Journal of Surgery and Trauma 2020; 8(4):147-150.
jsurgery.bums.ac.ir

ORIGINAL ARTICLE

Application of platysma muscle suture after thyroidectomy

Ali Janpour Abolhasan[1], Khadijeh Ezoji[2]✉, Keyvan Latifi[3]

[1]*MD, Clinical Research Development Unit of Rouhani Hospital, Department of Surgery, Babol University of Medical Sciences, Babol, Iran*

[2]*MD, Social Determinants of Health Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran*

[3]*MD, Specialty Student of Critical Care Medicine, Department of Anesthesiology, School of Medicine, Babol University of Medical Sciences, Babol, Iran*

Received: July 11, 2020 ***Revised: December 15, 2020*** ***Accepted: December 22, 2020***

Abstract

Introduction: Thyroidectomy is a common surgery in the neck area, in which the application of platysma muscle suture after thyroidectomy is still being discussed. This study was conducted to compare the application (currently common) or non-application of suture for platysma muscle.

Methods: In this retrospective cross-sectional study, 117 patients underwent thyroidectomy, among which 63 cases without suturing platysma (control group) and 54 subjects with suturing platysma (Intervention group) were examined in terms of postoperative pain based on visual analogue scale score measured 24 h post-operation. The samples were also investigated regarding hematoma and seroma, wound infection, length of hospitalization, scarring (1 year after surgery), duration of surgery, and the number of cases using opioids during the hospitalization. Patients with diabetes, previous neck surgery, coagulopathy, and radiation history were excluded from the study. The gathered data were analyzed statistically in SPSS software (version 18) using the Chi-square test and the Mann–Whitney U test. A p-value of less than 0.05 was considered significant.

Results: Based on the findings, the mean age of the patients in the Intervention group was calculated at 51 years, of which 41 and 13 cases were females and males, respectively. In the Intervention group , 34 patients underwent complete thyroidectomy and 20 patients had hemithyroidectomy. The mean age score of subjects in control group was calculated at 50 years, of which 44 and 19 patients were respectively female and male. No significant difference was revealed considering wound infection, length of hospitalization, created scarring, the amount of opioid use (opioids), and postoperative pain. However, only the length of surgery was different between the groups (P-value<0.05)

Conclusions: There was no difference between wound and surgical complications and cosmetic results between both groups; nevertheless, due to the duration of the surgery and other benefits, such as consuming less thread, not suturing the platysma is recommended.

Key words: Platysma muscle, Suture, Thyroidectomy

Introduction

Thyroidectomy (lobectomy, total, and subtotal) is the most common procedure for endocrine glands, mainly for thyroid cancers, thyrotoxicosis, obstructive symptoms, and sometimes for cosmetic reasons (1). Although today thyroidectomy is considered a safe and non-complicated surgery,

@2020Journal of Surgery and Trauma
Tel: +985632381203
Fax: +985632440488
Po Bax 97175-379
Email: jsurgery@bums.ac.ir

✉**Correspondence to:**
Khadijeh Ezoji, MD, Social Determinants of Health Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran;
Telephone Number: +989111958480
Email Address: Dr.kh.ezoji@gmail.com

[Downloaded from jsurgery.bums.ac.ir on 2026-11-06]

[DOI: 10.32592/jsurgery.2020.8.4.103]

especially when it is performed by skilled surgeons, it also develops potential complications, such as bleeding and nerve damage to the recurrent laryngeal nerve, and common surgical complications, such as wound infection and scarring. (2).

Platysma suturing is a common method for wound closure in thyroidectomy surgery. Numerous studies have investigated different ways of closing the skin in thyroid surgery; however, to the best of our knowledge, no specific research has been devoted to study the clinical benefit of the usual method of suturing platysma muscles (3-5). In a meta-analysis of nine clinical trials, no difference was revealed regarding patients' satisfaction and postoperative pain with or without the application of platysma muscle suture (6). This study was conducted to compare the adoption of two methods involving suturing and not suturing the platysma muscle based on such consequences as the effects of the wound during the hospital stay, the amount of pain, and the use of narcotic drugs to relieve postoperative pain.

Methods

This research was approved with the Ethical code of IR.MUBABOL.REC.1399.095. The population of this retrospective cross-sectional study (n=117) consisted of all patients having a thyroidectomy in Shahid Beheshti Hospital, Babol, Iran, within 2016-2018. Among the subjects, 63 patients had no sutures (control group) and 54 had platysma sutures (Intervention group), preferably by surgeons. The exclusion criteria were thyroidectomy patients who had diabetes, previous neck surgery, coagulopathy, and a history of radiation.

The initial consequence of surgery was observed as experiencing pain 24 h after the surgery, which was assessed by the visual analogue scale (VAS) instrument (0=painless to 10=worst possible pain) (7). The duration of surgery and postoperative narcotics use was also recorded. The presence of seroma or wound hematoma was detected by the presence of visible swelling and using clinical methods. Postoperative wound infection refers to any localized erythema requiring antibiotics or any wound swelling with purulent and infectious fluid secretion.

Patients were screened for one year after surgery based on the length of the scar measured by the caliper. The collected data were analyzed in SPSS software (version 18) using the Mann–Whitney U test to compare continuous variables and the $\chi 2$ test to analyze discrete variables.

Results

A total of 117 patients (85 females and 32 males) were included in the study. The demographic characteristics of patients and the information of performed surgery are presented in Table 1.

Initially, the postoperative pain was measured 24 h after the surgery using the VAS instruments in the two groups. Based on the results, the mean pain scores in the intervention and control groups were obtained as 5±1.46 and 4.5±1.4, respectively (P-value=0.025). The duration of surgery was significantly longer in the Intervention group than in the control group (67±20.6 versus 79±29.1; P-value=0.042).

The average number of times the narcotic drug was needed to reduce postoperative pain was 4 and 4.2 times in the intervention and control groups. It was observed that surgical wound complications occurred in 17 patients, including 7 cases in the intervention and 10 cases in the control group. Accordingly, 3, 2, and 2 cases in the intervention group and 4, 3, and 3 subjects in the control group experienced wound seroma, hematoma, and surgical wound infection, respectively.

Table 1: Patient's demographic characteristics and surgical information

		Platysma suture (n=54)	No platysma suture (n=63)
Age (years)*		51 (21-47)	50 (22-76)
Gender ratio (F : M)		41:13	44:19
BMI (kg/m^2)**		28±1.3	28.2±6.2
Duration of surgery (min)		79±29.1	67±20.6
Type of surgery**	Total thyroidectomy	34	41
	Hemi thyroidectomy	20	22
Incision length (cm)		6±1.3	6±1.2
Diagnosis**	Benign nodules	20	22
	Malignant disease	34	41

BMI: Body mass index
*median (range) **$\chi 2$ test

[Downloaded from jsurgery.bums.ac.ir on 2026-11-06]

[DOI: 10.32592/jsurgery.2020.8.4.103]

The length of stay in the hospital in both groups was 2 days. The mean scar size of the ulcer measured by caliper 1 year after the surgery was estimated at 7 and 8 cm in the intervention and control groups, respectively, which was not significant (P-value=0.320).

Discussion

The method of suturing the platysma muscle is very common in thyroidectomy surgery. The results of this study showed that suturing the platysma muscle was not necessary for thyroidectomy surgery. Postoperative pain after thyroid medical procedure is typically moderate and restricted to the initial few days, normally requiring pain medicine with non-opioid analgesics (8). In the present study, pain scores 24 h post-operation were significantly higher in the intervention group that might be explained by local oedema and blood thickening caused by the platysma muscle suture.

In a study, it was revealed that the duration of surgery in the Intervention group was significantly longer than in the control group (9). However, according to the mentioned study, there was no difference between the two wedges in terms of other consequences related to surgery.

Postoperative thyroidectomy pain is usually a medium pain limited to the first few days and is usually controlled with non-narcotic analgesics. Nevertheless, several patients would need narcotic painkillers during that period (8). Some patients in this study needed painkillers to control pain after surgery; however, there was no significant difference between the two groups regarding this. The need for painkillers can be attributed to the complications developed in some of these patients.

The results of this study showed that there was no difference in the incidence of seroma, hematoma, and wound infection between the two groups. Nonetheless, the overall incidence of these complications was obtained as 14.5%, which was higher with 6% of post-thyroidectomy ulceration complications in another study (10). The average hospitalization length was 2 days in both groups, which was consistent with the findings of Senne et al. studies, and there was no difference between the two groups (9).

Another consequence, which is the most important one from the patients' point of view, is the length of the scar caused by surgery on the neck (11). In our study, this consequence was not significantly different between the two groups. However, concerning the measurement method by caliper a year after the surgery, the discrepancy was examined from the physician's point of view. The examination of this consequence from the patients' point of view in this study could prove the existence or non-existence of the discrepancy with greater certainty. It is suggested that further studies be conducted with randomization in technique assignment, longer patients' follow-ups, and more variables review to be able to better compare the two techniques.

Conclusions

According to the results of the current study, there was no difference in postoperative pain, seroma or wound hematoma, wound infection, and postoperative scar length regarding the application of platysma muscle suture after thyroidectomy. However, it was revealed that only the duration of the surgery was different comparing the two techniques.

Acknowledgments

The authors would like to appreciate all the patients for their cooperation in this project.

Funding

This research was funded by Babol University of Medical Sciences, Babol, Iran.

Conflict of Interest

The authors declare that there is no conflict of interest to declare.

References

1. Bhattacharyya N, Fried MP. Assessment of the morbidity and complications of total thyroidectomy. Arch Otolaryngol Head Neck Surg. 2002;128:389-92.
2. Bures C, Klatte T, Friedrich G, Kober F, Hermann M. Guidelines for complications after thyroid surgery: Pitfalls in diagnosis and advices for continuous quality improvement. Eur Surg 2014;46:38-47.
3. Arora A, Swords C, Garas G, Chaidas K, Prichard A, Budge J et al. The perception of scar cosmesis following thyroid and parathyroid surgery: a prospective cohort study. Int J Surg. 2016; 25: 38–43.
4. Billmann F, Bokor-Billmann T, Voigt J, Kiffner E. Effects of a cost-effective surgical workflow on cosmesis and patient's satisfaction in open thyroid surgery. Int J Surg. 2013; 11: 31–36.
5. Alicandri-Ciufelli M, Piccinini A, Grammatica A, Molteni G, Spaggiari A, Di Matteo S et al. Aesthetic comparison between synthetic glue and subcuticular sutures in

[Downloaded from jsurgery.bums.ac.ir on 2026-11-06]

[DOI: 10.32592/jsurgery.2020.8.4.103]

thyroid and parathyroid surgery: a single-blinded randomized clinical trial. Acta Otorhinolaryngol Ital. 2014; 34: 406–411.

6. Huang Y-H, Chen C, Lee C-H, Loh E-W, Tam K-W. Wound Closure after Thyroid and Parathyroid Surgery: A Meta-Analysis of Randomized Controlled Trials. Scandinavian Journal of Surgery. 2019;108(2): 101-8.
7. ScottJ,Huskisson EC. Vertical or horizontal visual analogue scales. Ann Rheum Dis. 1979;38:560.
8. Lou I, Chennell TB, Schaefer SC, Chen H, Sippel RS, Balentine C et al. Optimizing outpatient pain management after thyroid and parathyroid surgery: a two-institution experience. Ann Surg Oncol. 2017; 24: 1951–1957.
9. Senne M, Zein R, Falch C, Kirschniak A, Koenigsrainer A, Müller S. Randomized clinical trial of platysma muscle suture versus no suture for wound closure after thyroid surgery. B J S. 2018;105(6):645-9.
10. Dionigi G, Rovera F, Boni L, Dionigi R. Surveillance of surgical site infections after thyroidectomy in a one-day surgery setting. Int J Surg. 2008;6:S13-S5.
11. Chaung K, DukeWS, Oh SJ, Behr A,Waller JL, Daniel J et al. Aesthetics in thyroid surgery: the patient perspective. Otolaryngol Head Neck Surg. 2017; 157: 409–415.

[Downloaded from jsurgery.bums.ac.ir on 2026-11-06]

[DOI: 10.32592/jsurgery.2020.8.4.103]