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Evaluation of Thyroidectomy without Drains in a Tertiary Care Hospital in Bangladesh

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Abstract **Original Research Article**

Background: Thyroidectomy, the surgical removal of the thyroid gland, is a common intervention for various thyroid disorders. Negative suction drainage tubes are conventionally employed in thyroid surgeries to prevent complications, although their usage often results in postoperative discomfort, pain, delayed recovery, prolonged hospitalization, and aesthetic concerns. ***Aim of the study:*** This study aimed to evaluate the feasibility and outcomes of thyroidectomy without the use of drainage tubes in a tertiary care hospital in Bangladesh. ***Methods:*** This cross-sectional observational study was conducted at the Otolaryngology and Head-Neck Surgery departments of Kurmitola General Hospital, Dhaka Cantonment, and Azmol and Life Aid General Hospital, Dhaka, Bangladesh. The study took place between September 2015 and May 2017 and included 60 patients who underwent total thyroidectomy or hemithyroidectomy for thyroid disorders without drainage tubes. Purposive sampling was employed for participant selection, and data analysis was carried out using MS Office and SPSS version 20.0. ***Results:*** In our study, 83.34% had hemi-thyroidectomy and 16.66% total thyroidectomy. Brief hospital stays, high comfort, and discharge by the 3rd day were noted. Positive mobility: 40 of 60 walked in 14 hours. Mild post-operative pain (VAS), 3 patients scored 7; 2 reported 5 after 24 hours, requiring extra pain relief. Notably, 2 patients had 40ml blood, 1 had 50ml seroma; the majority (57) had <15ml blood/seroma. ***Conclusion:*** Omitting drain tubes in thyroid surgery reduces hospital stays, patient discomfort, and complications, indicating that their use doesn't enhance outcomes. So, thyroidectomy can be safely performed without the routine employment of drainage tubes.

Keywords: Thyroidectomy, Drains, VAS, Hematoma, Thyroid.

1. INTRODUCTION

The routine use of drainage after thyroidectomy arises from the past to decrease the risk of acute airway obstruction caused by hemorrhage or postoperative hematoma or seroma[1,2]. However, many difficulties have been reported by the use of drainages without any significant evidence of its advantages[3]. As a result, the use of drainages in thyroid surgery as a routine surgical practice, with no scientific evidence to support their benefits, has become controversial. To solve this controversy, some controlled trials[4,5] and two meta-analyses[6,7] have been performed. Those trials could not identify a statistical difference in the rates of neck hematomas/ seromas between groups using drains or not. The utilization of negative suction drainage tubes following neck surgery is often associated with discomfort and pain, leading many patients to express a desire to avoid this procedure after their surgery. In the context of thyroid surgery, many surgeons opt to employ drain tubes to minimize the accumulation of dead space and facilitate the drainage of accumulated blood and serum. This practice is supported by the observation that postoperative drains typically yield a greater volume of fluids. In certain cases, the occurrence of reactionary hemorrhage can pose a life-threatening situation, necessitating immediate wound exploration. Consequently, many surgeons adhere to the practice of employing routine drain tubes after thyroid surgery. Notably, the incidence of bleeding tends to increase in cases involving subtotal or near-total thyroidectomy due

to the presence of vascularized remnant tissue or the surgical treatment of toxic multinodular goiter. However, it's important to highlight that postoperative bleeding is relatively infrequent, manifesting in only 0.8-1% of patients following total thyroidectomy [8]. While concerns about clotting blood obstructing drainage tubes may arise, it's worth noting that even in the presence of profuse bleeding, surgeons may not be alerted by blocked drains[9]. In light of this, the introduction of drainage tubes does not appear to confer any advantageous outcomes in the context of thyroid surgery[10]. Therefore, the primary objective of this study was to assess the necessity of employing drainage tubes following thyroid surgery. The objective of this current study was to evaluate the method of thyroidectomy without drains in a tertiary care hospital in Bangladesh.

2. METHODOLOGY

This cross-sectional observational study was conducted within the Department of Otolaryngology and Head-Neck Surgery at both Kurmitola General Hospital, and Azmol & Life Aid General Hospital in Dhaka, Bangladesh. The study spanned from September 2015 to May 2017. A total of 60 patients who had undergone total thyroidectomy or hemithyroidectomy for thyroid disorders, specifically without the utilization of drainage tubes, were selected as the participants for this investigation. The selection of the sample was accomplished through purposive sampling techniques. Ethical clearance for the study was obtained from the respective hospital's ethical committee. Before the collection of data, all participants provided informed and properly written consent. The study's execution adhered to the principles outlined in the Helsinki Declaration[11] for human research and was conducted following the pertinent regulations, including compliance with the provisions of the General Data Protection Regulation (GDPR)[12]. Following the predefined exclusion criteria, individuals with a history of prior thyroid surgery, retrosternal goiter, malignant thyroid diseases necessitating neck dissection, undifferentiated thyroid cancer, and those undergoing anticoagulant therapy were excluded from the study. Comprehensive demographic and clinical information of all participants was meticulously documented. To facilitate data processing, analysis, and interpretation, software tools such as MS Excel and SPSS version 20.0 were employed as necessary.

3. RESULT

In this study, out of the total 60 participants, 83% were male and the remaining 17% were female, resulting in a male-female ratio of 5:1. Regarding marital status, approximately 78% of patients were married while the remaining 22% were unmarried. Among the participants, 83.34% underwent hemithyroidectomy and 16.66% underwent total thyroidectomy. Hospital stays were short, with 83% of patients discharged on the second postoperative day and the rest on the third day. Patient mobility was satisfactory, as 40 out of 60 individuals were able to ambulate within 14 hours. Pain, assessed using VAS, was generally low; only 3 patients had a VAS score of 7. After 24 hours, 2 patients reported a pain score of 5, requiring additional analgesics. In terms of postoperative complications, various categories were identified. Hematoma or seroma, transient RLN palsy, and transient hyperparathyroidism were each observed in 5% of cases. Additionally, wound infection and suture reaction were found separately in 1.67% of cases. Among the patients, two had 40ml blood collected and one had 50ml seroma in the thyroid bed, while the majority (57 patients) had less than 15ml blood/seroma collected.

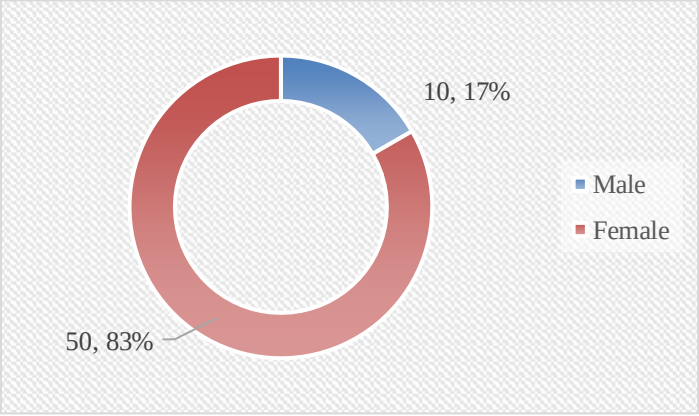

Figure 1: Distribution of participants as per gender (N=60)

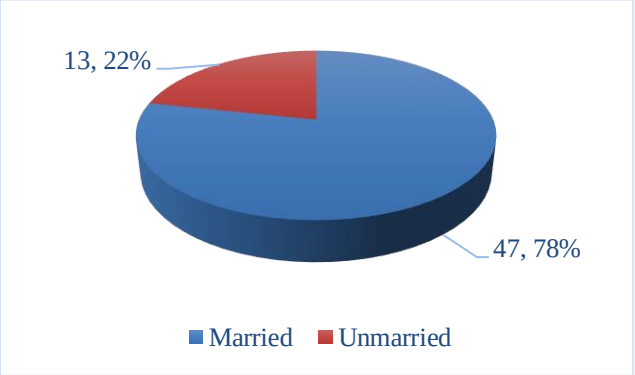

Figure 2: Distribution of participants as per marital status (N=60)

Table 1: Distribution of patients as per the duration of operation (N=60)

Duration	n	%
60min-80min	45	75%
90min-120min	15	25%
Hemi-thyroidectomy	50	83.34%
Total thyroidectomy	10	16.66%

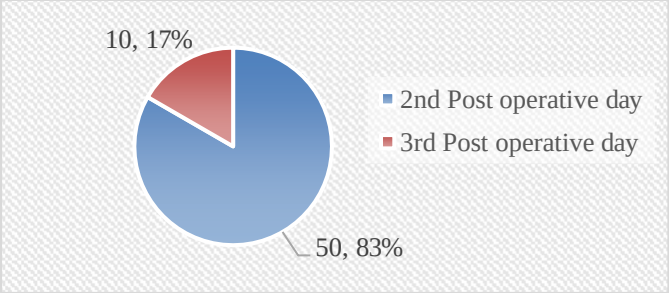

Figure 3: Distribution of patients as per time of discharge (N=60)

Table 2: Distribution of patients as per time of ambulation (N=60)

Time (Hour)	n	%
6-10hrs	16	26.67%
11-14hrs	40	66.66%
17-24hrs	4	6.67%

Table 3: Distribution of postoperative patients for pain as per VAS (N=60)

Postoperative pain in time	Score	n	%
VAS at 06 hours	7	3	5%
VAS at 24 hours	5	2	3.34%

Table 4: Distribution of patients as per volume of postoperative fluid collection (N=60)

Collection type	n	Amount	%
Hematoma	2	40 ml	3.34%
Seroma	1	50 ml	1.66%
Blood or seroma	57	<15 ml	95%

Table 5: Distribution of patients as per postoperative complications (N=60)

Complication	n	%
Hematoma or seroma	3	5%
Wound infection	1	1.67%
Suture reaction	1	1.67%
Transient RLN palsy	3	5%
Transient hyperparathyroidism	3	5%

4. DISCUSSION

This study aimed to evaluate the feasibility and outcomes of thyroidectomy without the use of drainage tubes in a tertiary care hospital in Bangladesh. The conventional approach among most surgeons was to routinely incorporate a suction drain following thyroid surgery, irrespective of whether it involved total thyroidectomy, hemithyroidectomy, or lobectomy; this practice was primarily adopted to mitigate the risk of postoperative buildup of blood or seroma, both of which could potentially exert pressure on the trachea[13]. Surgeons typically opt to employ drainage tubes in cases where a significant dead space exists, there is a notable risk of bleeding, the thyroid bed exhibits signs of "oozing," or if any atypical apprehension arises regarding the potential accumulation of blood or fluid beneath the skin flaps. [14] The findings of this study revealed that 03 (5%) patients experienced the development of hematoma or seroma. A parallel investigation conducted by Herranz J et al. demonstrated that the incidence of postoperative hematoma or seroma following thyroid surgery ranged between 0.8% and 2 %[13,15]. The probability of a postoperative hematoma forming ranges between 0.1 and 4.7%[15]. Potential factors contributing to such complications encompass the misplacement of inadequately secured sutures, inadvertent vascular puncture due to the use of diathermy for coagulation, or inadequate cauterization leading to localized seepage, as outlined by [14]. Two extensive investigations involving 250 patients each similarly concluded that the utilization of drainage tubes after thyroid surgery does not yield any advantageous outcomes[16]. Notably, ultrasonography revealed the absence of fluid accumulation in the thyroid bed, while such accumulation was observed within the suction drain. This incongruity could potentially be attributed to the presence of the drain itself, potentially causing inflammation due to the drainage tube. Paradoxically, the drainage tube might inadvertently lead to an escalation in wound drainage[17]. Within the context of this study, pain scores as measured by the Visual Analog Scale (VAS) ranged from 5 to 7 in 5 cases following thyroid surgery. A comparable investigation conducted by Schoretsanitis G et al.[18] similarly discovered VAS scores in the range of 4 to 6 for 4 cases, aligning closely with the findings of this study. Furthermore, an observable correlation emerged between the insertion of drainage tubes and postoperative pain levels, with a substantial reduction of approximately 40-55% in pain reported when drains were not employed[18]. These outcomes collectively underscore the association between drain insertion and heightened postoperative discomfort, leading to increased morbidity primarily due to elevated pain levels. In our study, hospital stays were notably brief, with 83% of patients being discharged on the second postoperative day, and the remaining patients discharged on the third day. A study conducted by Morrissey et al. showcased that thyroid surgery performed without the inclusion of drainage tubes led to a reduction in hospital stay by approximately 3-4 days, facilitating early mobility[19]. Among the cohort of 60 patients, postoperative complications manifested in 11 (18.34%) cases. A similar investigation by Deveco U et al.[20] exhibited a lower rate of postoperative complications at 11%, indicating a contrast to the findings of this study. Within this study, wound infection and suture material reactions were identified in 02 (3.34%) cases. In contrast, the study by Costen M et al.[21] documented wound infection cases at 2%, potentially influenced by the specific context of Dhaka-based civil and government hospitals. All the findings of this current study may be helpful in further similar studies.

Limitation of the study:

This was a single-centered study with small-sized samples. Moreover, the study was conducted over a very short period. So, the findings of this study may not reflect the exact scenario of the whole country.

5. CONCLUSION & RECOMMENDATION

As per the findings of this current study, we can conclude that omitting drainage tubes in thyroid surgery contributes to shorter hospital stays, increased patient comfort, and reduced complications. Routine use of drainage tubes does not appear to yield improved outcomes. As a result, thyroidectomy can be safely performed without the routine employment of drainage tubes, leading to decreased morbidities and enhanced patient well-being. To get more specific results, we would like to recommend conducting similar studies in several places with larger-sized samples.

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