

## Comparison of Steristrips and Subcuticle Suture for Wound Closure after Thyroid Surgery in Telangana Population

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### Abstract

**Background:** The main aspect of wound repair is the long-term aesthetic or cosmetic appearance of the scar, as the thyroid gland is located on the anterior aspect of the neck and is easily visible. Postoperative wound closure is preferred after surgery.

**Method:** Out of 50 (fifty), 25 patients were closed by the sub-cuticular suture technique, and 25 were closed by steristrips followed by thyroidectomy. Verbal analogue scales and visual analogue scales were compared. Moreover, a cosmetic visual analogue was also compared after the 6<sup>th</sup> week of the surgery.

**Results:** Comparison of verbal analogue scale for neck mobility and visual analogue of neck mobility after certain intervals and significant p value ( $p < 0.001$ ). After six weeks of surgery, the steri-strip technique had 23 (92%) excellent and 2 (8%) good results, and sub-cuticular had 20 (80%) excellent results and 5 (20%) good cosmetic appearance.

**Conclusion:** In the present pragmatic study, it was concluded that steri-strip sutures were better in visual, verbal, and cosmetic analogue and reduced the stay in hospital as compared to sub-cuticular suture technique.

**Keywords:** stri-strips, sub-cuticular, visual analogue, verbal analogue, Telangana

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### Introduction

Thyroid and parathyroid surgery is quite common, including both benign and malignant disease indications [1]. The surgical approach to these endocrine glands typically involves an anterior cervical (or "Kocher") incision, which is located in a highly visible and potentially sensitive area based on its anatomical location on the anterior aspect of the patient's neck.

There are several approaches, i.e., adhesive, which involves closing the wound using monomer contact with tissue anions and forming a strong bond that holds the edges together [2]. Sub-cuticular sutures, which are commonly intra-dermal stitches placed immediately below and bring tension to the epidermal layer, are thought to be advantageous as they cause less tissue reaction and the absence of marks on the skin and may be absorbable or non-absorbable [3,4]. Staples (or metal clips), which are applied to the external dermis and bring the dermal edges of the wound together, cause postoperative pain compared with other closure methods. Steristrips are adhesive skin closure bands or strips used to bring opposing edges of the wound together.

Hence, an attempt is made to compare the sub-cuticular suture and steristrips for wound closure after thyroid surgery based on post-operative pain assessment, post-operative neck mobility, and post-operative scar appearance.

### Material and Method

50 (fifty) patients aged 20 to 60 years regularly visited Surabhi Institute of Medical Sciences Siddipet, Telangana-502375 were studied.

**Inclusive Criteria:** Age above 18 years and below 65 years for patients with benign lesions. Those who have given their consent in writing were selected for study.

**Exclusion Criteria:** patients below 18 years of age and above 65 years of age with malignancy of the thyroid, previous neck irradiations, and type II DM were excluded from the studies.

**Method:** Patients undergoing thyroidectomy were randomised to have their wounds closed by subcuticular suture or the steristrips skin closure technique. Post-operative pain is assessed by verbal

response and a visual analogue scale for three consecutive post-operative periods, after 48 hours and 7 days, and a cosmetic visual analogue scale was noted after 6 weeks.

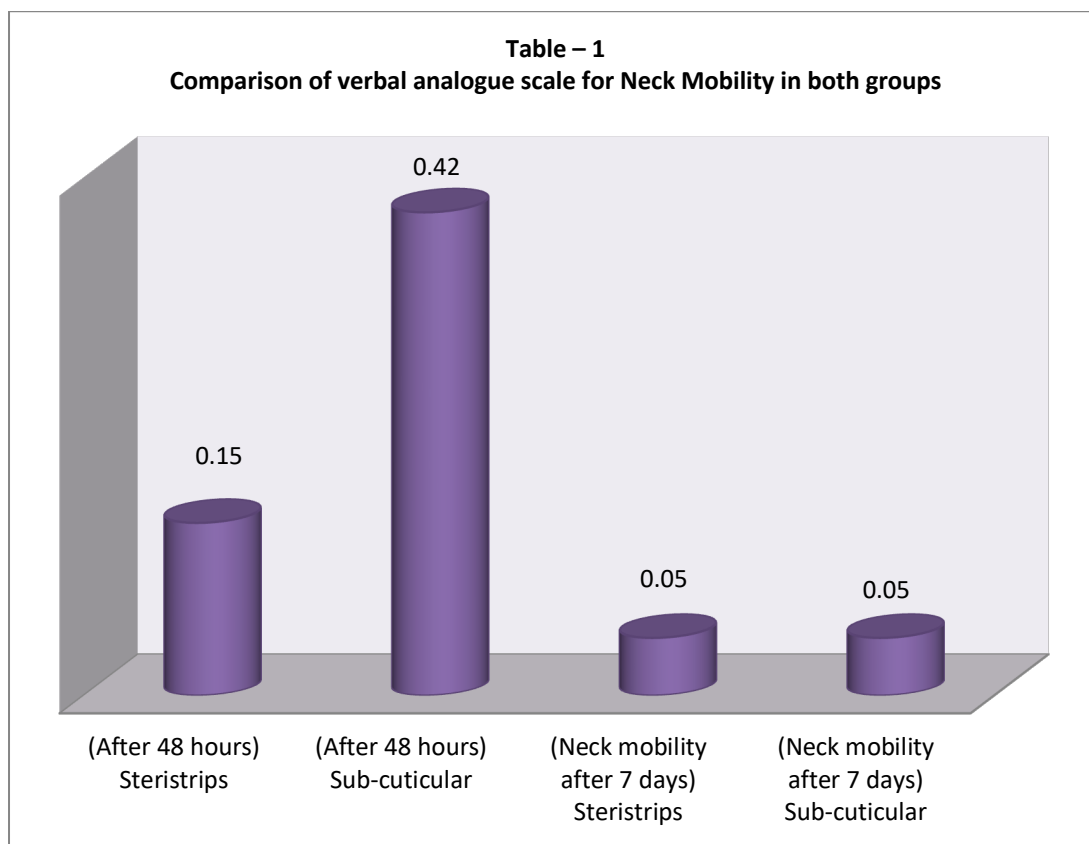
The duration of the study was July 2021 to May 2023.

**Statistical analysis:** The visual analogue scale and verbal analogue scale of both patients at different intervals were compared, and significant results were noted. The statistical analysis was carried out in SPSS software. The ratio of males and females was 1:2.

**Observation and Results**

**Table 1: Comparison of verbal analogue scale for Neck Mobility in both groups**

Neck mobility	Group	Number	Mean value (±SD)	t test	p value
After 48 hours	Steristrips	25	0.15 (±0.3)	23.1	P<0.001
	Sub-cuticular	25	0.42 (±0.5)		
Neck mobility after 7 days	Steristrips	25	0.05 (± 0.2)	0	P<0.001
	Sub-cuticular	25	0.05 (± 0.2)		

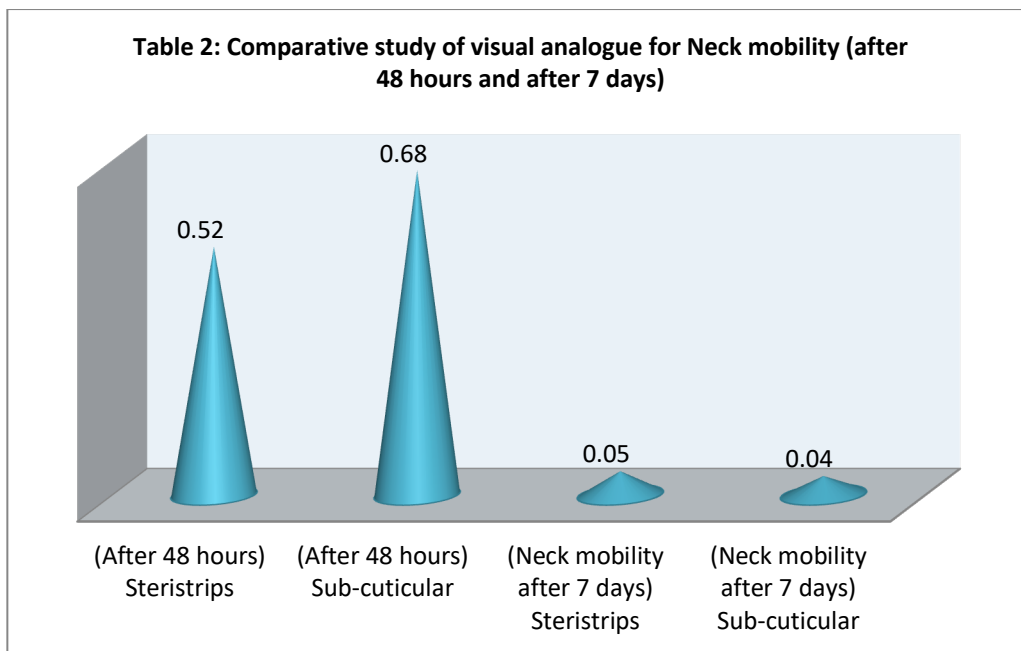


**Table 1:** Comparison of verbal analogue scales for mobility in both groups

- Neck mobility After 48 hours: 0.15 (± 0.3) in the Steristrips group and 0.42 (± 0.5) in the Cuticular group, the t test was 2.31 and p<0.001.
- Neck mobility after 7 days: 0.05 (± 0.2) in the Steristrips group, 0.05 (± 0.2) in the cuticular group; t test was 0 and p<0.001

**Table 2: Comparative study of visual analogue for Neck mobility (after 48 hours and after 7 days)**

Neck mobility	Group	No. of patient	Mean value (±SD)	t test	p value
After 48 hours	Steristrips	25	0.52(±0.16)	2.35	P<0.002
	Sub-cuticular	25	0.68(±0.30)		
Neck mobility after 7 days	Steristrips	25	0.05(± 0.02)	2.25	P<0.003
	Sub-cuticular	25	0.04(± 0.01)		

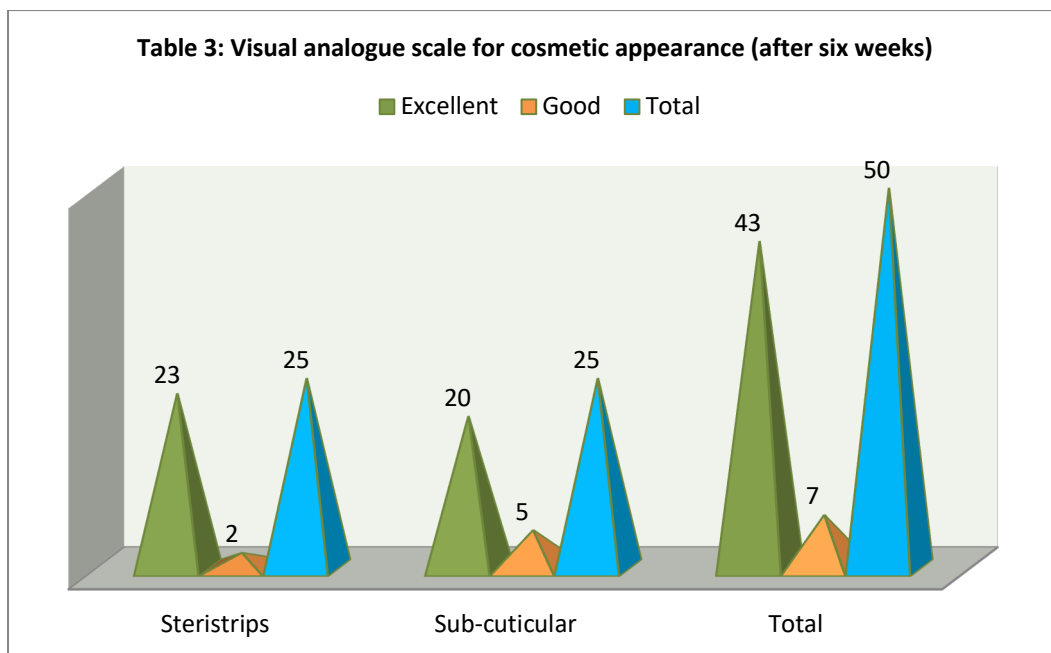


**Table 2:** Comparative Study of Visual Analogue for Neck Mobility (After 48 Hours and 7 Days)

- After 48 hours, 52 ( $\pm 0.16$ ), in sub-cuticular, 0.68 ( $\pm 0.30$ ), t test was 2.35 and  $p < 0.002$ .
- Neck mobility after 7 days: 0.05 ( $\pm 0.1$ ) in Steristrips, 0.04 ( $\pm 0.2$ ) in cuticular group; t test was 2.23 and  $p < 0.03$

**Table 3: Visual analogue scale for cosmetic appearance (after six weeks)**

	Steristrips	Sub-cuticular	Total
Excellent	23 (92%)	20 (80%)	43 (86%)
Good	2 (8%)	5 (20%)	7 (12%)
Total	25 (100%)	25 (100%)	50 (100%)



**Table 3:** Visual analogue scale for cosmetic appearance (after six weeks)

- steristrips had 23 (92%) excellent and 2 (8%) good appearances.
- In sub-cuticular 20 (80%) sub-cuticular, 5 (20%)

## Discussion

present a comparative study of steri-strips and sub-cuticular suture technique in the Telangana population. In the comparison of verbal analogue scales for neck mobility in both groups, after 48 hours, 0.15 ( $\pm$  0.3) in steristrips and 0.42 ( $\pm$  0.5) in sub-cuticular suture technique, the t test was 2.31 and  $p < 0.001$ . Neck mobility after 7th days was 0.05 ( $\pm$  0.02) in the steristrips suture technique and 0.05 ( $\pm$  0.2) in the sub-cuticular technique; the t test was 0 and  $p < 0.001$  (Table 1). In the comparative study of visual analogue for neck mobility (after 48 hours and 7 days): 0.52 ( $\pm$  0.16) in steristrips, 0.68 ( $\pm$  0.40) in sub-cuticular sutures, the t test was 2.15 and  $p < 0.002$ . Neck mobility after 7th days: 0.05 ( $\pm$  0.01) in steristrips, 0.04 ( $\pm$  0.02) in sub-cuticular; t test was 2.23 and  $p < 0.03$  (Table 2). The visual analogue scale for cosmetic appearance (after six weeks) steristrip suture technique has 23 (92%) excellent and 2 (8%) good. In sub-cuticular had 20 (80%) excellent, 5 (20%) good (Table-3). These findings are more or less in agreement with previous studies [5-7].

Steri-strip closure is a proposed alternative method for thyroidectomy wound closure because it can be applied rapidly, is inexpensive, painless, optimises cosmesis, and limits the chance of infection. The study sought to determine whether these potential advantages could be realised in clinical practice in a prospectively randomised study comparing steristrip to traditional subcuticular running absorbable sutures [8].

When using the steri-strip technique, additional time is spent ensuring that the skin is dry with no active bleeding and that accurate apposition of the skin edge is achieved. For this technique, additional time is necessary to ensure that the strips will not separate prematurely. Steri-strips had a favourable impact on inflammatory changes, oedema, and erythema [9]. Sub-cuticular sutures had significant inflammatory changes with oedema and erythema and more tissue damage as compared to steri-strips [10].

As the thyroid gland is very vascular, it needs general anaesthesia for a thyroidectomy. Skin closure is the last step of any surgery where much time should not be spent so as to avoid unnecessary exposure to anaesthetic risks to the patient [11]. The ultimate responsibilities for the choice of the best cosmetic acceptability of the scar and neck mobility are the important outcomes after the collar line incision for the neck surgery. Needles present in sutures make the surgeon and assistant susceptible to needle-prick injuries. The use of sutures leaves suture marks perpendicular to the line of incision. These disadvantages are avoided by using the sterilisation technique.

## Summary and Conclusion

In the present study of surgical closure, the Steristrips technique is a safe and effective method

for closing a thyroidectomy wound. In the final analysis, the choice of wound closure material will depend on the surgeon's preference. There was no considerable difference in postoperative neck mobility when comparing the subcuticular suture and the Steristrips technique. However, this study shows that sterilisers can be removed more quickly and cause less discomfort than sutures. The Steristrips technique had excellent cosmetic advantages.

**Limitation of Study:** Owing to the tertiary location of the research centre, the small number of patients, and the lack of the latest techniques, we have limited findings and results.

- This research paper was approved by the ethical committee of the Surabhi Institute of Medical Sciences, Siddipet, Telangana-502375.
- No Conflict of Interest
- Self Funding

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