Original Article

Are Drains Really Required in Thyroid Surgery

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Abstract

Background: Traditional use of drain in thyroid surgeries was to avoid any possible hematoma. The aim of the present study was to prospectively determine whether the use of the drain in thyroid surgery really helps the patient or it just adds morbidity to patients' post operative recovery phase. **Patients & Methods**: 132 patients who underwent total thyroidectomy without drain placement for benign conditions of thyroid were evaluated for outcome in terms of in hospital stay, wound infection, hematoma formation and re-exploration owing to untoward bleed. The study was conducted for 42 months with one month followup period. Results were compared with the control group from hospital records during the same study period. **Results**: Hematoma developed in 4 (3%) patients, infection in 2 (1.5%), hypocalcemia in 28 (21%) and recurrent laryngeal nerve (RLN) palsy 01(.75%) patients. There was no re-exploration for hematoma nor any in hospital mortality. In hospital stay was 1.8 days on average. **Conclusion:** Use of drain in thyroid surgery has no added benefit in terms of patient outcome rather it may increase the cost of treatment, patient's morbidity and hospital stay. **Key Words:** Total Thyroidectomy, Suction drain, no drainage, lobectomy, postoperative bleeding.

INTRODUCTION

Drains are traditionally used after thyroidectomy to drain off any possible postoperative hematoma which may compress the air passages and produce airway obstruction. Large hematoma might be life threatening and require immediate re-exploration. This fear prompts the surgeon to use drains after any type of thyroid surgery [1]. Thyroid surgeries, owing to extensive blood supply have to be performed carefully to minimize blood loss, obviating the need for routine drainage [2]. Although the incidence of bleeding might increase in subtotal thyroidectomy due to residual vascularised tissue [1]. Numerous studies have also failed to show any benefit of drainage in thyroid surgery [2,3]. In fact, postoperative bleeding has been reported as rare as 0.3% - 1% after thyroidectomy [1]. Several minor complications resulting from thyroid surgery are however possible. A post operative seroma may form; this may be observed and allowed to resorb. Large seroma, however, may need aspiration under sterile conditions [3]. Routine drainage has not shown any advantage rather there are some disadvantages due to it. It is associated with an increase in the operating time by about an average of five minutes and requires a separate stab wound of irregular shape in a visible area of the lower neck or upper chest [3,4]. Drainage also increases hospital stay thereby increasing the cost, Drains might increase the rate of surgical wound infections [2] and contribute to the discomfort of the patients. Drains may block with clotted blood and do not alert the surgeon, even if major bleeding occurs [1].

As the reports questioning the role of routine drainage in thyroid surgery appeared in the literature and our experience improved, practice of drain placement is changed from almost routine in every case to a very few selected ones in which there is unusual ooze or surgeon is dissatisfied with hemostasis [2].

OBJECTIVE

To evaluate the need of postoperative drainage in patients undergoing thyroid surgery and to compare the benefits of not draining the surgical bed.

PATIENTS AND METHODS

A prospective comparative trial was conducted from July 2004 to April 2008 in surgery department of Jinnah hospital, Lahore, Pakistan. A total of 132 consecutive patients undergoing total Thyroidectomy for benign thyroid disorders were enrolled. After approval by the institutional Ethical Committee at Jinnah Hospital, Lahore, informed consent was obtained from all patients after explaining the risk benefit ratio of the study. Our sample included 119 females & 13 males. The indications for surgery were compression symptoms, hyperthyroidism, grave's disease, thyroiditis, cosmesis or a multinodular goiter. All operations were performed through a low collar incision without dividing the strap muscles. Hemostasis was secured using monopolar diathermy probe. Wound was closed without any drain. Patient was followed up in the hospital with a follow up ultrasound neck for seroma and wound examination on 7^{th} day for wound infection. Patients having previous history of irradiation to neck, uncoltrolled thyrotoxicosis and large thyroid glands with size more than 6 cm for each lobe were excluded from the study.

RESULTS

The average age of patients was 31 years (range 11 to 65 years). Male to female ratio was 1: 6. Average duration of hospital stay was 1.8 days for non-drain group as compared to 3.7 days in the historical group (Control).

Complications were observed in the present study as shown in Table no 2. Of the six patients who developed collection, four were from test group and two from control (historical group). None of the patients required reoperation for hematoma. Two Patients from test group got wound infection which was confirmed on culture and sensitivity. None of the patients had hematoma large enough mandating re-exploration. Forty nine patients developed transient tetany of which 28 were from test group and 21 from historical group. There was no significant difference in the number of patients developing change in voice or recurrent laryngeal nerve palsy. The patients in control group were discharged later than the test group (Figure-1); average number of stay lower for group without drain.

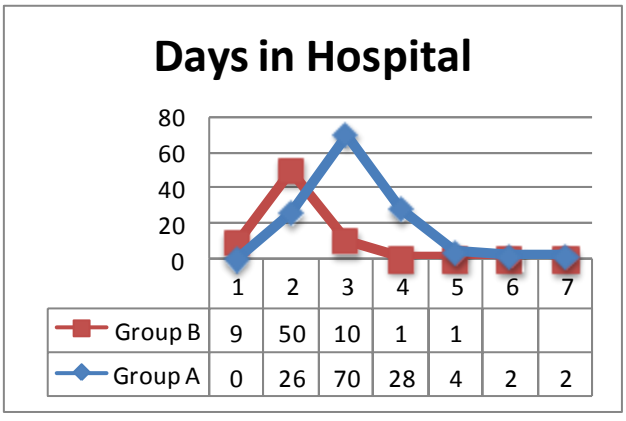
Table-1
Patient Demographics

	Historical Group (Drain)	Test Group (no Drain)
Total number	76	132
Males	17	13
Females	59	119
Age	11 - 65 years	13 - 65 years
Surgical procedure:		
Average time of removal of drain	2.1±1.4 days	Not applicable
Days in hospital	3.4 ± 1.1 days	1.5 ± 1.2 days
Hospital stay (Range)	2– 5 days	1-4 days

Table-2
Postoperative Complications

	Test Group (no Drain)	Historical Group (Drain)
Hematoma	04 (3%)	02 (2.63)
Surgical site infection	02 (1.5%)	00 (0%)
Infected Haematoma	01 (0.75%)	01 (1.37%)
Seroma	09 (6.81%)	05 (6.5%)
Re-exploration	00	00
Hypocalcemia	28 (21.2%)	21 (27.6%)
RLN Palsy	01 (0.75%)	01 (1.37)

Figure-1



DISCUSSION

Drains are still routinely used in most surgical clinics after thyroid surgery. However, use of drains is based on tradition rather than evidence and dependent on the surgeon's experience and training. Traditionally, the main expectation for drains usage is to prevent postoperative complications by evacuating postoperative hematoma or lymphatic fluid and to alert the surgeon to early postoperative bleeding [1].

In addition, surgical techniques for benign thyroidal disorders have improved greatly over the past several years and post operative morbidity and mortality rates have further decreased. Life threatening complications, such as post operative bleeding, hematoma, compression of air passages or suffocation, can be avoided in most patients (1,2,3,5). Until today, numerous randomized trials have failed to resolve this question. Most of these studies revealed that drainage is unnecessary after routine thyroid surgery (1--8). In the present study, only the patients who underwent total thyroidectomy or lobectomy for benign thyroidal disorders were investigated (1-8). In this study the complication rates were comparable with the literature(1-10).

In a study there was no statistically significant difference between the rates of post thyroidectomy hematoma whether or not suctions drains were used which matches with similar studies elsewhere (3-5, 11). Drains after thyroidectomy can be avoided in most of the cases and should be used sparingly when indicated [12]. In a large meta-analysis of eight series from 1980 till 2005 consisting of 944 patients, there was a statistically significant difference between the rates of post-thyroidectomy haematoma whether or not suction drains were used [8].In one more study there was no significant difference in the fluid collection at the thyroid bed as assessed by USG on day 1 and day7. In the group without drain the hospital stay was significantly reduced in the non drain group [9]. The findings of another study suggest that the routine use of drains may be abandoned in uncomplicated thyroid surgery cases, because their use not only prolongs the hospital stay, but they also increase risk of infection [11]. Two more recent meta-analysis showed no beneficial effect of routine drain use on postoperative complication rate [13,14]. Prospective randomized trials could not demonstrate any advantage of prophylactic routine drainage after thyroid surgery (7). Furthermore, it has been reported that drainage caused a longer hospital stay [9] which could increase the incidence of infective complications. Our findings are in accordance with the previous studies. Most of the patients complicated with postoperative hemorrhage and wound infection were in the drained group [11].

Arguments against routine usage of drain include increasing risk of postoperative infection [6,7] increasing cosmetic deficit with increasing scarring and prolonged hospital admission [6,7] . This randomized prospective trial study provides evidence that not only are routine surgical drains unnecessary in thyroid surgery, they also prolong in patient hospital stay and proponents for drain use often argument that patients can be discharged with their drain. Most patients deny this option or it was not feasible owing to geographic distance from the hospital. Currently, most patients are discharged home post-thyroid surgery in less than 48 hours. Short stay thyroid surgery has become routine in many centers and is usually defined by the American Insurance Industry as discharge less than or equal to 23 hours > from the operation. LoGerfo is routinely discharging patients < 8 hours. Average length of stay was 0.85 days (about 21 hours) in no drain group and 2 days in drain group (15).

CONCLUSION

This randomized study showed that drains are of no proven benefit in preventing complications rather they lead to extra scar, may increase the hospital stay and discomfort to the patient. However meticulous hemostasis and attention to finer details during surgery are more important. Routine use of drains after thyroid surgery may therefore not be necessary.

DISCLOSURES

Competing interests: None.
Sponsorships: None.

AUTHOR CONTRIBUTION

Muhammad Faheem Anwar is responsible for designing the study, was a part of the team which undertook all these surgeries and was responsible to collect all the data for these patients and their followup. Muhammad Zakir Sial helped with initial draft of study,supervising all surgeries and later for final reading and provided with resources to gain access to full text article required for review.

Ahmad Uzair Qureshi is responsible for literature search, writing the draft of manuscript and data interpretation.

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