


Original Research Article

A comparative study on thyroid surgeries without drain versus with drain in tertiary care centre

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Abstract

Background: Thyroid surgery is one of the most commonly performed surgery for benign and malignant conditions of the thyroid gland worldwide. The thyroid gland is closely related to many vital structures and hence poses a unique challenge to the surgeon. Kocher and Billroth developed the approach to the thyroid gland, both revolutionized the understanding of treatment of thyroid disease. Drainage in thyroid Surgeries has been a routine but empirical practice with no scientific evidence to support its benefit.

Materials and methods: The patients admitted in Govt. Stanley Medical College Hospital, Chennai at Department of General Surgery who were having thyroid swelling were included.

Results: The mean duration of hospital stay in Group A patient was 2.30 ± 1.20 days whereas it was 5.34 ± 2.37 days in Group B patients, it has a statistical significance in the Cost effectiveness for the Group A patients and also regarding the patient satisfaction in early discharge with significant P value of < 0.001 . The wound healing time in the Group A patient was 7 ± 0.81 days which was considerably less compared to the Group B patients which was 10.08 ± 0.97 which had a statistical significance with the P value of < 0.001 .

Conclusion: In short the drains are not required in most cases of thyroidectomy. Drains cause discomfort, increase septic complications and prolong hospital stay. These may be useful in patients with Thyroid Swellings.

Key words

Thyroid surgeries, no drains, minimal hospital stay.

Introduction

Thyroid surgery is one of the most commonly performed surgery for benign and malignant conditions of the thyroid gland worldwide. The thyroid gland is closely related to many vital structures and hence poses a unique challenge to the surgeon. Kocher and Billroth developed the approach to the thyroid gland, both revolutionized the understanding of treatment of thyroid disease [1]. In rapid succession, the understanding of altered physiology, advances in imaging, minimally invasive diagnostic and surgical techniques have taken place. Drainage in thyroid Surgeries has been a routine but empirical practice with no scientific evidence to support its benefit.

Physiology of thyroid:

Thyroid hormone synthesis begins in the fetus at 11 weeks of gestation [2]. TSH is the important stimulator of thyroid gland and also a marker for thyroid dysfunction. TSH works by negative endocrine feedback system. TSH production occurs by pulsatile manner and it reaches peak value at night. Thyroid hormone acts by its nuclear receptor. Ultimobronchial bodies gives to thyroid medullary C cells that produce calcitonin. C cells aggregated at upper 2/3 lower 1/3 of thyroid gland [3].

Spectrum of thyroid disease

Functional abnormality of the thyroid is grossly classified into Hypothyroid and hyperthyroid [5]

- **Inflammatory** conditions of the thyroid are called as thyroiditis
 - a. Acute thyroiditis is due to Bacterial infection and fungal infection, radiation thyroiditis and drug induced (amiodarone).
 - b. Sub acute thyroiditis includes viral, that is otherwise called as granulomatous thyroiditis, silent thyroiditis, TB thyroiditis.
 - c. Chronic thyroiditis includes Hashimoto's, Reidel's Thyroiditis
- **Goitre and Nodular** thyroid disease

Nodular thyroid disease is common clinical thyroid problems

Pathology of nodule formation:

Persistent growth stimulation can cause diffuse hyperplasia which is reversible [4]. Then fluctuating stimulation leads to areas of active and inactive lobules. The active lobules are more vascular leading to hemorrhage into follicle will cause necrosis leaving surrounding active follicles. Necrotic lobules unite to form nodules filled colloid or mass of inactive follicles. This process continues will cause nodule formation [10].

- Diffuse non toxic simple goitre (colloid goitre)
 - cause: iodine deficiency (Endemic goitre)
 - treatment is medical
- Single solitary nodular goiter
- Multi nodular goitre

Clinical features of thyroid disorders:

In thyroid disorders, age of the patient should be significantly considered. Simple Goitre is observed in pubertal girls [11]. MNG, SNG and colloid goitres are seen in females of 20s and 30s. Papillary carcinoma is seen in young girls and follicular carcinoma seen in middle aged women. Pressure effects of Thyroid swelling may compress on the trachea to produce dyspnoea or it can compress on esophagus to produce dysphagia. Hoarseness or change in voice is commonly due to infiltration of the recurrent laryngeal nerve by the malignant thyroid.

Investigations of thyroid disorders

The various investigations for diagnosing thyroid diseases can be divided as follows,

1. Thyroid function test
2. Thyroid autoantibodies
3. Thyroid imaging
4. Cytology [6, 7].

Surgical techniques

1. Total Thyroidectomy
2. Lobectomy

Aim and objectives

- To avoid the post operative pain caused by drain.
- To reduce the hospital stay.
- To avoid extra scar.
- To avoid drain complications.

Materials and methods

Source (study population): The patients admitted in Govt. Stanley Medical College Hospital, Chennai at Department of General Surgery who are having thyroid swelling.

Duration : 2 years

Sample size: 100 Patients (50 each group)

Study design: Prospective study

Patient selection:

Inclusion criteria:

- Patients giving informed consent for the procedure.
- Patients aged more than 18 years of both the genders.

- Patients underwent routine preoperative and postoperative laryngoscopy.
- No patient was excluded on the basis of size of the Gland, difficulty in surgery, surgery involving both lobes of thyroid.

Exclusion criteria:

- Denial of consent
- Patients less than 18 years of age.
- Proven Malignancy with cervical lymph Node Metastasis requiring Neck Dissection.
- Clinical or laboratory indicators of Coagulation disorders.

Results and Discussion

Group A and Group B patients experiences pain following the thyroid surgery but Group A patients experiences less pain according VAS SCALE in the range of 3,5 than the Group B 5,7 which has statistical significance with chi square value 88.8 with the P value < 0.001 (**Table – 1**).

Table – 1: Post-operative pain by VAS scale.

Parameter	Group		P value
	Group A - Without drain	Group B - With drain	
Post-operative pain by VAS scale	3.04 ± 0.57	5.18 ± 0.44	<0.001

Table – 2: Duration of hospital stay.

Parameter	Group		P value
	Group A - Without drain	Group B - With drain	
Duration of hospital stay in days	2.30 ± 1.20	5.34 ± 2.37	<0.001

Table – 3: Wound healing time.

Parameter	Group		P value
	Group A - Without drain	Group B - With drain	
Wound healing time in days	7.20 ± 0.81	10.08 ± 0.97	<0.001

Table – 4: Seroma.

Seroma	Group		Total	Chi square	P value
	Group A - Without drain	Group B - With drain			
12 hours					
Negative	47 (94%)	37 (74%)	84 (84%)	7.44	0.006
Positive	3 (6%)	13 (26%)	16 (16%)		
24 hour					
Negative	47 (94%)	38 (76%)	85 (85%)	6.35	0.012
Positive	3 (6%)	12 (24%)	15 (15%)		

The mean duration of hospital stay in Group A patient was 2.30+/-1.20 days whereas it was 5.34+/-2.37 days in Group B patients, it has a statistical significance in the Cost effectiveness for the Group A patients and also regarding the patient satisfaction in early discharge with significant P value of < 0.001 (**Table – 2**).

The wound healing time in the Group A patient was 7 +/- 0.81 days which was considerably less compared to the Group B patients which was 10.08 +/-0.97 which had a statistical significance with the P value of <0.001 (**Table – 3**).

Group A patients had a statistically less number of seroma collection than the Group B patients with significant P value of 0.012. Both Group A and Group B patients didn't experience a hematoma following thyroid surgery and hence it doesn't show any statistical significance (**Table – 4**).

Conclusion

Majority of the surgeons insert drain after thyroidectomy to prevent any collection in the operative field. Hemorrhage in the dead space around trachea can cause potential life threatening airway compression and requires urgent reexploration. Occurrence of cervical hematoma following thyroidectomy is variable and ranges between 0.3 -2.5%. Risk of post operative bleeding is higher in patients with retrosternal goitre and graves disease. Hemorrhage usually occurs in the two and six hours of Surgery. Many studies have reported that the drains are ineffective in preventing blood collection because these often get blocked by clotted blood Some authors have suggested that the presence of drain incites inflammatory reaction. Moreover suction drain due to negative pressure may also prevent the cut lymphatics from closing and hence increase fluid drainage. Ultrasound neck on first postoperative day revealed a obvious difference but had no significance on statistical test with regards to the amount of fluid collection in the dead space between the two groups [8, 9]. This is

comparable with our studies A statistically proven difference between groups in terms of pain at 24 hours was evident that could be due to the irritating factor of having a drain placed.

The duration of hospital stay was found lesser in patients without a drain and these findings were reported by other studies. Short hospital stay is useful in our setup as it lessens the burden on hospital. Short hospital stay is also economical for our patients as majority of them are underprivileged, belong to far flung areas and they can't take long leave from work. According to Cochrane database review a firm statement can be drawn that a null hypothesis is in support but yet the reluctance upon the surgeons behalf is the holding factor to frequent placement of drains after thyroid surgery.

In short the drains are not required in most cases of thyroidectomy. Drains cause discomfort, increase septic complications and prolong hospital stay. These may be useful in patients with Thyroid Swellings.

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