THYROIDECTOMIES: TO DRAIN OR NOT TO DRAIN?Kemparaj T¹, Mohammed Shahid Ali², Janakirama S. J³, S. I. S. Khadri⁴**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: BACKGROUND: Many authorities advocate draining the neck routinely after thyroid and parathyroid surgery. The main reason proposed for drainage is to avoid wound hematoma and seroma and, therefore, prevent the resulting airway compression and obstruction. Furthermore, a possible relationship between drain insertion and infective complications has been observed in some studies. The need for use of drains in thyroid surgery has been debated for the past two decades. **AIMS & OBJECTIVES:** 1) To know drains avoid postoperative hematoma and the resulting airways embarrassment. 2) To evaluate complications associated with non-placement of drains after thyroidectomies. 3) This study aims to determine the feasibility and safety of thyroidectomy without drains, and to compare these with the existing literature. **MATERIALS & METHODS:** This is a prospective study. Patients undergoing thyroidectomies for various causes from September 2010 to September 2014 under Surgical 1st Unit of Bowring and Lady Curzon Hospital (affiliated to Bangalore medical college and research institute) were included in the study. Drains were not used following thyroidectomies during this period. Ultrasonography was done on the second and twelfth post-operative day to know the amount of collection in the thyroid bed. Data relating to duration of surgery, postoperative bleeding, airways embarrassment, wound infection and length of hospital stay was collected using a standard form. **RESULTS:** A total of 60 procedures were performed. Patients ranged from 17 years to 68 years old. 56 cases were hemithyroidectomies with two subtotal thyroidectomies and two total thyroidectomies with central neck lymph node dissection. Ultrasonography on second post-operative day showed collection in resected thyroid bed ranging from no collection to a maximal of 8cc. Twelfth post-operative day ultrasonography showed no collection in all patients, with no wound infection or seroma formation. **CONCLUSION:** Drains need not be routinely used following thyroidectomies. Meticulous intraoperative hemostasis is more than sufficient to prevent postoperative hematoma, causing airway obstruction, or a seroma formation. Our study shows that thyroidectomies can be performed safely without using drains.

KEYWORDS: Thyroidectomy, postoperative hematoma, drain.

INTRODUCTION: Many authorities advocate draining the neck routinely after thyroid and parathyroid surgery and, although several studies have failed to show any benefit from neck drainage, many surgeons still use neck drains routinely. The main reason proposed for drainage is to avoid wound hematoma and seroma and, therefore, prevent the resulting airway compression and obstruction.

Although the rate of bleeding might increase in a subtotal thyroidectomy due to vascularized remnant tissue, postoperative bleeding is actually quite rare and occurs in only 0.3–1% of patients after a thyroidectomy.^{1,2} Furthermore, a possible relationship between drain insertion and infective complications has been observed in some studies.^{1,3,4} The need for use of drains in thyroid surgery has been debated for the past two decades.⁴

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AIMS AND OBJECTIVES:

1. To know drains avoid postoperative hematoma and the resulting airways embarrassment.
2. To evaluate complications associated with non-placement of drains after thyroidectomies.
3. This study aims to determine the feasibility and safety of thyroidectomy without drains, and to compare these with the existing literature.

PATIENTS AND METHODS: This is a prospective study. Patients undergoing thyroidectomies for various causes from September 2010 to September 2014 under Surgical 1st Unit of Bowring and Lady Curzon Hospital (Affiliated to Bangalore medical college and research institute) were included in the study. Drains were not used following thyroidectomies during this period.

Ultrasonography was done on the second post-operative day to know the amount of collection in the thyroid bed. Repeat ultrasound was done on twelfth post-operative day.

Data relating to duration of surgery, postoperative bleeding, airways embarrassment, wound infection and length of hospital stay was collected using a standard form. Patients with large dead spaces, bleeding disorders were excluded from the study.

RESULTS: A total of 60 procedures were performed without drain, mostly hemithyroidectomies [56] with two subtotal thyroidectomies and two total thyroidectomies with central neck lymph node dissection.

55(91.6%) of them were females and 5(8.3%) were a male patient. Patients ranged from 17 years to 68 years old (mean age 36 years). Average size of gland resected was 4.7x3.33x2.1 cm.

Ultrasonography on second post-operative day showed collection in resected thyroid bed ranging from no collection to a maximal of 8cc. Twelfth post-operative day ultrasonography showed no collection in all patients.

DISCUSSION; Drains after thyroidectomy have traditionally been used in many centres worldwide despite lack of evidence to suggest any benefit.^{5,6,7} Major complications in thyroid and parathyroid surgery are related to injury of the recurrent laryngeal nerve, hypoparathyroidism and problems related to wound complications.

It has been a common practice to drain wounds routinely after thyroid and parathyroid surgery. However, the frequency of serious postoperative haematoma is very low in neck surgery performed by experienced surgeons and does not seem to increase in the absence of drains.

Most of these studies have suggested that routine use of drains after thyroid surgery is unnecessary and contribute to the discomfort of the patients, increase the rate of surgical wound infections, prolong the length of the hospital stay and thereby increase the cost, and deteriorate the cosmetic result.^{5,6,7} This study has not encountered any serious complication with the no drain technique.

REVIEW OF LITERATURE: No literature strictly recommends about the routine use of drains following thyroidectomies. Most surgeons however routinely use drains in order to prevent post-operative wound hematoma and seroma formation. Many studies have shown beyond doubt that routine use of drains following thyroidectomies is not necessary. Most notable studies are mentioned here.

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		Bleeding	Airway compromise	Infection	Re Operation
R C S "99 (606) *	Drain (314)	8	3	6	5
	No Drain (283)	1	0	0	0
Cochrane †	Drain (748)	10	2	5	11
	No Drain (688)	0	0	0	4
JZUS(120) ‡	Drain	1	0	2	0
	No Drain	1	0	0	0
Our study	No Drain	0	0	0	0

Table 1: Comparison of our study with other similar studies

* R C S "99 - Drains for thyroidectomy/parathyroidectomy: fact or fiction? Published in Annals of Royal College of Surgeons of England 1999; 81: 302-305 by MA Tabaqchali, JM Hanson, G Proud.

† COCHRANE: Wound drains following thyroid surgery; cochrane wounds group; Kumarakrishnan Samraj, Kurinchi Selvan Gurusamy. Published Oct 2008.

‡ JZUS: Drainage after total thyroidectomy or lobectomy for benign thyroidal disorders. Published in Journal of Zhejiang Univ Sci B, 2008 April; 9 (4): 319 – 323 by Tahsin Colak et al.

In our study we found no incidences of airway embarrassment caused by hematoma, no incidences of wound infections and seroma. Patients were discharged on second postoperative day. Only small amount of collections were found on second postoperative day, maximum being 8cc.. This small amount of collection also gets absorbed by twelfth postoperative day.

Meticulous hemostasis maintained intra operatively was more than sufficient to prevent major complications precluding the need for using a drain.

None of these patients required re-exploration for hematoma causing airway obstruction. All patients were discharged from hospital on second postoperative day. None of these patients had wound infection or seroma formation. Only one patient, with papillary carcinoma, had right sided vocal cord paresis, which had improved by twelfth postoperative day.

CONCLUSION: Drains need not be routinely used following thyroidectomies. Meticulous intraoperative hemostasis is more than sufficient to prevent postoperative hematoma, causing airway obstruction, or a seroma formation. Our study shows that thyroidectomies can be performed safely without using drains.

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REFERENCES:

1. Colak T, T. Akca, O. Turkmenoglu et al., "Drainage after total thyroidectomy or lobectomy for benign thyroidal disorders," Journal of Zhejiang University: Science B. 2008; 9(4):319–323.
2. Bergqvist D. and Kallero S. "Reoperation for postoperative haemorrhagic complications. Analysis of a 10-year series," Acta Chirurgica Scandinavica, 1985; 151(1):17–22.
3. Ariyanayagam D. G, Narayansingh V, Busby D, Sieunarine K, Raju G, and Jankey N. "Thyroid surgery without drainage: 15 years of clinical experience, " Journal of the Royal College of Surgeons of Edinburgh, 1993; 38(2):69–70.
4. Kristoffersson, B. Sandzen, and J. Jarhult, "Drainage in uncomplicated thyroid and parathyroid surgery," British Journal of Surgery, 1986; 73(2):121–122.
5. Hurtado-López LM, López-Romero S, Rizzo-Fuentes C, Zaldívar-Ramírez FR, Cervantes-Sánchez C. Selective use of drains in thyroid surgery. Head Neck. 2001; 23(3):189–193.
6. Suslu N, Vural S, Oncel M, Demirci B, Gezen FC, Tuzun B, Erginel T, Dalkilic G. Is the insertion of drains after uncomplicated thyroid surgery always necessary? Surg Today. 2006; 36 (3):215–218.
7. Khanna J, Mohil RS, Chintamani, Bhatnagar D, Mittal MK, Sahoo M, Mehrotra M. Is the routine drainage after surgery for thyroid necessary? A prospective randomized clinical study. BMC Surg. 2005; 5 (1): 11–13.

Sl. no.	Patient characteristics	
1.	Number of patients	N=60
2.	Mean age	36 years
3.	Gender (M:F ratio)	55/5 (11:1)
4.	Overall complication rate	5%(3/60)
5.	Re-operation rate	0%

Table 2: Patient characteristics

Chart 1: Age distribution

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Sl. No.	Type of surgery	Number (percentage)
1.	Hemithyroidectomy	56 (93.3%)
2.	Subtotal thyroidectomy	2 (3.3%)
3.	Total thyroidectomy with central lymph node dissection	2 (3.3%)

Table 3: Procedure

Chart 3: Histopathological types

Sl. No.	Complication	Percentage
1.	Hematoma	2(3.3%)
2.	Seroma	0(0%)
3.	Wound infection	0(0%)
4.	Suture reaction	
5.	Transient recurrent nerve Praxia	1(1.6%)
6.	Persistent recurrent nerve injury	0(0%)
7.	Transient hypoparathyroidism	0(0%)
8.	Persistent hypoparathyroidism	0(0%)

Table 3: Postoperative complications

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