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IS TOTAL THYROIDECTOMY SAFE: OUR EXPERIENCE OF THYROID SURGERY

General Surgery

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ABSTRACT

A retrospective analysis of 221 cases of various thyroid disorders treated at Rajindra Hospital were included in this study from 2005 to 2014.The aim was to evaluate the various complications which happened. The objective of this article is to share our experience of safety of total thyroidectomy for benign multinodular goiter that was proven by retrospective evaluation of complications. All patients underwent either total or hemi thyroidectomy depending upon their diagnosis and patients were closely followed up for postoperative complications especially in terms of hemorrhage, recurrent laryngeal nerve damage and hypocalcaemia.

KEYWORDS

Total thyroidectomy, Safe surgery, Less complications

INTRODUCTION

Thyroid surgery has evolved from subtotal thyroidectomy, near total thyroidectomy to total thyroidectomy which is now established as treatment of choice for bilateral benign disease also. Many surgeons dealing with endocrine surgery believe that total thyroidectomy is the gold standard for diffuse disease of the thyroid, as in experienced hands it presents no more complications than that of subtotal resection.[1,2] We present our experience with the thyroid surgery : hemi or total and its complications at our institute along with review of literature.221 patients with various diagnosis were subjected to total and hemithyroidectomy from a period of 2005-2014 and success rate with this surgery was 100% with no mortality due to surgery or its complications. 139 patients underwent total thyroidectomy and 82 patients underwent hemithyroidectomy depending upon their diagnosis.

MATERIAL AND METHODS

A retrospective analysis was conducted at Government Medical College and Rajindra Hospital, Patiala, tertiary care centre. Informed consent of every patient included in this study was taken. All surgeries were performed by a single surgeon.

Preoperative Evaluation

All patients had completed Blood Test & FNAC was the first diagnostic test to differentiate & establish the diagnosis. Serum Thyroid profile, USG neck, X-ray neck and otolaryngologist assessment of vocal cord mobility was done in every case. In case of malignancy and large/retrosternal goiter Computed Tomography scan of neck was done (Fig 1). All thyrotoxic patients received pharmacologic therapy until day of surgery to prevent perioperative crisis. Patients with previous history of thyroid surgery, recurrence were excluded in this study.

Surgical Technique aimed at adequate exposure of gland, identification of correct fascial planes, identification & preservation of recurrent laryngeal nerve & external branch of superior laryngeal nerve in every case. Parathyroid glands were seen & preserved with their blood supply in every case .Vocal cords were seen in every case at extubation.

Post op care included vitals monitoring, look for any hematoma formation, respiratory distress and laryngeal spasm. Patients were allowed liquids orally after 8 hours & steam inhalation was started. Hoarseness of voice was noted on 1st post operative day & followed serially at follow up till it improves. On first& third post operative day serum calcium sample were sent in total thyroidectomy cases and patients were looked for symptoms of hypocalcaemia.

RESULTS

the success rate of surgery was 100% with no mortality.

The complications which did occur were:

1. RECURRENT LARYNGEAL NERVE PALSY-

	Total Thyroidectomy (139)		Hemithyroidectomy (82)	
	No. of Patients	% age	No. of Patients	% age
Temporary neuropraxia	02	0.9%	00	00
Permanent RLNP	01	0.4%	00	00

2. EXTERNAL BRANCH OF SUPERIOR LARYNGEAL NERVE PALSY

	Total Thyroidectomy (139)		Hemithyroidectomy (82)	
	No. of Patients	% age	No. of Patients	% age
EBSLNP	00	00	00	00

3. HYPOCALCEMIA

	Total Thyroidectomy (139)		Hemithyroidectomy (82)	
	No. of Patients	%age	No. of Patients	%age
Transient hypocalcaemia	02	0.9%	00	00
Permanent hypocalcemia	00	00	00	00

4. Seroma occurred in one patient (0.4%) of total thyroidectomy that was treated by single time aspiration.
5. Wound infection occurred in one patient (0.4%).
6. Thyroid storm occurred in one patient (0.4%) of total thyroidectomy.It was managed by iv fluids, iv steroids, beta blocker,antipyretics.
7. There is no recurrence noted at 3 year follow up.

DISCUSSION

Because of the risks associated with major surgery for treating thyroid diseases and the problems of adequate hormonal replacement surgeons are deterred from performing Total thyroidectomy. Total thyroidectomy was only performed occasionally for indications other than cancer until the last quarter of the twentieth century.[3]In the last 25 years Total thyroidectomy has replaced bilateral subtotal thyroidectomy as the preferred option for the management of all patients with bilateral benign Multinodular goitre, Graves' disease and all thyroid cancer patients. The main concern of performing total thyroidectomy is about increased risk of complications such as permanent recurrent laryngeal nerve (RLN) paralysis and permanent hypocalcaemia [4, 5] but contrary to that various studies has shown safety and benefits of total thyroidectomy. [6,7] This is also shown by our small retrospective study of 221 cases done at Government Medical College Patiala & Rajindra hospital.

We had done 139 cases of total thyroidectomy out of 221 cases. The mean age group in our study was 38.3 yrs and youngest patient was 21yr old and oldest was 69 yr old. F: M in our study was 3.60. Total thyroidectomy specimen histopathology showed 33 cases of malignancy (23.74%), Multinodular goitre was seen in 89 cases

(64.02%) & Toxic goitre had incidence of 12.23% (seen in 17 cases) & retrosternal extension was seen in 19 cases. Permanent U/L recurrent laryngeal nerve damage was seen in one case of total thyroidectomy (0.4%). In that case it was involved by tumour so RLN had to be sacrificed. Temporary neuropraxia was seen in 2 cases (0.9%) of total thyroidectomy patients. It was resolved by 4 months. Both patients had MNG. The cause of temporary recurrent laryngeal nerve palsy in these two cases might be due to some thermal injury, ischemia or traction etc. because in both cases vocal cord palsy became normal after few weeks of surgery. **We identified the recurrent laryngeal nerve in every case and never used cautery near berry's ligament to avoid thermal injury to nerve (Fig 2).**

No case of permanent hypocalcaemia was seen. Parathyroid glands were seen in every case (Fig 3).Temporary hypocalcaemia was seen in 2 cases (0.9%) of total thyroidectomy patients. It was resolved by 5 months. Permanent hypocalcaemia was defined as the need for oral vitamin D and/or calcium supplements for six months following surgery to maintain a normal serum calcium concentration of 8 mg/dl. [8] Both patients had benign, non toxic, multinodular goitre and there was no retrosternal extension.

There was 0% incidence of injury to External branch of Superior laryngeal nerve in our study. We had 0% incidence of EBSLN injury because we had looked at External branch of SLN in every case (Fig 4) before ligating superior pole vessels .We saw the nerve in 20% cases as Cernea type 2b, in 20 % as type 2a and in 60% as type 1. [9]

We had one case (0.4%) of seroma formation in total thyroidectomy patient that was treated by single aspiration (Fig 5). The patient was a case of multinodular non toxic goitre.We had encountered an unusual case of postoperative thyroid crisis (0.4%) diagnosed on basis of its clinical manifestations in a nontoxic euthyroid multinodular goitre patient postoperatively. Exact aetiology was not known but it may be due to subclinical hyperthyroidism. Patient thyroid crisis manifested as fever (102 degree), sinus tachycardia 120-130, sweating. Patient was managed by intravenous fluids, antipyretics, b-blocker (propanolol), Propylthiouracil and monitoring the urine output. Thyroid crisis was recovered after 24 hrs.No case of postoperative bleeding, wound infection was seen and no other complication was seen. There was no recurrence noted at 3 year follow up.

CONCLUSION

- Our retrospective study results supports the literature studies which has shown that Total thyroidectomy offers better disease control & it is very safe surgery for benign b/l multinodular goiter.
- Total thyroidectomy decreases the risk of recurrence
- Monitoring of thyroid hormone replacement therapy is easier.
- Our complication rate is in line with other studies.
- Identification of recurrent laryngeal nerve, parathyroid glands & external branch of superior laryngeal nerve in every case should be the goal in every case.

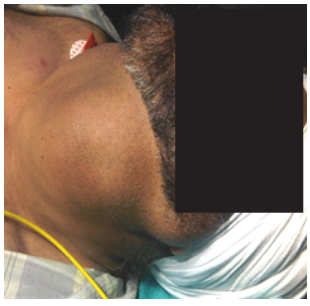

Fig 1 Large multinodular goiter .CT showing retrosternal extension

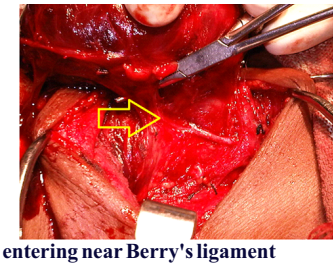

FIG 2– RLN entering near Berry's ligament

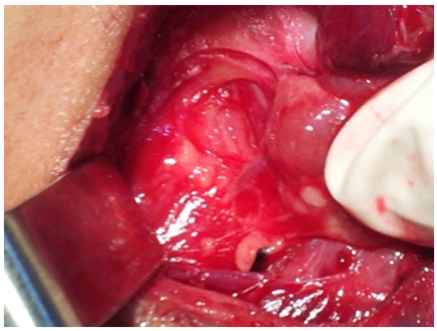

FIG 3- Parathyroid glands

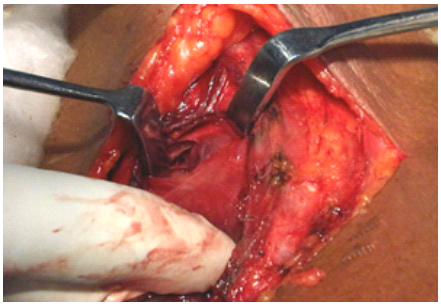

Fig 4- Showing EBSLN in space of Reeves

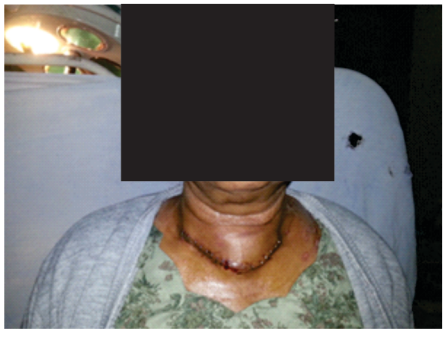

Fig 5 – Seroma formation after total thyroidectomy

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