

THYROID SURGERY: DRAIN VERSUS NO DRAIN

Saadia Nawaz¹, Amjad Naeem², Ahmed Zeb³

¹⁻³ Department of Surgery,
Naseer teaching Hospital,
Gandhara Medical University,
Peshawar - Pakistan.

Address for correspondence:
Dr. Saadia Nawaz

Department of Surgery,
Naseer Teaching Hospital,
Gandhara Medical University,
Peshawar - Pakistan.
E-mail: drsaadianawaz@gmail.
com

Date Received:
October 27, 2014

Date Revised:
March 12, 2015

Date Accepted:
March 17, 2015

ABSTRACT

Objective: To compare patients undergoing thyroid surgery without the placement of a drain versus patients undergoing surgery with placement of drain; in terms of hospital stay, operative pain score, amount of fluid collection in the neck and postoperative complications.

Methodology: This study was conducted at surgical unit, Naseer Teaching Hospital, Peshawar from January 2010 to July 2014. Important variables of the study were duration of hospital stay, post operative pain score, amount of fluid collection in the wound as detected on ultrasound and postoperative complications. Visual Analogue scale was used to assess postoperative pain on completion of 24 hours. All the patients were subjected to ultrasound of the neck on the 1st post-operative day. The data was entered on a proforma and analyzed on SPSS 21.

Results: The study included 68 patients; being grouped in to two groups the group with drain showed no difference demographically from the group in which drain was not placed post operatively. Mean postoperative pain score 24 hours after surgery was 60.87 ± 7.06 SD in the drain group and 41.19 ± 4.18 SD in no drain group (p value < 0.05). Mean duration of hospital stay was 3.63 days ± 0.707 SD in drain group and 1.19 days ± 2.145 SD in no drain group (p value < 0.05).

Conclusion: "Drain less" Thyroidectomy causes less discomfort, short hospital stay and does not increase the risk of post operative complications. Drains should be used only in selected cases of Thyroidectomy.

Key Words: Thyroid surgery, Drains, Postoperative complications.

This article may be cited as: Nawaz S, Naeem A, Zeb A. Thyroid surgery: Drain versus no drain. *J Postgrad Med Inst* 2015; 29(2): 101-4.

INTRODUCTION

Thyroidectomy was once a very challenging part of surgical cases¹. Most surgeons insert drain at the completion of thyroidectomy to prevent the collection of fluid in the dead space, however the use of drains is a controversial topic². There is considerable debate over the pros and cons of drains. Many authors have reported that the drains are ineffective in preventing a life threatening haematoma formation after thyroidectomy^{1,3}. The small lumen of the drain usually gets blocked by clot in the presence of severe bleeding³. The drains may also cause discomfort⁴. In our study the objectives of comparing the two groups was to know differences in hospital stay, operative pain score, amount of fluid collection in the neck and postoperative complications.

METHODOLOGY

This comparative study was conducted at surgical unit, Naseer Teaching Hospital, Peshawar from 1st January 2010 to 31st July 2014. Following an ethical approval by the review board all patients of either sex above

the age of 18 years with goiter were enrolled and allocated to the respective group. The patients that were deemed for surgery were placed to the researcher for counseling and an informed consent was obtained. The study excluded patients with advanced thyroid growth fixed to adjacent structures, patients requiring radical neck dissection, patients with retrosternal extension of goiter, patients with bleeding tendency, recurrent goiter, patients with ASA class 3 and above. Random sampling (simple) was done to form groups. Sealed envelopes containing the names of the group were kept in the basket in equal proportion and one sealed envelope was selected during surgery. Randomization was done near the completion of surgery just before insertion of drain. The surgeon didn't know the group until the time of insertion of drain. A suction drain was inserted through separate stab incision over chest or near the cervical wound in patients belonging to drain group.

Important variables of the study were duration of hospital stay, postoperative pain score, amount of fluid collection in the drain and in the wound as detected on ultrasound and postoperative complications.

Visual Analogue scale was used to assess postoperative pain on completion of 24 hours. A horizontal line marked upto 100 as a millimeter scale was used with wording expressing words interms of pain. Patients were put on Diclofenac sodium administered intramuscularly or orally. Postoperative analgesic requirement was noted.

All the patients were subjected to ultrasound of the neck on the 1st postoperative day. Fluid collection was assessed in 3 dimensions. Amount of fluid collection in the drains was noted. Drains were removed when output in the drain became less than 50 ml per 24 hours.

Lack of evidence of any collection in patients without drain were sent home whereas the patients with drain were discharged only after removal (extrusion) of the drain. Follow up dates were explained to the patient that was at two and six weeks after surgery.

A doctor who did not know the actual grouping of patients collected all the data. The data was entered on a preformed structured proforma and analyzed on SPSS 21. Mean, standard deviation were used for continuous data while frequency and proportions for categorical or dichotomous data. Tests of significance included independent sample T test was performed to evaluate / asses continous data where as Chi-square test was used for categorical or dichotomous data. 95% confidence interval was used. P value of less than 0.05 was considered significant.

RESULTS

The inclusion process and the method of randomisation resulted in a total of 68 patients that were divided into groups. Those patients that were operated and had placement of drain were 32 in number where as 36 in the no drain group. Study subjects revealed a mean age of 42 years \pm 4.24 SD; Demographically and histopathologically no difference was demonstrable by statistical evaluation.

Ultrasound neck on first post operative day revealed no difference in the amount of fluid collection between the two groups. Mean fluid collection in the drains was 157.5 ml \pm 42.04.

Postoperative pain score 24 hours had revealed finding of a significant higher pain score in the group that had placement of a drain. Detail of postoperative pain score is presented in table I.

Mean duration of hospital stay was 3.63 days \pm 0.707 SD in drain group and 1.19 days \pm 2.145 SD in the group that had no placement of drain (p value <0.05). Detail of important variables is presented in table I.

An isolated patient with out a drain developed hematoma hematoma after total thyroidectomy (p value >0.05); she underwent re-exploration. Three patients with out a drain were ultrasonologically proven with seroma which required percutaneous aspiration, while in

Table 1: Detail of Important Variables

S. No	Variables	Drain Group				No Drain Group				P value
		Mean	SD	95% CI*		Mean	SD	95% CI*		
				Lower bound	Upper bound			Lower bound	Upper bound	
1	Hospital stay	3.63	0.71	2.16	2.71	1.19	0.40	2.15	2.72	<0.05
2	Postoperative pain score (VAS) [†]	60.87	7.06	16.9	22.45	41.19	4.18	16.8	22.55	<0.05
3	Fluid collection on ultrasound(ml)	10.84	8.82	-4.68	4.42	10.97	9.85	-4.65	4.39	>0.05

* Confidence interval

[†] Visual Analogue Scale Score Table II: Postoperative Complications

Table 2: Postoperative Complications

S. No:	Postoperative Complications	Drain Group		No Drain Group		P value
		Number	%	Number	%	
1	Hematoma	0	0	1	1.47	>0.05
2	Seroma	1	1.47	3	4.41	>0.05
3	Transient Recurrent Laryngeal nerve Paralysis	0	0	1	1.47	>0.05
4	Permanent Recurrent Laryngeal nerve Paralysis	0	0	0	0	>0.05
5	Hypocalcemia	2	2.94	1	1.47	>0.05
6	Wound infection	1	1.47	0	0	>0.05

the other group only one patient had a seroma (p value >0.05). There was no overall proven statistical variation between the two groups in terms of postoperative complications. Detail of postoperative complications is presented in table II. There was no mortality in this study.

DISCUSSION

Majority of surgeons insert drain after thyroidectomy to prevent any collection in the operative field¹. Hemorrhage in the dead space around trachea can cause potentially life threatening airway compression and requires urgent reexploration². Occurrence of cervical hematoma after thyroidectomy is variable and ranges between 0.3 – 2.5 %^{3,5}. The risk of postoperative bleeding is higher in patients with retrosternal goiter and Grave's disease⁵. Hemorrhage usually occurs between two and six hours of surgery^{5,6}. Many studies have reported that the drains are ineffective in preventing blood collection because these often get blocked by clotted blood.

Some authors have suggested that the presence of drain incites inflammatory reaction, which may lead to increased fluid production. Moreover suction drain due to negative pressure may also prevent the cut lymphatics from closing and hence increase fluid drainage^{3,5}. In our study mean fluid collection in the drains was 157.5 ml ± 42.04 SD. Ultrasound neck on first postoperative day revealed a obvious difference but had no significance on statistical tests with regards to the amount of fluid collection in the dead space between the two groups. This is comparable with other studies^{3,5,6}.

A statistically proven difference between groups in terms of pain at 24 hours was evident that could be due to the irritating factor of having a drain placed⁶⁻⁸.

The duration of hospital stay was found lesser in the patients without a drain and these findings were also reported by other studies^{3,4,6-9}. Short hospital stay is useful in our setup as it lessens the burden on hospitals. Short hospital stay is also economical for our patients as majority of them are underprivileged, belong to far flung areas and they can't take long leave from work. According to Cochrane database review a firm statement can be drawn that a null hypothesis is in support but yet the reluctance upon the surgeons behalf is the holding factor to frequent placement of drains after thyroid surgery¹⁰.

In short the drains are not required in most cases of thyroidectomy. Drains cause discomfort, increase septic complications and prolong hospital stay. These may be useful in patients with recurrent goiter, Graves' disease, substernal goiter, patients on anticoagulants^{2,5,6,11-13}.

There were many limitations in our study. Some of which were: small sample size, no cost assessment between the two groups, no assessment of quality of life etc.

CONCLUSION

"Drain less" thyroidectomy causes less discomfort, short hospital stay and does not increase the risk of post-operative complications. Drains should be used only in selected cases of thyroidectomy.

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CONTRIBUTORS

SN participated in planning of study, data analysis and manuscript writing. AN and AZ helped in data management. AN supervised the study. All authors contributed significantly to the final manuscript.