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FREQUENCY OF POSTOPERATIVE COMPLICATION IN PATIENT UNDERGOING HEMI-THYROIDECTOMY WITH AND WITHOUT DRAIN

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ABSTRACT

Introduction: After thyroid surgery, the need for drain placement has become a contentious topic. Drains are frequently utilized to prevent problems and help in the early detection of postoperative bleeding. Bleeding following thyroid surgery is rare, but it can be fatal and requires immediate reoperation. Therefore, many surgeons utilize drains even after basic thyroid surgery. The purpose of this study was to compare the mean pain score and frequency of postoperative complication in patient undergoing hemi-thyroidectomy with and without drain.

Materials & Methods: This randomized controlled study was conducted on 100 patients (50 in each group) of age 20-50 years with single or multiple nodules in one lobe undergoing hemi-thyroidectomy. Individuals with a history of bleeding problems, systemic conditions such as diabetes and hypertension, toxic goiter involving both lobes, and thyroid cancer were not included. Using the lottery method, patients were split into two groups at random. Hemi thyroidectomy without drain was performed on patients in group A, and hemi thyroidectomy with drain was performed on patients in

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group B. The patients' postoperative problems (pain, hematoma, seroma, and wound infection) were monitored for 30 days.

Results: In my study the mean post-operative pain was 1.94 ± 0.91 for no drain group versus 3.90 ± 0.97 for drain group (p-value = 0.0001) as shown in Table II. Results showed no (0%) hematoma cases, 00 (0.0%) seroma, wound infection in 01 (2.0%) in group A whereas 01 (2.0%) hematoma, 02 (4.0%) seroma, 04 (8.0%) wound infection in group B with p-value greater than 0.05.

Conclusion: This study concluded that in terms of mean pain score and complication rate, the hemi-thyroidectomy without drain installation is superior than the hemi-thyroidectomy with drain placement.

KEYWORDS: Hemi-Thyroidectomy, Drain Placement, Hematoma, Pain, Seroma.

INTRODUCTION

Among the most common surgeries performed worldwide are thyroid surgery. The only effective treatment for thyroid cancers and benign conditions like multi-nodular goiter with compressive symptoms is thyroid surgery.[1] Both hemi-thyroidectomy and total thyroidectomy are frequently carried out. The United States published a description of the first hemi-thyroidectomy performed in an outpatient setting in 1986. Thyroidectomies performed as outpatient procedures have increased since then.[2]

After thyroid surgery, the need for drain placement has become a contentious topic. Drains are frequently utilized to prevent problems and help in the early detection of postoperative bleeding. Bleeding following thyroid surgery is rare, but it can be fatal and requires immediate reoperation. Therefore, many surgeons utilize drains even after basic thyroid surgery.[3] Contrary to common belief, recent research indicates that the ability of the surgeons and proper hemostasis are far more important than the placement of drains, which has minimal advantage.[3] After thyroid surgery, routine drainage is not necessary because it can clog with clots and fail to alert the surgeon even if significant bleeding occurs.[4] However, some researchers claim that it might only be beneficial if neck dissection is done or if the dead space is quite large.[5,6]

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A study[7] on hemi-thyroidectomy with or without drain use was carried out by Kumar RGV et al. A total of 60 patients who had hemi-thyroidectomies for different thyroid conditions were divided into two groups at random: drainage (group B) and non-drainage (group A). The findings indicated that group A had no (0%) hematoma instances, 2 (6.7%) seromas, and no (0%) wound infection, while group B had no (0%) hematoma, 1 (3.3%) seroma, and no (0%) wound infection, with a p-value better than 0.05. With a p-value of 0.002, the mean pain in groups A and B was 2.6 SD 0.72 and 3.06 SD 0.75, respectively.[7]

A common procedure is the hemi-thyroidectomy. Results regarding the placement of drains following hemi-thyroidectomy are inconsistent. Therefore, the purpose of this study is to assess the two operations' consequences in terms of hematoma, seroma, and postoperative infection. In the future, the method with fewer infections will be suggested to lower postoperative problems.

MATERIALS AND METHODS

From August 2024 to February 2024, 100 patients (50 in each group) of age 20-50 years with single or multiple nodules in one lobe undergoing hemi-thyroidectomy were the subjects of this randomized controlled study conducted by the Department of ENT and head & neck surgery at Holy Family Hospital in Rawalpindi. Individuals with a history of bleeding problems, systemic conditions such as diabetes and hypertension, toxic goiter involving both lobes, and thyroid cancer were not included. The WHO sample size calculator was used to determine the sample size, with a significance level of 5%, a research power of 80%, a test value of 2.067 for the population mean, an expected population mean of 3.06, and a standard deviation of 0.375 for the population mean.

After hospital ethics and research committee approval, OPD patients were enlisted. The patient was informed about the nature of the illness and the surgical process, and their written agreement was obtained. Details on the demographics were recorded. Using the lottery method, patients were split into two groups at random. Hemi thyroidectomy without drain was performed on patients in group A, and hemi thyroidectomy with drain was performed on patients in group B. Under GA, a single surgical team carried out the procedure with the help of a researcher. Following surgery, all patients were monitored on the ward for 48 hours

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before being released. Subcutaneous 3/0 absorbable suture was used to close the wound, and the length of time the procedure took from the moment of incision to the final suture insertion was also noted. Every patient in group B has a closed suction drain that is kept under negative pressure. The same radiologist used ultrasonography in B mode at 7.5 MHz to examine the volume of fluid collected in the wound bed and drain separately 24 hours after surgery. After 24 hours, the drain was removed from every patient in group B since there was less than 50 ml of accumulation in the drain. The visual analogue scale (VAS), which ranges from 0 (no pain) to 10 (worst pain) at 6 and 24 hours after surgery, was employed by the author to measure postoperative pain. Every patient received two intramuscular injections of 50 mg diclofenac sodium till 24 hours after surgery. The patients' postoperative problems (pain, hematoma, seroma, and wound infection) were monitored for 30 days.

Version 25 of the Statistical Package for Social Sciences (SPSS) was used to conduct statistical analyses. For quantitative variables including age, length of illness, length of surgery, pain, and length of hospital stay, the mean and standard deviation were computed. For qualitative variables including gender, lateral side, and surgical complications, frequency and percentage were computed. sample of independence Pain in both groups was compared using the T test. The two groups' issues were compared using the chi-square test. A P value of 0.05 or less was regarded as significant.

RESULTS

Age range in this study was from 20 to 50 years with mean age of 37.88 ± 4.52 years. The mean age of patients in group A was 37.88 ± 4.46 years and in group B was 37.86 ± 7.14 years. Gender distribution was also comparable between the groups, with males accounting for 26.0% in Group A and 20.0% in Group B, and females comprising 74.0% and 80.0% in Groups A and B, respectively. The mean duration of disease in group A was 4.86 ± 2.05 months and in group B was 4.98 ± 2.22 months. Regarding lateral side, 38.0% of patients in Group A and 34.0% in Group B had a right side disease, while 62.0% and 66.0%, respectively, had left side disease (Table I).

In my study the mean post-operative pain was 1.94 ± 0.91 for no drain group versus 3.90 ± 0.97 for drain group (p-value = 0.0001) as shown in Table II. Results showed no (0%) hematoma cases, 00 (0.0%) seroma, wound infection in 01 (2.0%) in group A whereas 01

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(2.0%) hematoma, 02 (4.0%) seroma, 04 (8.0%) wound infection in group B with p-value greater than 0.05 as shown in Table III. Stratification of post-operative pain with respect to age, gender, duration and lateral side is shown in Table IV.

Table 1: Demographic Information of The Patients (n=100)

Variables		Group A (n=50)	Group B (n=50)
Age (years)	20-35	19	18
		38.0%	36.0%
	36-50	31	32
		62.0%	64.0%
Gender	Male	13	10
		26.0%	20.0%
	Female	37	40
		74.0%	80.0%
Duration of disease (months)	≤6	42	41
		84.0%	82.0%
	>6	08	09
		16.0%	18.0%
Side	Right	19	17
		38.0%	34.0%
	Left	31	33
		62.0%	66.0%

Table-II: Comparison Of Post-Operative Pain Between Both Groups.

	Group A (n=50)	Group B (n=50)	p-value
	Mean ± SD	Mean ± SD	
VAS score	1.94 ± 0.91	3.90 ± 0.97	**0.0001**

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Table III: Comparison Of Frequency of Postoperative Complication In Patient Undergoing Hemi-Thyroidectomy With And Without Drain (n=100)

Variables		Group A (n=50)	Group B (n=50)	P-value
Hematoma	Yes	00	01	**0.315**
		0.0%	2.0%	
	No	50	49	
		100.0%	98.0%	
Seroma	Yes	00	02	**0.153**
		0.0%	4.0%	
	No	50	48	
		100.0%	96.0%	
Wound infection	Yes	01	04	**0.169**
		2.0%	8.0%	
	No	49	46	
		98.0%	92.0%	

Table IV: Stratification Of Post-Operative Pain with Respect to Age, Gender, Duration and Lateral Side

		Group A (n=50)		Group B (n=50)		P-value
		VAS score		VAS score		
		Mean	SD	Mean	SD	
Age (years)	**20-35**	1.74	1.05	4.11	0.83	**0.0001**
	36-50	2.06	0.81	3.78	1.03	**0.0001**
Gender	**Male**	1.92	0.86	4.30	1.34	**0.0001**

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	Female	1.95	0.94	3.80	0.85	**0.0001**
Duration (months)	**≤6**	2.00	0.88	3.90	0.99	**0.0001**
	>6	1.63	1.06	3.89	0.93	**0.0001**
Side	**Right**	1.84	0.69	3.59	0.71	**0.0001**
	Left	2.00	1.03	4.06	1.06	**0.0001**

DISCUSSION

One of the most important aspects of general surgery is thyroid surgery. The majority of surgeons are skilled in this procedure. Despite the continuous controversy around the common use of drains in thyroid surgery, the majority of surgeons still employ them. According to numerous authors, drains cannot stop a potentially fatal hemorrhage from forming following a thyroidectomy.[8,9] Additionally, drains can be uncomfortable, increase the risk of surgical wound infections, lengthen hospital stays, which raises costs, and degrade cosmetic results.[10] When there is significant bleeding, a clot typically blocks the drain's tiny lumen.[9] Since other procedures with significantly bigger potential dead spaces, such as cholecystectomy and colon anastomosis, are being conducted without drains, the necessity of using them in thyroid surgery has come under scrutiny.[11,12] The purpose of this study was to compare the mean pain score and frequency of postoperative complication in patient undergoing hemi-thyroidectomy with and without drain. Age range in this study was from 20 to 50 years with mean age of 37.88 ± 4.52 years. The mean age of patients in group A was 37.88 ± 4.46 years and in group B was 37.86 ± 7.14 years. Gender distribution was also comparable between the groups, with males accounting for 26.0% in Group A and 20.0% in Group B, and females comprising 74.0% and 80.0% in Groups A and B, respectively. In my study the mean post-operative pain was 1.94 ± 0.91 for no drain group versus 3.90 ± 0.97 for drain group (p-value = 0.0001). Results showed no (0%) hematoma cases, 00 (0.0%) seroma, wound infection in 01 (2.0%) in group A whereas 01 (2.0%) hematoma, 02 (4.0%) seroma, 04 (8.0%) wound infection in group B with p-value greater than 0.05. A study on hemi-thyroidectomy with or without drain use was carried out by Kumar RGV et al.[7] A total of 60 patients who

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had hemi-thyroidectomies for different thyroid conditions were divided into two groups at random: drainage (group B) and non-drainage (group A). The findings indicated that group A had no (0%) hematoma instances, 2 (6.7%) seromas, and no (0%) wound infection, while group B had no (0%) hematoma, 1 (3.3%) seroma, and no (0%) wound infection, with a p-value better than 0.05. With a p-value of 0.002, the mean pain in groups A and B was 2.6 SD 0.72 and 3.06 SD 0.75, respectively.[7]

According to a recent meta-analysis, patients did not benefit from the use of drains following normal thyroid surgery; instead, the insertion of drains was linked to longer hospital admissions, a higher risk of wound infection, and a worse pain score on the first postoperative day.[13] Additionally, Hurtado-Lopez et al. discovered that patients without drains had a far shorter hospital stay than those with drains, which reduced expenses and decreased the risk of intrahospital infections.[14]

Our study's findings are consistent with those of a study conducted on 44 individuals (29 females and 15 males) by Emmi and Reddy. After thyroid surgery, the average length of hospital stay in the drain arm was significantly longer than in the no-drain arm. There was just one patient in the no-drain group who had problems, compared to seven in the drain group. The drain group's average hospital stays lasted 3.15 days, while the no-drain group's was 2.51 days. On the first post-operative day, pain in the drain arm was much worse than in the arm without a drain ($p<0.001$). The authors came to the conclusion that a thyroidectomy without drains is feasible, less unpleasant, causes an earlier discharge, which lowers expenses, and doesn't increase the risk of complications after the procedure.[15]

To update knowledge of the drain's role in thyroid surgery, Portinari and Carcofor89 conducted a thorough systemic review of 20 randomized controlled trial articles. The review focused on post-operative complications, including the length of hospital stay, pain measured by the Visual Analogue Scale on the day after surgery, and the re-operation rate for bleeding that progressed to a hematoma, seroma, and wound infection. 1,131 of the 2,204 patients that were examined were in the drain group. Clinical results were compared between the two arms following thyroidectomy or lobectomy, with a total of 1073 in the no-drain group. Hemostasis, seroma, and re-operation did not differ between the two clusters. Patients with drains experienced

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more surgical discomfort and longer hospital stays, which is consistent with our findings. Although it is not statistically significant, patients with drains had a greater prevalence of wound infections.[16]

After examining the surgical results of 1000 thyroid surgery patients, Ardito et al.[17] concluded that the traditional insertion of thyroid drainage tubes was necessary. Ariyanayagam et al.[18], on the other hand, suggested that the installation of drainage tubes was not necessary after doing a retrospective analysis of the results of 250 thyroid surgery cases without them. Pothier[19] conducted meta-analyses and found no difference between the drainage and no drainage groups in the development of early or late neck hematomas or seromas following thyroid surgery. patients were enrolled in a local study[20]; they were divided into two groups, and the group with the drain did not differ demographically from the group without the drain after surgery. Average score for postoperative pain was 60.87± 7.06 SD in the drain group and 41.19± 4.18 SD in the no drain group 24 hours post-operatively (p value < 0.05). The drain group's mean length of stay was 3.63 days ± 0.707 SD, while the no drain groups was 1.19 days ± 2.145 SD (p value <0.05).[20]

There are some limitations to the current investigation. The tiny sample size—only procedures performed at one facility were included—was one drawback. Furthermore, because there was no standard style for intraoperative notes, it was occasionally challenging to identify the kind of hemostasis device that was utilized throughout the procedures. To create firm recommendations and practice guidelines in this field, more randomized control trials are required.

CONCLUSION

This study concluded that in terms of mean pain score and complication rate, the hemi-thyroidectomy without drain installation is superior than the hemi-thyroidectomy with drain placement. Therefore, we advise that every patient have a hemi-thyroidectomy without the insertion of a drain in order to lower their post-operative pain and morbidity.

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