

Comparative Study of Steristrips and Subcuticular Suture for Wound Closure after Thyroid Surgery - Retrospective Study

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Conflict of interest: Nil

Abstract:

Background: Thyroid and parathyroid surgeries are increasingly common globally, including both benign and malignant. As these endocrine glands are located in the anterior parts of the neck, early healing and a cosmetic method of surgery are preferred.

Method: 45 patient's wounds were closed by sub-cuticular sutures and 45 patients by steristrips followed by thyroidectomy and verbal analogue scales; visual analogue scales at different intervals were compared. Moreover, cosmetic visual analog was also compared after 6th week of the surgery.

Results: Verbal analogue after 48 hours and visual analogue after 48 hours had a significant p value ($p < 0.001$), and steri-strips had excellent results of 93.3% and 6.6% of good results, and sub-cuticular sutures had 80% excellent and 20 good cosmetic appearance.

Conclusion: Steri-strip sutures were better in both visual, verbal, and cosmetic analogue and reduced the stay in hospital as compared to sub-cuticular suture technique.

Keywords: Cosmesis, Verbal Analogue, Visual Analogue, Steristrips, Subcuticular.

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Introduction

Thyroid and parathyroid surgeries are increasingly common globally, including both benign and malignant. 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 [1]. In recent years, remote-access approaches to reselecting these glands have been pioneered with the purpose of improving cosmesis, patient satisfaction, and reducing postoperative complications [2].

There are several approaches to adhesives that involve closing the wound using monomer liquid glues that polymerize at contact with tissue anions, forming a strong bond that holds wound edges together, and subcuticular sutures, which are commonly intradermal stitches placed immediately below and bring tension to the epidermal layer [3].

Staples (or metal clips), which are adhesive skin closure bands or strips used to bring opposing edges of wound together, and conventional interrupted (or loop) sutures, which are renowned for being time-consuming and cosmesis results being operator-dependent [4]. Hence, an attempt was made to

compare these both methods to evaluate the early healing and cosmetic excellence.

Material and Method

90 (ninety) patients aged 20 to 60 years regularly visited Navodaya Medical College hospital, Raichur, Karnataka-584101 were studied.

Inclusive Criteria: Age above 18 years and below 65 years patients having benign lesions. Who gave their consent in writing selected for study.

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

Method: Patients undergoing thyroidectomy were randomized to have their wounds closed by subcuticular sutures or steristrips sutures. Postoperative pain is assessed by verbal response and visual analogue scale for three consecutive postoperative periods. After 48 hours and after 7 days, the cosmetic visual analogue scale wasn't done after 6 weeks.

The duration of the study was March 2022 to April 2024.

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 male and female was 1:2.

Observation and Results

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

- After 48 hours: 0.18 (± 0.4) in the steristrips group, 0.44 (± 0.3) in the subcuticular group; t test was 3.48 and p<0.001 (p value is highly significant).
- After 7 days – 0.05 (± 0.5) in steristrips, 0.05 (± 0.1) in subcuticular group, t test 00 (zero) and p<0.001 (p value is highly significant).

Table 2: Comparative study of visual analogue for neck mobility in both groups

- After 48 hours and - 0.55 (± 0.18) in the Steristrips group and 0.72 (± 0.38) in the subcuticular group, the t test was 2.71 and p<0.001 (p value is highly significant).
- After 7 days, neck mobility was -0.05 (± 0.2) in the Steristrips group and 0.05 (± 0.2) in the subcuticular group; the t test was 00 (zero) and p<0.001 (the p value is highly significant).

Table 3: Visual analogue scale for cosmetic appearance in both groups

- Excellent 42 (93.3%) in steristrips, 36 (80%) subcuticular
- Good: 3 (6.6%) in steristrips, 9 (20%) in subcuticular

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	45	0.18 (±0.4)	3.48	P<0.001
	Sub-cuticular	45	0.44 (±0.3)		
Neck mobility after 7 days	Steristrips	45	0.05 (± 0.1)	0	P<0.001
	Sub-cuticular	45	0.05 (± 0.1)		

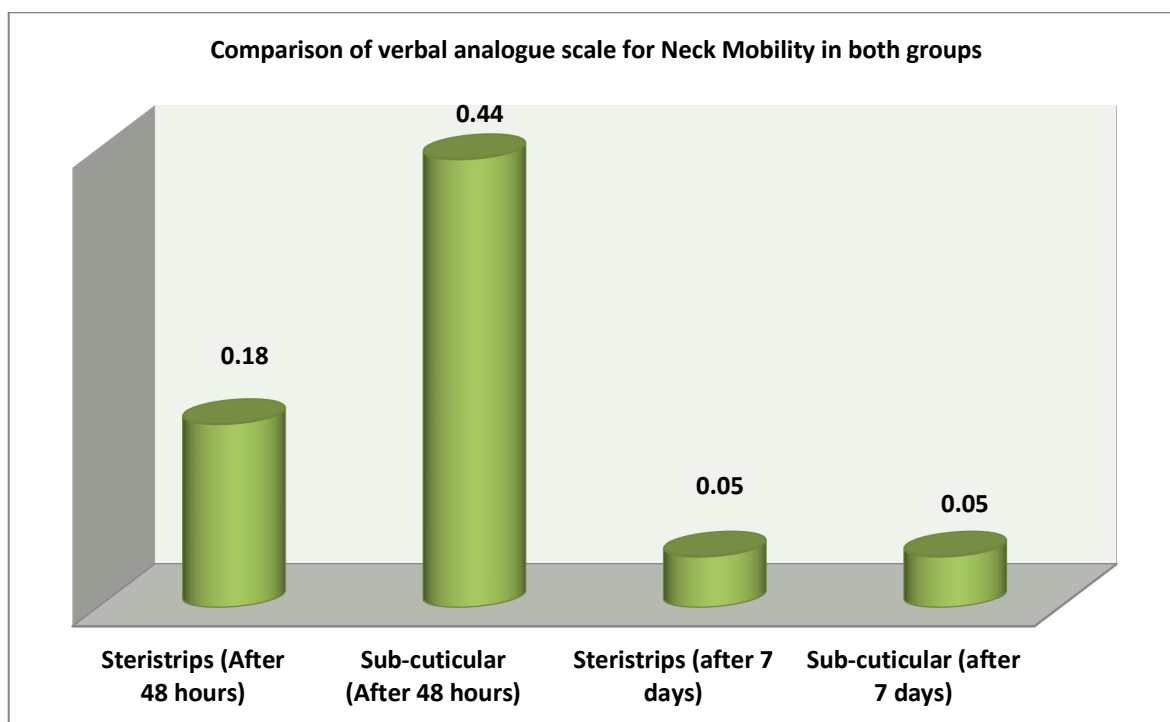


Figure 1: Comparison of verbal analogue scale for Neck Mobility in both groups

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

Neck mobility	Group	Number	Mean value (±SD)	t test	p value
After 48 hours	Steristrips	45	0.55 (±0.18)	2.71	P<0.001
	Sub-cuticular	45	0.72 (±0.38)		
Neck mobility after 7 days	Steristrips	45	0.05 (± 0.2)	0	P<0.001
	Sub-cuticular	45	0.05 (± 0.2)		

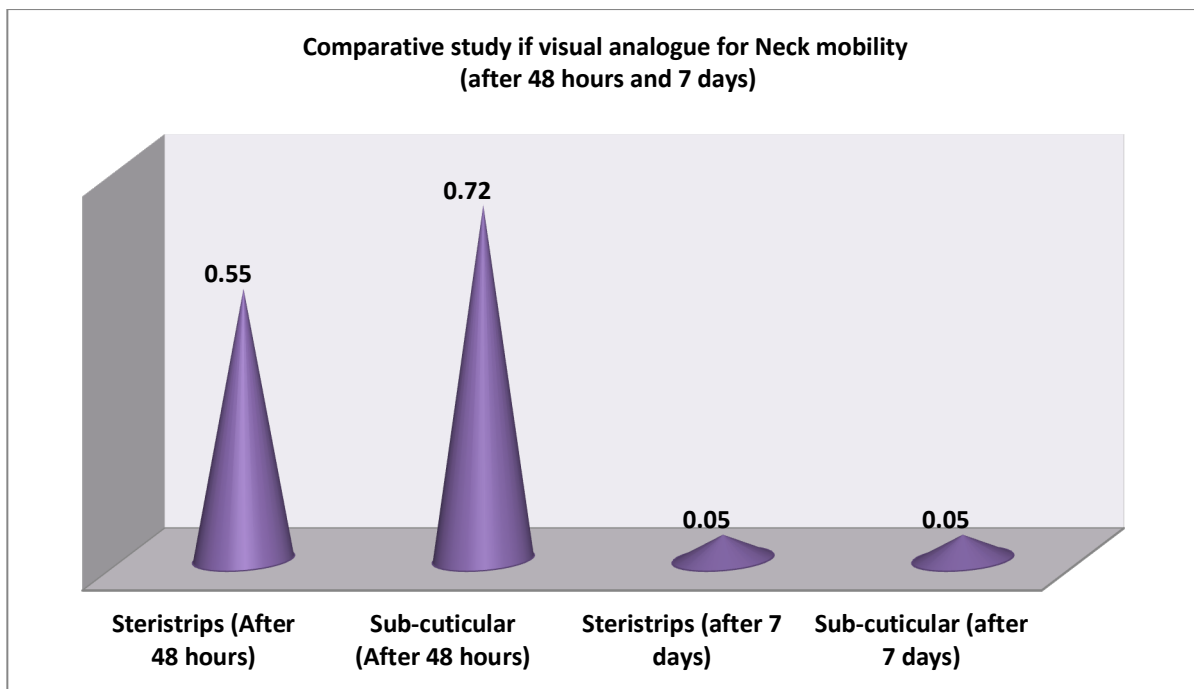


Figure 2: Comparative study if visual analogue for Neck mobility (after 48 hours and 7 days)

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

	Steristrips	Sub-cuticular	Total
Excellent	42 (93.3%)	36 (80%)	78 (86.6%)
Good	3 (6.6%)	9 (20%)	12 (13.3%)
Total	45 (100%)	45 (100%)	90 (99.9%)

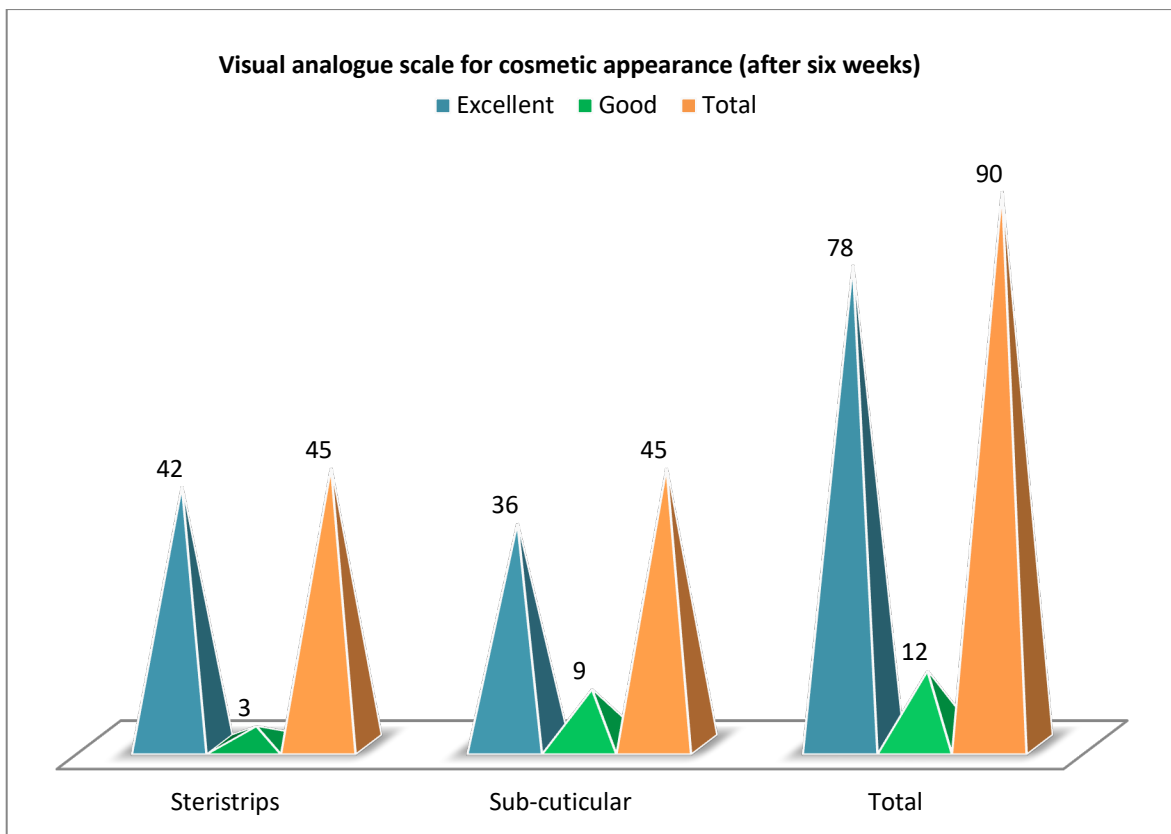


Figure 3: Visual analogue scale for cosmetic appearance (after six weeks)

Discussion

Present a comparative study of steristrips and subcuticle sutures for wound closure after thyroid surgery. The comparison of verbal analogue score for neck mobility in both groups, i.e., steristrips and subcuticular, had a significant p value ($p < 0.001$) (Table 1). In comparison of visual analogue for neck mobility (after 48 hours and 7 days) in steristrips technique and subcuticular method had significant p value ($p < 0.001$) (Table 2). In the study of visual analogues for cosmetic appearance was compared in both groups: excellent 93.3% in steristrips and 80% in subcuticular technique (Table 3). These findings are more or less in agreement with previous studies [5,6,7]. Semi-strip closures are a proposed alternative method for thyroidectomy wound closure because they can be applied rapidly, are inexpensive, painless, optimize cosmesis, and limit the chance of infection. The study sought to determine whether these potential advantages could be realized in clinical practice in a prospectively randomized study comparing steristrip to traditional subcuticular running absorbable sutures [8]. When using the steri-strip technique, additional time is spent insuring that the skin is dry and there is bleeding and 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 favorable impact on inflammation 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 anesthesia 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 of anesthetic risk to the patient [11]. The ultimate responsibilities for the choice of best cosmetic acceptability of scar and neck mobility are the important outcomes after collar line incision for the neck surgery. Needles present in sutures make the surgeon and assistant susceptible to needle stick injuries. The use of sutures leaves suture marks perpendicular to the line of incision. These disadvantages are avoided by using the steristrip technique.

Summary and Conclusion

In the present study of surgical closure, the Steristrips technique is a safe and effective method for closing thyroidectomy. 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 subcuticular suture and Steristrips technique. However, this study shows that sterilizers can be removed more quickly, causing less discomfort than the removal of sutures. The Steristrips technique had excellent cosmetic advantage.

Limitation of Study: Owing to the tertiary location of the research center, 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 Navodaya Medical College Hospital, Raichur, and Karnataka-584101.

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