

Original Research Article

CLINICAL STUDY ABOUT IDENTIFYING PREDICTORS OF DIFFICULT THYROID SURGERY

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Abstract

Background & Methods: The aim of the study is to study about identifying predictors of difficult thyroid surgery. Clinical findings such as size of the gland, consistency of the gland and position of trachea were recorded. Ultrasound features such as size of the nodules, vascularity, density, microcalcification and x ray features such as tracheal deviation were taken into account in the study. Thyroid profile test and thyroid peroxidase estimation tests was done for the patients.

Results: Clinical outcomes distribution were Retrosternal Extension, Vocal Cord Mobility has highest percentage (100.0%), Mobility Restricted movement with deglutition has lowest percentage (1.4%). Hospital Stay distribution were < 5 Days is 58.5%, > 5 Days is 41.5%.

Conclusion: The preoperative thyroid difficulty score was found to be not correlating with the post-operative complications but were found to correlative with other postoperative factors such as duration of surgery and post –operative duration of stay of hospital as higher scores were associated with longer duration of surgery as well hospitalisation of the patient. The difficulty score which was calculated in this study won't affect the mortality or morbidity rates associated with this surgery but one has to keeping mind that the advancement in the field of thyroid surgery especially the recent advancement in microsurgical techniques and experience of surgeon play an important role in making sure the incidence of complications acquired during surgery be insignificant.

Keywords: predictors, thyroid & surgery.

Study Design: Observational Study.

1. Introduction

The word “ Thyroid ” means shield - like which is derived from Greek word. During the early part of the 19th century thyroidectomies were usually associated with high mortality and morbidity due to various factors such as blood loss, sepsis, lack of anaesthesia etc[1]. until the 19th century when surgeons like Kocher and Billroth redefined the art of thyroid surgeries. Their valuable contributions in understanding the anatomy, physiology and pathology of the thyroid gland have paved the way for safe and efficient thyroid surgery[2].

Thyroid swellings are one of the frequent complaints a surgeon comes across during his or her practice. The decision to do thyroidectomy procedure will be based after thorough evaluation of thyroid swelling which includes parameters such as physical examination, FNAC and ultrasound studies[3]. Even though recent advances in the field of thyroid surgery have reduced the mortality and morbidity associated with the procedure the complications acquired during such procedure can affect the quality of life.

The thyroid gland which is of endodermal origin arises as a midline diverticulum from the point of origin which corresponds to the base of the tongue during third week of intrauterine gestation and descends anterior to hyoid bone and larynx in neck[4]. The epithelial lined tube which is connected to foramen caecum is called Thyroglossal duct which usually disappears by 6th week. In some cases the distal aspect of the duct remains non obscured which later on develops into pyramidal lobe of thyroid gland[5].

2. Material and Methods

Ours will be a prospective study conducted for 01 year with a sample size of 140 patients at MGM Medical College Indore and MY Hospital Indore who visited the general surgery OPD with the complaint of thyroid nodules.

All the patients participated in the study were informed about the study and with the informed consent patients were subjected to all the investigations included in the study. Clinical findings such as size of the gland, consistency of the gland and position of trachea were recorded. Ultrasound features such as size of the nodules, vascularity, density, microcalcification and x ray features such as tracheal deviation were taken into account in the study. Thyroid profile test and thyroid peroxidase estimation tests were done for the patients. Each of the variables included in the study were assigned from 1 to 3. There are some variables such as tracheal deviation, TFT and Anti – TPO were assigned only 1 or 2.

Inclusion criteria:

1. Patients undergoing total thyroidectomy/ hemi thyroidectomy
2. Age group 18-80 yrs
3. Patient of both sexes
4. Patients were explained in detail about the study and patients who give informed consent will only be included in the study

Exclusion Criteria:

1. Age group <18 & >80
2. Completion thyroidectomy
3. Lymph node dissection
4. Previous neck irradiation / iodine ablation

3. Result

Table No. 1: Age distribution

| Age | No. | Percent |
|--------------|-----|---------|
| Upto 30 yrs | 22 | 15.7 |
| 31 - 40 yrs | 44 | 31.4 |
| 41 - 50 yrs | 52 | 37.1 |
| 51 - 60 yrs | 16 | 11.4 |
| Above 60 yrs | 06 | 4.3 |
| | 140 | 100 |

The above table shows Age distribution were <30 years is 15.7%, 31-40 years is 31.4%, 41-50 years is 37.1%, 51-60 years is 11.4%, >60 years is 4.3%.

Table 2: Diagnosis distribution

| Diagnosis | No. | Percent |
|---------------------|-----|---------|
| Follicular Neoplasm | 04 | 2.9 |
| MNG | 96 | 68.6 |
| SNG | 40 | 28.6 |
| Total | 140 | 100 |

Diagnosis distribution were Follicular Neoplasm is 2.9%, MNG is 68.6%, SNG is 28.6%.

Table 3: Clinical outcomes distribution

| | Clinical outcomes | No. | Percent |
|------------------------|--------------------------------------|-----|---------|
| Consistency | Frim | 136 | 97.1 |
| | Hard | 04 | 2.9 |
| Mobility | Moves with deglutition | 138 | 98.6 |
| | Restricted movement with deglutition | 02 | 1.4 |
| Retrosternal Extension | No | 140 | 100 |
| Vocal Cord Mobility | B/L Vocal cord movement | 140 | 100 |

Clinical outcomes distribution were Retrosternal Extension, Vocal Cord Mobility has highest percentage (100.0%), Mobility Restricted movement with deglutition has lowest percentage (1.4%).

Table 4: Hospital Stay distribution

| Diagnosis | No. | Percent |
|-----------|-----|---------|
| < 5 Days | 82 | 58.5 |
| > 5 Days | 58 | 41.5 |
| Total | 140 | 100 |

Hospital Stay distribution were < 5 Days is 58.5%, > 5 Days is 41.5%.

4. Discussion

Ultimately the major indications for thyroid resection includes compressive or inflammatory symptoms, hyper functioning of the gland or malignancy. Patient should be assessed for symptoms of hyperthyroidism and symptoms of hypothyroidism. Symptoms such hoarseness, dysphagia or dyspnoea is suggestive of malignancy but not entirely diagnostic[6].

Physical examinations of thyroid nodules such as size, shape, consistency of the nodules also play a role in identifying difficult surgery. Presence of eye signs which is suggestive of hyperthyroidism helps in assessing the severity of hyper thyroidism which also indirectly signifies difficult thyroid surgery. Large goiters i.e, glands more than 500gms in weight and more than 10cm in size can be related to difficult nature of surgery[7].

Thyroid function tests is first line of investigation assigned for any patients with thyroid nodule and whose results determine the next line of management. Serum thyroglobulin and serum calcitonin are not necessary for routine evaluation of thyroid as the former is used for the follow up after the initial treatment of thyroid surgery and latter is used for evaluation of medullary thyroid cancer. In our study we have used Serum TSH as a parameter to assess difficult thyroidectomy procedure[8]. Patients involved in the study had normal Serum TSH without the influence of thyroid or anti thyroid drugs where 11 patients had normal TSH kept in control by either thyroid supplementation or by anti thyroid drugs. However serum TSH levels neither influenced the incidence of complications nor duration of surgery thereby supporting the other previous studies in the past.

A study used a score, graded after surgery, identifying the duration of the operation as a factor of surgical difficulty in thyroidectomy, however in the same study it was observed that the incidence of complications is not statistically higher in the group of potentially difficult thyroidectomies. A Thyroidectomy Difficulty Scale (TDS) based on postoperative evaluation of four parameters (vascularization, friability, fibrosis and gland size) to predict the thyroid surgical difficulty and concluded that increased vascularization of the thyroid gland is more correlated to hyperthyroidism and that high scores were correlated with longer operative times and higher risk of complications[9].

5. Conclusion

The preoperative thyroid difficulty score was found to be not correlating with the postoperative complications but were found to be correlative with other postoperative factors such as duration of surgery and post-operative duration of stay of hospital as higher scores were associated with longer duration of surgery as well hospitalisation of the patient. The difficulty score which was calculated in this study won't affect the mortality or morbidity rates associated with this surgery but one has to keep in mind that the advancement in the field of thyroid surgery especially the recent advancement in microsurgical techniques and experience of surgeon play an important role in making sure the incidence of complications acquired during surgery be insignificant.

6. References

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