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Postoperative Recovery in Thyroid Surgery: Evaluating Pain, Scar Quality, and Operative Efficiency with and without Platysma Suturing

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ABSTRACT

Background: Often, thyroid surgery requires a layered closure, involving the suturing of the platysma muscle. But this procedure can increase the length of the surgery and the pain a patient feels afterward without obvious benefits. It is important to think about the need for this surgery to help achieve better results and better patient recovery. This study intends to review the postoperative pain, appearance of the scar, and the amount of time needed for wound closure when using or not using platysma suturing in thyroidectomy.

Methods: At Mayo Hospital Lahore, researchers recruited 72 patients going through thyroid surgery to take part in a randomized controlled trial from January to July 2022. The patients were assigned to one of the following two groups: Group A patients had no platysma suturing, whereas Group B had it. The pain level was checked 6, 24, and 48 hours postoperatively using the Visual Analogue Scale (VAS). At the 6-month mark, the quality of scars was appraised with the Patient and Observer Scar Assessment Scale (POSAS). We also collected data about when surgery was completed and whether any pain relief medicines were given.

Results: There were much lower pain scores for Group A throughout the procedure ($p < 0.001$) and a faster time to close the wound (3.86 vs. 5.86 minutes; $p < 0.001$). The POSAS scores did not differ significantly between the two groups ($p = 0.078$). It was observed that fewer patients from Group A asked for additional pain relief ($p = 0.032$).

Conclusion: Not sewing the platysma during thyroid surgery lowers the time needed for closure, reduces pain after surgery, and results in comparable scarring, showing that it is a suitable, simple method.

Keywords: Thyroidectomy, Platysma Suturing, Postoperative Pain, Scar Quality, Wound Closure Time.

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INTRODUCTION

Thyroidectomy is widely practiced across the globe to deal with benign goiters, various thyroid nodules and suspected thyroid cancer [1'2]. While surgical skills have improved and patients do better from operations, their recovery after surgery, particularly with pain, scars, and their wounds, still contributes greatly to their well-being and happiness. Because the thyroid is in the neck region, surgeons have to pay special attention to how they close the wound, as this can affect its appearance and how well the area functions [3].

The common way to close wounds in thyroid surgery is by suturing in layers, including the overlying and muscle in the front of the neck [4]. Platysma suturing aims to hold tissue in place, reduce any empty space and benefit the process of healing. Yet, people are now debating whether it is truly essential [5]. According to some reports, the presence of the platysma suture does not lead to any visible improvement, while it commonly increases surgery time and can cause more postoperative pain and inflammation [6'7]. Surgeons increasingly use methods that require less cutting and stitching of tissue, especially if those approaches help achieve or surpass positive outcomes for the patient [8]. Some studies have focused on the question of whether leaving out the platysma stitches improves the operation and does not cause any compromises in postoperative healing or the scar's appearance [9'10]. However, there are not many high-quality studies that investigate the effects of suturing the platysma muscles on postoperative results and their findings are not fully clear.

Therefore, we set up a randomized controlled trial to study if using platysma sutures rather than not suturing this region during thyroidectomy affects postoperative pain, the look of scars, the time to close the wound and the amount of pain medication used. We hoped to see if avoiding the use of platysma sutures could result in an easier procedure and speed up the recovery, but without causing noticeable changes to the postoperative appearance over time. The primary purpose of this study was to determine if not stitching the platysma after surgery decreases postoperative pain in the first few days, lowers the total operative time and still leads to acceptable scarring at the follow-up visit.

METHODS

The trial was designed as a controlled randomized trial at the Department of Surgery of Mayo Hospital Lahore and was carried out between January and July 2022 (CE/606/22). This research was approved by the Institutional Review Board of King Edward Medical University. We calculated the sample size needed with the help of OpenEpi 3.0.0. Given an 80% statistical power, 5% level of significance and Cohen's d = 0.5, the sample should have 72 participants. People in the study were equally randomized into two different groups. The first group of 36 patients received wound closure without closing the platysma muscle and the second group of 36 patients was given standard wound closure that included closing the platysma muscle.

Participants involved in the study were selected by non-probability sampling. Inclusion criteria were as follows: Any individual 18 to 60 years old, with benign thyroid conditions who is having elective thyroid surgery, ASA status I or II. The people excluded were those with previous surgery on their neck, who had hypertrophic or keloid scarring, who were immunosuppressed, who had received neck radiotherapy before, who had complications at surgery requiring changes to the procedure or who were not willing to be part of the study. All participants provided informed consent for the study, following the guidelines set out by the Declaration of Helsinki.

Patients' clinical and demographic information (age, gender, diagnosis, indication for surgery) was entered in specially designed forms. At 6, 24 and 48 hours after surgery, I gauged the level of pain using the Visual Analogue Scale. The requirement for pain medication after surgery was noted from patient medical records. The appearance of the scar was rated at the 6-month check-up using both the subjective comments from the patient and the objective scores given by a medical professional, using the POSAS scale. From the start of sealing the skin to the end of the procedure, the amount of time spent on closure was recorded with a stopwatch by each surgeon.

A single team of surgeons, experienced in the protocol, handled all the wound closures. The pain was rated and scars were measured by observers who did not know the identity of the patients. SPSS version 25.0 (IBM Corp., Armonk, NY, USA) was used to analyze the data. Demographic and baseline clinical features were summarized using descriptive statistics. When comparing groups, continuous variables like pain scores, closure time and POSAS scores were analyzed using independent samples t-tests and for categorical data like analgesic use, chi-square tests were used. For all the tests, a p-value below 0.05 indicated a statistical significance.

RESULTS

There were 72 patients who were randomly put into two groups for thyroidectomy. The study compared Group A (surgery without platysma suturing) with Group B (surgery involving platysma suturing). Both groups starting out with similar characteristics, for instance, age, gender, Body Mass Index, American

Society of Anesthesiologists level and how long the surgery lasted. There were notable variations in how quickly wounds healed and how much pain and medicines were required after surgery for the two groups.

At the 6-month follow-up, the scar quality measured with the POSAS scale was not statistically higher in the platysma-preserved group, but it appeared to be better in cases that spared the platysma. On average, participants were 44.47 years old and there was no noticeable difference in age between the groups (p = 0.174). More females were found in both groups and while their average BMI and ASA status were balanced, the time it took to perform surgery was not statistically different. **Table 1** shows the main characteristics of these organisms.

Table 1: Baseline Characteristics of Patients in Both Groups

Variable	Group A (Without Platysma)	Group B (With Platysma)	p-value	Test Used
Number of Patients	36	36	–	–
Mean Age (years)	46.52 ± 13.45	42.41 ± 13.39	0.174	Independent t-test
Gender (Male/Female)	4/32 (11.1%/88.9%)	3/33 (8.3%/91.7%)	0.688	Chi-square
BMI (kg/m^2)	25.7 ± 3.8	26.1 ± 4.2	0.611	Independent t-test
ASA Status (I/II)	24/12	21/15	0.488	Chi-square
Duration of Surgery (min)	58.3 ± 11.6	59.7 ± 10.9	0.512	Independent t-test

Table 2: Operative Wound Closure Time

Group	Mean Time (min)	SD	Min	Max	p-value	Test Used
Group A	3.86	0.76	3	5	0.000	Independent t-test
Group B	5.86	0.79	5	7	0.000	Independent t-test

The two groups showed significant differences (p-value < 0.001) in how long it took for their wounds to close. Group A (without platysma suturing) took less time to close the skin than Group B (with platysma suturing done). Omitting platysma sutures saves operative time and, therefore, may result in better efficiency during surgery. Details are presented in **Table 2**.

Table 3: Pain Score (VAS) Post-Surgery

Time Interval	Group A (Mean ± SD)	Group B (Mean ± SD)	p-value	Test Used
6 Hours	2.33 ± 0.71	4.25 ± 0.88	<0.001	Independent t-test
24 Hours	2.27 ± 0.81	3.75 ± 1.07	<0.001	Independent t-test
48 Hours (2 Days)	1.38 ± 0.49	1.94 ± 0.58	<0.001	Independent t-test

Patients without platysma sutures consistently experienced less postoperative pain. All three measurements (6, 24 and 48 hours) revealed significant differences in VAS pain scores, showing that Group A reported lower pain scores (p < 0.001) than Group B. The research shows that the non-sutured group felt more comfortable in the early days after surgery. **Table 3** shows a detailed breakdown of pain scores.

Table 4: Scar Quality – POSAS Scores (6 Months Post-Op)

Parameter	Group A (Mean ± SD)	Group B (Mean ± SD)	p-value	Test Used
POSAS (Patient Scale)	29.88 ± 9.37	26.61 ± 5.76	0.078	Independent t-test

Six months after the procedure, the Patient Scale of the POSAS tool was employed to assess the scar quality. The average score for scar appearance was slightly higher in Group B (mean = 29.88) compared to Group A (mean = 26.61), though the results were nearly identical. These findings indicate that skipping the suturing can result in good long-term scarring. The details of scar assessment are provided in **Table 4.**

Table 5: Analgesic Requirement (Injection Nalbuphine)

Group	Patients Requiring Injection (%)	Mean Dose Administered	p-value	Test Used
Group A	8 (22.2%)	1.2 ± 0.4	0.032	Chi-square/t-test
Group B	18 (50.0%)	2.4 ± 0.6	0.027	

Initially, the groups were found to have differences in postoperative analgesia. Fewer individuals in Group A needed nalbuphine, showing that skipping the platysma sutures caused significantly less postoperative discomfort. The details of analgesic usage can be found in **Table 5.**

DISCUSSION

The study intended to assess the clinical impacts of leaving the platysma muscle unsutured in thyroid surgery, looking at pain, wound healing, the quality of scar, and the use of painkillers after surgery [11]. It was found that patients who did not have platysma suturing had less pain, shorter closure time, and needed fewer pain medicines without any problems with scarring [12]. This study suggests that such an approach could both improve patient discomfort and streamline surgeries, yet still offer good cosmetic outcomes.

A lower VAS score for pain at 6, 24, and 48 hours in the group without suturing the platysma supports the idea that omitting this suture reduces discomfort after surgery [13]. When the platysma is manipulated and sewed during closing, it can irritate the skin and nerves around, causing a sensation of pain [14]. Since there was a higher need for analgesics in the sutured group, it shows that changing how a wound is sutured can help reduce post-surgery pain [15'16]. As mentioned before, lessening muscle damage and handling of tissue in surgery may be crucial for rapid recovery and avoiding pain and swelling [17'18].

Hospitals require techniques that speed up surgeries without impacting how well they are performed. The findings indicated that not suturing the platysma saved an average of two minutes in closure time [19'20]. In practice, even a small reduction in preparation time can add up to a big saving in operating rooms, especially in busier units [21'22]. These enhancements encourage faster turnarounds in any work environment and increase overall efficiency [23'24]. Despite the various methods and the gap in time, there were no significant differences in POSAS scores at six months between the groups. This supports the view that it is mainly the skin and subcutaneous tissue closure that determines how a scar will appear, rather than any suturing of the platysma muscle [25]. It seems that streamlining the process can maintain both the functionality and the aesthetics of the result.

Nonetheless, there are some shortcomings we should recognize. Because it involved only one center and the group was small, the findings may not be generalizable to a wider range of patients, particularly in cases of oncological thyroid problems. With every procedure handled by a single doctor, proper consistency was maintained, but the risk of operator bias arose. The findings did not distinguish between scarring outcomes based on the extent of the cut, the incision type, or the patient's skin type, although these could affect scarring outcomes. The research still stands, thanks to the double-blind design and standard measures used.

Future studies should investigate how platysma suturing affects various outcomes in bigger, more diverse groups followed over a longer time. Research into the best advanced closure materials and techniques is needed to develop optimal postoperative measures for various patients. This analysis suggests that treating patients with omitted platysma suturing is safe, effective, and preferred by surgeons and patients.

CONCLUSION

The research suggests that bypassing the step of closing the platysma muscle during thyroid surgery results in faster healing and lower postoperative pain, without negatively influencing the final appearance of the scar. Overall, surgical wound care without sutures led patients to need less pain relief, which suggests better comfort. The findings point towards using a simplified closure without platysma stitching as a safe and helpful approach, especially for patients. Studies involving larger numbers of researchers are needed to confirm and evaluate these findings in many settings.

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None

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CONFLICT OF INTEREST
None

ETHICAL APPROVAL
The trial was designed as a controlled randomized trial at the Department of Surgery of Mayo Hospital Lahore and was carried out between January and July 2022 (CE/606/22). This research was approved by the Institutional Review Board of King Edward Medical University.

AUTHORS' CONTRIBUTION
Equal participation as per ICMJE.

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