Non – Exploration of the Recurrent Laryngeal Nerve in Thyroid Surgery

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Abstract

Background: Goiter is a common disease in Iraq and it is more common in the North .The disease is more common in females than in males.
For this reason thyroid surgery is a common procedure.
Many complications occur during and after surgery such as; bleeding, hypothyroidism, and recurrent laryngeal nerve injury.The later complication, although infrequently encountered can cause a lot of suffering to the patient.
Objective: The objective of our study is assessing injury to the recurrent laryngeal nerve without exploration of the nerve routinely during thyroid surgery. exploration of the nerve done for selected cases where there is increase risk to injury.
Patients and method: Prospective study of 400 patients whom underwent different thyroid surgery for different thyroid diseases done by one surgeon from July 1992 to July 2012 in Baquba teaching hospital were analyzed for permanent injury to RLN , when non-exploration of the RLN is the rule.
Result: from the 400 cases included in the study only 4 cases (1%) had permanent injury to the RLN, 6 cases (1.5%) had transient injury and no injury in 390 cases (97.5%).
Conclusion: Exploration of the RLN is not necessarily to be done routinely during thyroid surgery. We recommend exploration of the nerve in selected thyroid diseases.

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Introduction

Thyroid surgery is a common surgical procedure in Iraq [1,2] because Goiter is a common disease. The disease varies between multinodular Goiter, thyroid nodule, smooth Goiter, Grave's disease and malignancy. The disease is more common in female than in male [14]. Complications such as bleeding, hypothyroidism, and recurrent laryngeal nerve injury (RLNI) represent nearly half of all complications of thyroid surgery [3,5].the later complication after Thyroidectomy , although infrequently encountered , can jeopardize the quality of life [6]. This complication can cause a lot of suffering to the patients due to paralysis of the vocal cords in forms of hoarseness of voice, food inhalation and even respiratory difficulty in bilateral vocal cord paralysis. the incidence of RLNI had been found to be higher during re-exploration, Grave`s disease and Thyroid carcinoma [10].Generally permanent RLNI is seen in 1-3% of Thyroid surgery [4]. Meticulous and gentle handling of tissue in the Thyroid surgery may minimize the risk of injury to the RLN without routine exposure.

Patients and Method

Prospective study of 400 patients whom underwent different Thyroid surgery (subtotal, total Thyroidectomy, hemithyroidectomy for benign nodule, total thyroidectomy for malignant thyroid disease,

completion: biopsy came out to be malignant after primary surgery). For different Thyroid diseases done by one surgeon from July 1992 to July 2012 in Baquba teaching hospital were analyzed for permanent injury to the RLN when no exposure to the RLN was the rule. With meticulous fine dissection, gentle manipulation of the gland during surgery, good haemostasis, avoidance of using electrocautery for haemostasis in deep planes after removing the gland. Using the classical procedure including ligation of the superior pedicle vessels, ligation of the middle thyroid vein, inferior thyroid vein, and sometimes ligation of the inferior thyroid artery in continuity away from the thyroid gland

Table (1): Operations performed for thyroid diseases.

	Disense	No.
1	Subtotal benign diffuse goiter	100
2	Subtotal multi nodular goiter	190
3	Hemi thyroidectomy benign thyroid nodule	75
4	Total thyroidectomy malignancy thyroid	5
5	Completion biopsy came out to be malignancy thyroidectomy after primary surgery	10
6	Near total Grave's disease/benign thyroidectomy goiter	20
7	Total	400

Results

In our study from the 400 patients whom underwent Thyroidectomy only 1%had permanent injury to the RLN, 1.5%had transient injury, not injured in 97.5%.The cases in which injury occurred include benign multi nodular goiter with tracheal deviation, patients with short neck, and large goiter with retro sternal extension.

Table (2): the outcome of RLN after operation.

Type of injury	**No.**	**%**
Permanent	4	1
Transient	6	6
Not injured	390	97.5

Discussion

The objective of our study is assessing injury to the recurrent laryngeal nerve without exploration of the nerve routinely during thyroid surgery. Exploration of the nerve done for selected cases where there is increase risk to injury.The overall incidence of permanent injury to the nerve is between 1 and 3 %. Permanent injury defined as persistent paralysis of the cord more than 6 months after surgery. This is due transection, ligation and traction of the nerve (5).The incidence of temporary injury to the nerve is 2.5 – 5 % in various procedures. This is due to temporary loss of function due to neuropraxia of the nerve as a result of our manipulation during surgery(6).Some thyroid surgeries such as hemithyroidectomy, total

thyroidectomy, near total thyroidectomy & previous thyroidectomies have very high chance to injure the RLN(10).Preoperative and postoperative examination of the vocal cords should be done in every case. In case of immediate postoperative paralysis of the cord is seen, re-exploration of the wound & exploration of the nerve in its full course should be done & attempt should be made for re-anastomosis of the nerve. The role of routine exposure of the nerve during surgery is a subject of discussion. Kusemsuwan has found that there was insufficient evidence to suggest that identification of the RLN during surgery will be significant factor in reducing the likelihood of RLN paralysis5. Mestting found significant difference between the injury of RLN when routine identification & dissection of the nerve before ligation of the thyroid artery was done4. It was 5.99% when routine exposure was not done, which came down to 0.88% when the nerve was routinely identified during operation.

The incidence of non- recurrent LN is 0.39% 6 to 3-4% 2 in different studies. It is also one of the causes of accidental injury to the nerve because of the abnormal course. If the surgeon is not aware from it mainly on the right side he might end up with injury to the nerve.

Study done by M. K. Bora & others on 142 cases of different thyroid surgeries end with a result that there is no permanent injury to the RLN, but there is a possibility of injury if the no. of cases will be greater.

Conclusions

With our result of 1% permanent injury to the RLN (table 2) with meticulous, fine & gentle manipulation of the thyroid gland during surgery, knowing the anatomy & dissection in the proper plane with avoidance of using electro cautery for hemostasis in the deep plane, so it is not necessary to expose the RLN routinely, it is time consuming & the nerve might be injured during identification.

So we recommend that routine exploration of the RLN should be limited to the following conditions ; hemithyroidectomy especially on the right side to avoid injury to the non-recurrent nerve ,re-operation for any reason , carcinoma of the thyroid gland , large goiter with distortion of the trachea , and retro-sternal extension.

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