MATERIALS AND METHODS

This retrospective observational study was conducted in the Department of General and Minimal Access Surgery at a tertiary care teaching hospital in the Kashmir valley. All patients aged ≥ 18 years who underwent total thyroidectomy for benign multinodular goitre between January 2021 and December 2024 were included.

Patients with recurrent goitre, prior thyroid surgery, solitary thyroid nodules, or a preoperative diagnosis of thyroid carcinoma requiring formal oncologic resection were excluded.

Medical records were reviewed to extract demographic variables (age and sex), duration and nature of symptoms, thyroid functional status, ultrasound and fine-needle aspiration cytology (FNAC) findings, operative details, histopathological diagnosis, and postoperative outcomes.

Transient hypocalcaemia was defined as symptomatic or biochemical hypocalcaemia resolving within six months of surgery, whereas persistent hypocalcaemia beyond six months was considered permanent hypoparathyroidism¹⁰. Recurrent laryngeal nerve palsy was classified as transient if vocal cord function recovered within six months¹¹.

RESULTS

Clinical and demographic profile

A total of 40 patients underwent total thyroidectomy for benign multinodular goitre during the study period. Females predominated, with 36 women (90%) and 4 men (10%), yielding a female-to-male ratio of 9:1. The mean age at presentation was 46.2 ± 10.7 years (range 20–66 years).

Long-standing anterior neck swelling was the most frequent presenting complaint, as shown in fig 1, often associated with cosmetic concerns. Fourteen patients (35%) reported

compressive symptoms such as dyspnoea or dysphagia. Toxic multinodular goitre was present in 20% of patients, all of whom were rendered euthyroid prior to surgery. CECT neck was done in selected patients as shown in fig 2.



Fig 1; Image depicting anterior neck swelling

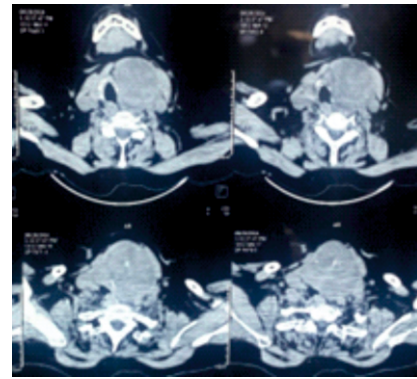


Fig 2: CECT image depicting a huge thyroid swelling

Table 1. Clinical and demographic characteristics of patients (n = 40)

Variable	Value
Mean age (years)	46.2 $\pm$ 10.7 (20–66)
Female:male ratio	36:4
Neck swelling	35 (87.5%)
Compressive symptoms	14 (35.0%)
Toxic multinodular goitre	8 (20.0%)
Large goitre	22 (55.0%)
Retrosternal extension	10 (25.0%)
Euthyroid at surgery	28 (70.0%)

Surgical management and postoperative outcomes

All 40 patients underwent total thyroidectomy as shown in fig 3. Recurrent laryngeal nerves were routinely identified and preserved, and meticulous efforts were made to identify and safeguard the parathyroid glands.

Final histopathology confirmed benign multinodular goitre in the majority of cases. Incidental papillary thyroid microcarcinoma (<1 cm) was detected in two patients (5%) on final histopathological examination.



Fig 3: Intraoperative picture depicting a huge thyroid gland after total thyroidectomy

Postoperative complications were predominantly transient. Transient hypocalcaemia was the most common complication, followed by transient unilateral RLN palsy. No patient developed permanent hypoparathyroidism. One patient had permanent RLN injury. There was no perioperative mortality.

Table 2. Surgical outcomes and postoperative follow-up

Parameter	Value
Total thyroidectomy	40 (100%)
Transient hypocalcaemia	8 (20.0%)
Permanent hypoparathyroidism	0
Transient RLN palsy	2 (5.0%)
Permanent RLN palsy	1 (2.5%)
Re-exploration for haematoma	1 (2.5%)
Median hospital stay	4 days
Mortality	0

These findings are depicted in Figure 4.

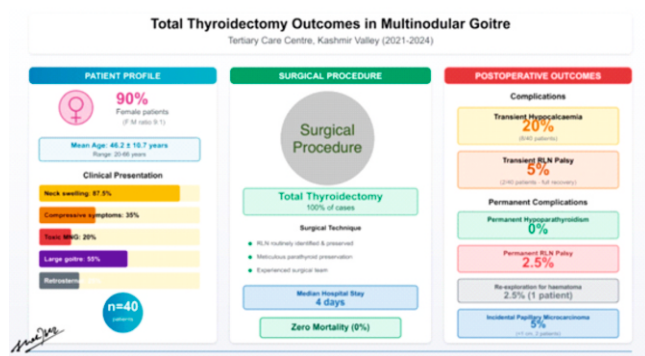


Fig 4: Highlights of the study

DISCUSSION

This study demonstrates that multinodular goitre continues to represent a significant surgical workload in the Kashmir valley, predominantly affecting middle-aged women, consistent with epidemiological surveys from iodine-deficient and post-deficiency regions^{1-3,12}. The marked

female predominance observed in our series mirrors global trends in benign thyroid disease.

The majority of patients presented with long-standing neck swelling, and over one-third had compressive symptoms, reflecting delayed presentation and large goitre size. Similar clinical patterns have been reported from endemic regions worldwide^{4,5,13}.

All patients in our series underwent total thyroidectomy, which reflects an institutional preference for definitive management of bilateral multinodular goitre. This approach is well supported by the current literature, which demonstrates significantly lower recurrence rates compared with subtotal thyroidectomy, without a corresponding rise in permanent complications in experienced hands^{7-9,14}.

The transient hypocalcaemia rate of 20% seen in this study is comparable to rates reported in large contemporary series, which range from 20–30% depending on definitions and intensity of biochemical surveillance^{10,11}. Importantly, no case of permanent hypoparathyroidism occurred in our cohort. Transient RLN palsy occurred in 5% of patients, with complete recovery in all except one—a rate consistent with modern thyroid surgery series^{11,14,15}.

Although total thyroidectomy is technically more extensive than limited resections, our findings support the growing consensus that, when performed by experienced surgeons, it is associated with acceptable morbidity and provides the advantage of eliminating recurrence and the need for reoperation.

LIMITATIONS

The retrospective study design, small sample size, and single-centre experience limit the generalisability of the findings. Follow-up duration was modest, restricting long-term assessment of recurrence and quality-of-life outcomes.

CONCLUSION

Multinodular goitre in the Kashmir valley predominantly affects middle-aged women and often presents late with large goitres and compressive symptoms. Total thyroidectomy is a safe and effective definitive treatment for benign multinodular goitre, offering excellent surgical outcomes with low permanent complication rates when performed in experienced hands. Larger prospective studies from this region are warranted to further validate these findings.

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