



Post operative drains following thyroid surgeries

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Abstract

Background Drains were routinely used in thyroidectomies, for fear of hematomas in immediate post operative period. This is a retrospective, comparative clinical trial, conducted to evaluate the efficacy of routine use of drains after thyroidectomies. **Methods** In this randomized prospective study, a total of 100 patients who underwent thyroid surgeries irrespective of diagnosis, were randomly grouped in to Drained (group1) and non drained (group11) from June 2013 to August 2015 in our institution. Outcomes including operating time, postoperative pain, hospital stay, complications, necessity for re-operation and satisfaction of patients were all assessed. **Results** Both groups were homogenized in all aspects. There was no significant reduction in the operating time. The postoperative pain/discomfort was found to be significantly low assessed by visual analogue scale. Four cases of seroma were seen which were treated conservatively. No patient needed re-operation for any complication. The mean hospital stay was shorter and the satisfaction of patients was significant. ($P=0.112$). **Conclusion** Our findings suggest that post operative complications cannot be significantly prevented by routine use of drains. Further more, the use of drains may increase post operative pain subsequently analgesic requirement, surgical site infection and prolong the hospital stay. In light of these findings, the routine use of drains may be deemed not routinely necessary following thyroid surgeries except in certain justified conditions.

.Keywords Thyroidectomy Complications, rains, Postoperative pain, Seroma

Introduction

Thyroidectomy is one of the most commonly performed operative procedures in general surgery in our institution as we have some surrounding hilly rural areas. Until recently surgeons routinely used drains after thyroidectomy.^[1] The logic is to drain is to prevent possible postoperative hemorrhage, which may compress the air passages and produce respiratory embarrassment.^[2] Hemorrhage might be serious, and require immediate surgery to the dismay of patients. This apprehension led the use of drains following any thyroid surgeries. Many a times it could be due to blockage of drains with blood clots, and major bleeding may go unnoticed. The need for exploration following thyroidectomies due to hematoma varies between zero to 1.5 %². Respiratory distresses and wound hematoma is the two complications commonly encountered. Bergqvist and Kallero (1985) analyzed the re-operated cases for hemorrhage after thyroid surgery and they could not find any benefit of drainage.^[3] They also suggested that drains may block with clotted blood and do not serve the purpose even if major bleeding occurs. Few other studies have also failed to show any benefit of drainage in thyroid surgery^[4] (Hurtado-López et al., 2001; Suslu et al., 2006). On the other hand drains might increase the rate of surgical wound infections (Ariyanayagam et al., 1993;

Tabaqchali et al., 1999), contribute to the discomfort of the patients (Peix et al., 1992), prolong the length of the hospital stay and thereby increase the cost (Suslu et al., 2006), (since our patients are mostly rural agricultural labourers length of hospital always counts) and cosmetically disfiguring (Clark et al., 2002). Authors of many studies have also questioned the usefulness of routine drainage. Our study was designed to evaluate the advantages of non usage of drains routinely following Thyroidectomy.

Materials and methods

Patients and methods

Randomized double blinded prospective study between June 2013 and August 2015, a total of 100 patients undergoing total or hemi-thyroidectomy for thyroid disorders were enrolled in this study. The patients were randomized in to group 1 and 2. Patients with Graves' disease and malignant thyroid disorders were excluded. Both groups were balanced according to age sex type of surgeries done. Hospital ethical committee approved this study. Sample "t" test was used one both groups and statistical analysis of data done for differences in two groups (fluid collection, complications if any, and size of the gland, length of surgery, and need for re exploration) We preferred a slightly higher skin crease incision since we reckon control of superior pedicle is somewhat more difficult than the inferior. And we cut the strap muscles more liberally than usual. The operating time was recorded from the placement of skin incision to the last skin closing suture/clip. Visual analogue scale from 0 (no pain) to 10 (intolerable) was used to assess the outcome in the post operative period after six to eight hours. Oral acetaminophen alone or in combination with ibuprofen was used if the score was under 5 and intramuscular diclofenac or tramadol hydrochloride was used for scores more than 5. The quantity and the type of analgesic used for each patient were recorded. The patients were discharged once they were comfortable as assessed by their own words, usually between the 3rd and 6th POD.

Results

The average age of the patients studied was 36.54 years; male to female ratio was 1:4, both groups homogenized in all aspects. The drained group consisted of 40 females and 8 males. The non-drained group comprised of 14 men and 38 women with a mean age of 37 years. There was no significant difference in the gender, age, hormonal status and histopathological results of the patients between the two groups.

Table1

Amount of fluid	Drain Group		Non Drain Group	
	D1	D7	D1	D7
Minimum	0ml	0ml	0ml	0ml
Maximum	40ml	35 ml	19ml	12 ml
Total no of patients	48	48	52	52
Mean				
variance	T	DF	P	
Day 1	0.9	81.5	0.371	
Day 7	0.58	72.9	0.577	

Sample T tests for difference in mean done on Day 1 and 7

The mean operating time was similar in drained and non-drained min patients. The mean VAS score was significantly reduced more in the non-drained group than the drained group patients in POD 0 and a similar result was obtained in POD 1 when we compared with the drained. In addition, the mean amount of intramuscular analgesic requirement was significantly less in the non-drained group than in the drained group.

The complication rates were substantially lower in the non drained group. 4 cases of Seroma (8%) and 1 case of transient hypoparathyroidism (2%) and no case of wound infection occurred in the non-drained group. Whereas one case of hematoma (2%) two cases of seroma (4%) two cases of wound infections (4%) and two cases of transient hypoparathyroidism (4%) occurred in the drained group.

Table 2

Complication	Drain Group	Non Drain group
Seroma	2	4
Tetany	2	1
Hematoma	1	0
Infection	2	0

No patient needed surgical revision or re-operation for any complication and all complications were successfully managed conservatively. 13 patients were discharged in day 1, 16 patients in day 2 and 11 patients were discharged from day 3 to 5 in the non drained group, while none were discharged on day 1 or 2 in the drained group. Placement of drains does not give any advantage in the study conducted.

Discussion

Drains have been regularly used in our surgical clinics after thyroid surgery. The use of drains is based on traditions rather than scientific evidence and dependent on the surgeon's experiences and training^[6] (Defechereux et al., 1997). The main expectation for drains usage is to prevent postoperative complications to alert the surgeon to early postoperative bleeding (Wihlborg et al., 1988). Whilst drain usage might be omitted in non-complicated cases because drainage is very low and might be not necessary, or because adequate haemostasis can never be replaceable by using drains^[7] and in the case of incomplete drainage, seroma or hematoma would be the unavoidable conclusion (Karayacin et al., 1997; Peix et al., 1992; Ruark and Abdel-Misih, 1992). Or drains might be associated with possible infection (Ariyanayagam et al., 1993; Kristoffersson et al., 1986; Teboul et al., 1992).

greatly and postoperative morbidity and mortality rates have decreased significantly^[8]

Two large non randomized study of 250-400 patients have also recorded no advantage of keeping drain in thyroid surgeries^[8] Vacuum created by suction may prevent sealing of lymph resulting in seroma. Surgical techniques for benign thyroidal disorders have improved

Life-threatening complications, such as postoperative bleeding, hematoma, compression of air passages or suffocation, can be avoided in most patients (Colak et al., 2004; Müller et al., 2001). With the above arguments the routine usage of drains following thyroid surgeries has been questioned.^[9] Absence of fluid in thyroid bed post operatively on USG, but seen in suction drain may be due to the presence of drain only^[10]

Various randomized trials have failed to answer this question in its entirety^[11] Most of these studies revealed that drainage is unnecessary after routine thyroid surgery (Hurtado-López et al., 2001; Khanna et al., 2005). In our study, only the patients who underwent thyroid surgeries for benign disorders were included. Serious hemorrhage did not occur in any patient. But minimal hematoma was diagnosed in one patient in the drained group which was evacuated by removing the sutures. The drains were removed mostly after the second POD which deterred discharge of the patients until then. The pain and discomfort caused by the drain per se was clinically obvious which necessitates the use of prolonged analgesic administration in these drained groups. There was one case of wound infection in the drained group which we couldn't authentically say was due to the drains. On the other hand there were no such complications in the non drained group.

Conclusion

Our randomized prospective study concluded that routine use of drains in the patients undergoing thyroid surgeries may be deemed no more mandatory due to the fact that there was a significant reduction in the hospital stay, which is very important to us, because most our patients come from surrounding villages of relatively poor socioeconomic background and no significant benefit was observed in the prevention of Seroma or hematoma formation.

References

- [1]. MATabaqchali, JMHnanson et al Drains for thyroidectomy /parathyroidectomy: fact or fiction. Ann.R.Coll Surg Engl 1999; 81:302-305
- [2]. Pederson WC, Johnson CL, et al Operative management of thyroid disease. Technical considerations in residency training program Am J Surg 1984;148:350-2
- [3]. Teboul F, Peix JL, Guibaud L, Massard JL, Ecochard R. Prophylactic drainage after thyroidectomy: a randomized trial Ann Chir. 1992; 46(10):902–904

[4] Tashin Colaket al., JZhejiang Univ Sci B. 2008 Apr; 9(4):319-323. Doi: 10/1631/jzus.B0720257.

[5] 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 [ISRCTN63623153] BMC Surg. 2005;5(1):11–13.

[6] Defechereux T, Hamoir E, Nguyen Dang D, Meurisse M. Drainage in thyroid surgery. Is it always a must? Ann Chir. 1997; 51(6):647–652

[7] 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.

[8] Shaha AR, Jaffe BM: Selective use of drain in thyroid surgery. Journal of Surgical Oncology. 1993, 52: 241-243.

Shaha AR, Jaffe BM: Selective use of drain in thyroid surgery. Journal of Surgical Oncology. 1993, 52: 241-243.

[8] Jay K. Harnes M.D. et al Total thyroidectomy: complications and technique World J. Surg. 10, 781-786

[9] Ruark DS, et al., Thyroid and parathyroid surgery without drains. Head Neck. 1992;14(4):285-287. Doi: 10.1002/hed.2880140405.

[10] Wihlborg O, Berljung L, Matensson H: To drain or not to drain in thyroid surgery. A controlled clinical study, a controlled clinical study. Archives of surgery. 1988;123;40-41.

[11] Wihlborg O et al., To drain or not to drain in thyroid surgery. A controlled clinical study. Arch Surg. 1988;123 (1):40-41.