

## Outcome of Thyroid Surgery without Drainage Tube- A Study of 60 Cases

Hossain MK<sup>1</sup>, Asaduzzaman AKM<sup>2</sup>, Islam MT<sup>3</sup>, Khan A<sup>4</sup>, Shaid MSB<sup>5</sup>, Bhuiyan MRU<sup>6</sup>, Rabbani SMG<sup>7</sup>

### Abstract

**Introduction:** The use of a negative suction drainage tube in the neck in thyroid surgery is a common practice in order to avoid hematoma or seroma or other complication. It is associated with neck discomfort, post operative neck pain, delayed ambulation, longer hospital stay and ugly scar formation.

**Objective:** To determine the advantages and safety of thyroid surgery without negative suction drainage tube.

**Materials and Methods:** A cross-sectional observational study was carried out from September 2015 to May 2017 in the Department of Otolaryngology and Head-Neck Surgery, Kurmitola General Hospital, Dhaka Cantonment and Azmol and Life Aid General Hospital, Mirpur, Dhaka. A total of 60 patients who had undergone total thyroidectomy or hemithyroidectomy for thyroid disorders without drainage tube were included in this study. Patients with previous thyroid surgery, retrosternal goiter or malignant diseases of thyroid requiring neck dissection, undifferentiated thyroid cancer patients and those undergoing anticoagulant therapy were excluded from this study. Data were collected and recorded in a structured case report form. Data were processed and analyzed by the Statistical Package for Social Science (SPSS) version 20.

**Results:** Hospital staying was shorter for 50 patients out of 60 and 83.34% patients were discharged on the 2nd postoperative day. The time of mobility of patient was shorter and 66.66% patients became ambulated from bed after 11-14 hours. Complication was less and only 11 patients developed different type of complications.

**Conclusion:** Thyroid surgery can be done safely and perfectly without negative suction drainage tube in the neck with a shorter period of hospital stay, early ambulation, fewer complications and morbidities. However, the drain should be used in the presence of large dead space,

particularly when there is a huge multinodular goiter or intrathoracic extension or when the patient is on anti-coagulant or anti-platelet treatment.

**Key-words:** Thyroidectomy, suction drainage tube, tension hematoma, seroma, recurrent laryngeal nerve palsy.

### Introduction

Negative suction drainage tube after neck surgery is an uncomfortable and painful procedure in most of the time and sometimes patients want to avoid it after surgery. Many surgeons use drain tube after thyroid surgery to reduce the dead space collection and drainage of collected blood and serum. This is further reinforced by the fact that postoperative drains usually yield more fluid. Reactionary haemorrhage can be life threatening, sometimes thus necessitating an immediate opening of the wound. For this reason, many surgeons to use a routine drain tube after thyroid surgery. Although the rate of bleeding increases in a subtotal or near total thyroidectomy due to vascularized remnant tissue or surgery of toxic multinodular goiter. Postoperative bleeding is usually very less and occurs in only 0.8-1% of patients after total thyroidectomy<sup>1</sup>. Drains may be blocked with clotted blood; therefore, the surgeon is not awarded even if profuse bleeding occurs<sup>2</sup>. Drainage tubes have no any advantage after thyroid surgery<sup>3</sup>. Hence, this study was to evaluate the necessity of drainage tube after thyroid surgery.

Instead, some additional benefits of non-drain tube have been reported such as less wound infection, less discomfort, less irritation, early mobility and shorter hospital stay. The objective of this study was to determine the advantage and safety of thyroid surgery without drainage tube in terms of postoperative safety, the frequency of infection, the volume of fluid collection in the operative wound, postoperative pain, local complication and length of hospital stay.

1. Lt Col Mohammad Kamal Hossain, MBBS, DLO, MCPS, FCPS (ENT), Asst Professor & HOD of ENT, AFMC, Dhaka 2. Col AKM Asaduzzaman, MBBS, DLO, MCPS, FCPS, Classified Specialist in Otolaryngology and Head-Neck Surgery, CMH, Dhaka 3. Lt Col Md Tauhidul Islam, MBBS, MCPS, DLO, FCPS, Classified Specialist in Otolaryngology and Head-Neck Surgery, CMH, Dhaka 4. Lt Col Ahsanuzzaman Khan, MBBS, DLO, MCPS, FCPS (ENT), Classified Specialist in ENT, CMH, Dhaka 5. Dr Md. Shamim Bin Shaid, MBBS, Assistant Professor of ENT, Kurmitola General Hospital, Dhaka 6. Dr Md. Rokan Uddin Bhuiyan, MBBS, Assistant Professor of ENT, Kurmitola General Hospital, Dhaka, 7. Maj Sarder Mohammad Gloam Rabbani, MBBS, DLO MCPS, FCPS, Classified Specialist in Otolaryngology and Head-Neck Surgery, CMH, Dhaka.

## Materials and Methods

A cross-sectional observational study was carried out from September 2015 to May 2017, in the department of Otolaryngology and Head-Neck surgery, Kurmitola General Hospital, Dhaka Cantonment and Azmol and Life Aid General Hospital, Mirpur, Dhaka. A total of 60 patients who had undergone hemithyroidectomy or total thyroidectomy for thyroid disorders without suction drainage tube after surgery were included in this study. Written informed consent was taken from all the patients. Patients with previous thyroid surgery, retrosternal goiter or malignant diseases of thyroid requiring neck dissection, undifferentiated thyroid cancer patients and those undergoing anticoagulant therapy were excluded from this study. Local complications (wound infection, seroma, bleeding, hematoma, recurrent laryngeal nerve palsy and hypoparathyroidism), the necessity for re-operation and length of hospital stay were recorded for all of the patients. The volume of fluid collection in the thyroid bed was assessed by ultrasonogram of thyroid bed. Postoperative pain was assessed according to visual analogue scale (VAS) with scores ranging from 0 (no pain) to 10 (worst pain imaginable). After discharge from the hospital, patients were advised to follow up if any complication was seen. Data were collected and recorded in a structured case report form. Data were processed and computed by Statistical Package for Social Science (SPSS) version 20.

## Results

Among 60 patients, 16.66% were males and 83.34% were females and the male-female ratio was 1:5, the age range was 17-55 years (Table-I).

**Table-I:** Distribution of patients according to demographic characteristics (n=60)

	Number	Percentage
Male	10	16.66
Female	50	83.34
Married	47	78.34
Unmarried	13	21.66

**Table-II:** Distribution of patients according to duration and type of operation (n=60)

Duration	Number	Percentage
60min-80min	45	75
90min-120min	15	25
Hemithyroidectomy	50	83.34
Total thyroidectomy	10	16.66

The length of hospital stay (LOS) was less and the patient's comfortability was also higher and satisfactory. All patients discharged from the hospital at or before 3rd POD (Post operative day) (Table-III).

**Table-III:** Frequency distribution of patients as per time of discharge (n=60)

Time of discharge	Number	Percentage
2 <sup>nd</sup> Pod	50	83.34
3 <sup>rd</sup> Pod	10	16.66

Patient's mobility was satisfactory. Forty patients out of 60 were ambulated from bed within 14 hours (Table-IV).

**Table-IV:** Frequency distribution of patients as per time of ambulation in hours (n=60)

Time	Number	Percentage
6-10hrs	16	26.67
11-14hrs	40	66.66
17-24hrs	04	06.67

The pain was assessed according to VAS and its score was less in most of the cases postoperatively. Only 03 patients were found with VAS score of 7. At 24th hours postoperatively the score was 5 for 2 patients and required additional analgesics (Table-V).

**Table-V:** Frequency distribution of postoperative patients for pain as per VAS (n=60)

Postoperative pain in time	Patients	Score	%
VAS at 06 hours	03	7	5.00
VAS at 24 hours	02	5	3.34

Among 60 patients, 40ml blood was collected in two patients and 50ml of seroma was collected in one patient in thyroid bed. Less than 15ml blood/seroma was collected from 57 patients (Table-VI).

**Table-VI:** Frequency distribution of patients as per volume of fluid collection (n=60)

Type of post-operative collection	Number of Patients	Fluid collection	%
Haematoma	2	40 ml	3.34
Seroma	1	50 ml	1.66
Blood/Seroma	57	<15 ml	95.0

Among 11 postoperative complications, one case developed wound infection; three cases of hematoma/seroma, three cases of transient recurrent laryngeal nerve (RLN) palsy and three cases of transient hypoparathyroidism were found. No complication was found in 49 patients (Table-VII).

**Table-VII:** Frequency distribution of patients as per postoperative complications (n=60)

Complication	Number	Percentage
Haematoma/Seroma	03	05
Wound Infection	01	1.67
Suture reaction	01	1.67
Transient RLN palsy	03	05
Persistent RLN palsy	00	00
Transient hypoparathyroidism	03	05
Persistent hypoparathyroidism	00	00
<b>Total</b>	<b>11</b>	<b>18.34</b>

### Discussion

Patient's morbidity increases dramatically after thyroid surgery with drain tube in situ and the complications are pain, immobility, tension hematoma, seroma, recurrent laryngeal nerve palsy and wound infection. It was common practice for most of the surgeons to routinely insert a suction drain after of thyroid surgery, whether it is total thyroidectomy, hemithyroidectomy or lobectomy<sup>4</sup>. This was done mainly for prevention of postoperative accumulation of bleeding or seroma which can compress the trachea<sup>4</sup>.

This study result showed 03(5%) patients developed hematoma/seroma. A similar study done by Herranz J et al showed that postoperative hematoma or seroma after thyroid surgery was 0.8-2%<sup>4,5</sup>. This study is higher and not consistent with that study and might be due to sampling size. The probability of a postoperative hematoma forming ranges between 0.1-4.7%<sup>5</sup>. Many studies showed that if the correct surgical technique and proper haemostatic procedures were followed, excessive postoperative bleeding and hematoma formation can be avoided<sup>6</sup>. Two large studies of 250 patients have also found that the use of drains after thyroid surgery produces no benefits<sup>7</sup>. There was no fluid collection in the thyroid bed on USG but it was present in the suction drain. This may be caused by the drain itself, due to inflammation caused by drainage tube. Drainage tube may actually increase the wound drainage<sup>8</sup>.

In this study, pain scored recorded by VAS was 5-7 in 5 cases after thyroid surgery. A similar study done by Schoretsanitis G et al also found that the VAS score was 4-6 in 4 cases and almost similar to this study. There was a relationship between drain insertion and postoperative pain and an approximate 40-55% pain reduction were noted without using drain<sup>9</sup>. These results indicate that drain insertion is associated with higher levels of postoperative discomfort and morbidity due to increased pain.

It has been found in this study that average hospital stay was three days or less. A study done by Morrissey et al demonstrated that thyroid surgery without the use of a drain decrease hospital stay by 3-4 days and producing early mobility<sup>10</sup>.

Among 60 patients, post operative complications were found in 11(18.34%) patients. Another similar study done by Devecu U et al<sup>11</sup> showed postoperative complication 11% which is lower than this study. In this study, wound infection and suture material reaction were found in 02(3.34%) cases whereas Costen M et al<sup>12</sup> study found 2% cases of wound infection might be due to Dhaka based civil and government hospital.

Among 60 patients, postoperative transient RLN palsy occurred in 3(5%) patients where study done by Abboud B et al<sup>13</sup> found that 3% cases developed transient RLN palsy. RLN Palsy rate with drainage tube in-situ is 8-10%. Drainage after thyroid surgery does not decrease the rate of postoperative RLN palsy.

In this study, transient hypoparathyroidism was found in 3(5%) patients. This result is consistent with the result (5%) of studies done by Kennedy SA et al<sup>14,15</sup>. Li L et al showed that the insertion of the drain after thyroid surgery increases the risk of postoperative complication<sup>16</sup>. A study done by Shaha AR et al found that insertion of drain tube after thyroid surgery increases the risk of hypocalcaemia<sup>17</sup>.

The result of this study might not reflect the data of general population of Bangladesh because of the small sample size and the cases were selected from hospitals located at Dhaka.

### Conclusion

The use of drain tube after thyroid surgery is widely practiced. Routine drain tube placement after thyroid surgery is not essential nor is it effective in reducing the rate of wound infection and postoperative complications. Meticulous homeostasis, good surgical skill and proper technique during surgery are more important for good surgical outcome and less postoperative complications. Thyroid surgery without the drain tube reduces hospital stay, decrease patient morbidity and reduce postoperative complications. Hence, it was observed that the use of drain tubes does not improve patient outcome. Thyroid surgery can thus be done safely without the routine use of drain tubes with reduced morbidities and increase patient's comfort.

## References

1. Bergqvist D, Källero S. Reoperation for postoperative haemorrhagic complications. Analysis of a 10-year series. *Acta Chir Scand* 1985; 151(1):17-22.
2. Hurtado-Lopez LM, Lopez-Romero S, Rizzo-Fuentes C et al. Selective use of drains in thyroid surgery. *Head & Neck* 2001; 23(3):189-93.
3. Suslu N, Vural S, Oncel M et al. Is the insertion of drains after uncomplicated thyroid surgery always necessary? *Surgery Today* 2006; 36(3):215-18.
4. Khanna J, Mohli RS, Chintamani et al. "Is the routine drainage after surgery for thyroid necessary? A prospective randomized clinical study". *BMC Surgery* 2005; Vol 5, Article 11.
5. Herranz J and Latorre J. Drainage in thyroid and parathyroid surgery. *Acta Otorhinolaringologica Espanola* 2007; 58(1):7-9.
6. Ariyanayagam DG, Naraynsingh V, Busby D et al. Thyroid surgery without drainage: 15 years of clinical experience. *Journal of the Royal College of Surgeons of Edinburgh* 1993; 38(2):69-70.
7. Derby C, Renou G, Fringerhut A, Drainage after thyroid surgery: A prospective randomized Study. *Journal of Laryngology and Otology* 1999; 113(1):49-51.
8. Kristoffersson A, Sandzen B and Jarhult J. Drainage in uncomplicated thyroid and parathyroid surgery. *British Journal of Surgery* 1986; 73(2):121-2.
9. Schoretsanitis G, Melissas J, Sanidas E et al. Does draining the neck affect morbidity following thyroid surgery. *American Surgeon* 1998; 64(8):778-80.
10. Morrissey AT, Chau J, Unker WK et al. Comparison of drain versus no drain thyroidectomy: Randomized prospective clinical trial. *Journal of Otolaryngology* 2008; 37(1):43-7.
11. Deveco U, Altintoprak F, Kapakli MS et al. Is the use of a drain for thyroid surgery Realistic? a prospective randomized interventional study. *Journal of thyroid research* 2013; ID285768, 5 pages.
12. Corsten M, Johnson S and Alberabi A. Is suction drainage an effective means of preventing hematoma in thyroid surgery? A meta-analysis. *Journal of Otolaryngology* 2005; 34(6):415-7.
13. Abboud B, Sleilaty H, Rizk H et al. Safety of thyroidectomy and cervical neck dissection without drains. *Can J surge* 2012; 55(3):199-203.
14. Shaha Ar, Jaffe BM. Selective use of drains in thyroid surgery. *J Surg Oncology* 1993; 52(4):241-3.
15. Kennedy SA, Irvine RA, Westerberg BD et al. Prophylactic drainage and bleeding complication in thyroid surgery. *J Otolaryngol Head neck Surge* 2008; 37(6):768-73.
16. Li L, Chen H, Tao H et al. The effect of no drainage in patients who underwent thyroidectomy with neck dissection. *Medicine (Baltimore)* 2017; 96(50): e9052.
17. Shaha AR and Jaffe BM. Practical management of post-thyroidectomy hematoma. *J Surg Oncol* 1994; 57(4):235-8.