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Thyroid surgery complication comparison with or without drains application

Mehdi Asgari[1⋆], Abdolhadi Jahanshahi[2], Amin Madani[3]

1-Assistant Professor of Surgery, Department of Surgery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
2-Assistant Professor of Surgery, Imam Khomeini Hospital- Ahvaz, Iran.
3-Resident of General Surgery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

⋆*Corresponding author:*
Mehdi Asgari; Department of Surgery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
Tel: 09161110864
Email: asgarime@ajuma.ac.ir

Abstract

Background: Despite numerous reports that it is not necessary to use drains after thyroidectomy, the drains are still used routinely. The study aim to compare thyroid surgery complications with and without drains appliance.

Materials and methods: A prospective study was conducted, 66 patients who were candidate for thyroid surgery (total- subtotal thyroidectomy and thyroid lobectomy) divided into 2 groups. Each group was randomized into "drain" and "non drain" subgroup. Some indicators were investigated such as primary thyroid size, fluid collection in thyroid bed (early and late), hospital stay, change in voice, dysphagia, wound infection, hematoma, seroma, and change in plasma calcium level. Statistical analyses were performed using chi-square test and Student's T test.

Results: Duration of hospitalization in the patients without drains and received drain group were 2.3 and 3 days, respectively ($p<0.02$) There was not a significant difference between two groups ($p>0.05$) of fluid collection in thyroid bed and the incidence of other complications after surgery

Conclusion: Routine use drains usage after thyroid surgery may not be necessary. However thyroidectomy without drains may be safe and effective method.

Keywords: thyroid surgery, drain, complications

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Introduction

Thyroidectomy is one of the most common surgical procedures in general surgery(1). Major complications of thyroid and parathyroid surgery include: Injury to the recurrent laryngeal nerve or external branch of superior laryngeal nerve, hypoparathyroidism and wound complications. Many surgeons routinely perform neck drains because they believe that a drain in the thyroid bed acts as a ‘‘early indicator” of significant postoperative hemorrhage and obliterates the dead space and evacuates collected blood and serum, while numerous studies have failed to show any benefit from neck drainage (3, 4).

In contrast, blood and serum that they are supposed to drain usually block drains. They add the patients discomfort, deteriorating the cosmetic result and increasing hospital stay (5). The need for use of drains in thyroid surgery has been debated after various types of surgeries with much larger potential dead spaces like cholecystectomy and anastomosis of colon. (6,7). The study aim to compare thyroid surgery complications with and without drains appliance.

Materials and methods

After ethical approval, a prospective randomised clinical trial was conducted in the surgical wards of Razi and Imam Khomeini Hospirals of Ahvaz. All patients who underwent thyroidectomy between April 2011 and July 2012 were contributed for the study. Patients who underwent thyroidectomy with neck dissection and parathyroidectomy were excluded from the study. The patients were randomly allocated into 2 groups: total- subtotal thyroidectomy and thyroid lobectomy. Each group was randomized into "drain" and "non drain" branches. Informed consent was taken from all patients before initiating the study.

Study variables were designed as followed; primary thyroid size, fluid collection in thyroid bed (Early and late), hospital stay, change in voice, dysphagia, wound infection, haematoma, seroma and change in plasma calcium level.

Early fluid collection in thyroid bed defined as fluid accumulates in the thyroid bed during the hospital stay and late fluid collection in thyroid bed include fluid accumulation in the thyroid bed after discharge or during outpatient visits to two months after surgery.

Statistical analyses were performed using chi-square test and Student’s T test. Statistical significance was set at p-value of less than 0.05.

Results

A total of 66 patients (male:7, female:59) contributed to the study . a number of 41 patients were placed in the drain group and 25 patients in the group without drains. The average age of patients was 42±12 years (Table 1). As the table 2 shows the difference in primary thyroid size between the two groups was not significant. Comparison of early fluid collection in thyroid bed between the two groups showed no statistically significant difference (p=0.86). In each group, two patients had late fluid collection in thyroid bed, however, no significant difference was observed between the two groups (p= 0.6). The average hospital stay in the group without drains was 2.3 while in drain recipients it was documented for 3 days. This difference was statistically significant (p< 0.02). As can be seen in the table n other variables, two groups were not significantly different (Table 2).

None of the patients in both groups were complicated by wound infection and

dyspnea. Furthermore, in patients who require surgical drainage no case of postoperative haematoma and seroma have been observed.

Table 1: Patient characteristics

Patient Characteristics	With drain	Without drain	P Value
Number of patients	41	25	
Mean age(years)	43.2±12.4	40.5±12.9	0.39
Gender (M:F Ratio)	2.23 1:11.5	5.36 1:7.2	0.46
Total- subtotal thyroidectomy	31(75.6%)	14(56%)	0.83
Thyroid lobectomy	10(24.4%)	11(44%)	

Table 2: The postoperative complications

	Calcium changes	Dysphasia		Change in voice		Late collection		Early collection		primary thyroid size			Hospital stay
		no	Yes	No	yes	no	yes	no	yes	large	average	small	
With drain	8.7±0.83	38 (92.7%)	3 (7.3%)	39 (95.1%)	2 (4.9%)	39 (95.1%)	2 (4.9%)	39 (95.1%)	2 (4.9%)	6 (14.6%)	23 (56.1%)	12 (29.3%)	3±0.6
Without drain	8.9±0.98	23 (92%)	2 (8%)	23 (92%)	2 (8%)	23 (92%)	2 (8%)	24 (96%)	1 (4%)	8 (32%)	12 (48%)	5 (20%)	2.3±1.2
	8.9±0.93	61 (92.4%)	5 (7.6%)	62 (93.9%)	4 (6.1%)	62 (93.9%)	4 (6.1%)	63 (95.5%)	3 (4.5%)	14 (21.2%)	35 (53%)	17 (25.8%)	2.7±0.9

Discussion

Despite lack of evidence to suggest any benefit of drains usage they are still routinely used in most surgical clinics after thyroid surgery (3,8). Seung *et al*. reported that thyroidectomy without drains is safe and causes in reduction of hospital stay length , Hence led to a reduction in costs for the patients (9). This study have shown no statistically significant difference in the fluid collection in thyroid bed (early and late), hospital stay period, change in voice, dysphagia, wound infection, haematoma, seroma and change in plasma calcium level between the two groups.In Nayeri *et al*.study, accumulation of fluid in the thyroid bed on the first day and second day in the thyroid bed was measured by ultrasound. Fluid Accumulation was significantly higher than the drain none recipient group; however, this clinical effect was not significant in the course of disease (10). Khanna *et al.* reported drain encourages formation rather than preventing fluid collection because it is a foreign body (4). Arriyanayagam *et al* and Shaha *et al* who carried out two extensive study, reported no benefit of using drains after thyroid surgery (11, 12). The present study showed that routine drain placement after thyroidectomy is not justified, therefore it was suggested that " no-drain" method is safe and effective.

References

1-Filho JG, Kowalski LP. Postoperative complications of thyroidectomy for differentiated thyroid carcinoma. Am J Otolaryngol 2004;25(4):225–30.

2-Bergenfelz A, Jansson S, Kristoffersson A, Mårtensson H, Reihnér E, Wallin G, et al. Complications to thyroid surgery: results as reported in a database from a multicenter audit comprising 3,660 patients. Langenbecks Arch Surg 2008;393(5):667-73.

3-Suslu N, Vural S, Oncel M, Demirca B, Gezen FC, Tuzun B, et al. Is the insertion of drains after uncomplicated thyroid surgery always necessary? Surg Today 2006;36(3):215-8.
4-Khanna J, Mohil RS, Chintamani , Bhatnagar D, Mittal MK, Sahoo M, et al. Is the routine drainage after surgery for thyroid necessary? A prospective randomized clinical study. BMC Surg 2005;5(1):11–13.
5-Samraj K, Gurusamy KS. Wound drains following thyroid surgery. Cochrane Database Syst Rev 2007;(4):CD006099.
6-Lewis RT, Goodall RG, Marien B, Park M, Llyod-Smith W, Weigand FM. Simple elective cholecystectomy: to drain or not. Am J Surg 1990;159(2):241-5.
7-Lee SW, Choi EC, Lee YM, Lee JY, Kim SC, Koh YW. Is lack of placement of drains after thyroidectomy with central neck dissection safe? A prospective, randomized study. Laryngoscope 2006;116(9):1632-5.
8-Wihlborg O, Bergljung L, Martensson H. To drain or not to drain in thyroid surgery. A controlled clinical study. Arch Surg 1988;123(1):40-1.
9-Lee SW, Choi EC, Lee YM, Lee JY, Kim SC, Koh YW. Is lack of placement of drains after thyroidectomy with central neck dissection safe? A prospective, randomized study. Laryngoscope 2006;116(9):1632–5.
10-Neary PM, O'Connor OJ, Shafiq A, Quinn EM, Kelly JJ, Juliette B, et al. The impact of routine open nonsuction drainage on fluid accumulation after thyroid surgery: a prospective randomised clinical trial. World J Surg Oncol 2012;10(1):72.
11-Shaha AR, Jaffe BM. Selective use of drains in thyroid surgery. J Surg Oncol 1993;52(4):241-3.
12-Ariyanayagam DC, Narayansingh V, Busby D, Sieunarine K, Raju G, Jankey N. Thyroid surgery without drainage: 15 years of clinical experience. J R Coll Surg Edinb 1993;38(2):69-70.