



The effects of cervical kinesio taping on neck pain, range of motion, and disability in patients following thyroidectomy: A randomized clinical trial

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Introduction

Thyroidectomy is a frequently performed surgical procedure. The head and neck extension during this operation facilitates surgery. Patients may experience postoperative neck pain and range of motion (ROM) limitation due to the surgical position following thyroidectomy. We aimed to investigate the short-term effects of Kinesio taping (KT), applied to the cervical spine, on neck pain, cervical ROM, and disability in patients following thyroidectomy.

Methods

This was a prospective, double blind randomized controlled trial. A total of 80 patients were randomly assigned to applied either KT (Group 1, n=40) or sham taping (Group 2, n=40) using a computer-generated random number list. Six patients from each group dropped out. The participants, the surgeon and the researcher who evaluated the outcomes were all blinded as to group allocations.

All thyroidectomy procedures were performed by same surgeon (VG). Immediately after the surgical procedure, the 5-cm Y-shaped tape (Kinesio Tex® Gold; Tokyo, Japan) was placed symmetrically over the posterior cervical extensor muscles with a degree of tightness of 25% and placed from the dorsal region (T1-T2) to the upper-cervical region (C1-C2) in patients in the Group 1. Each "tail" of the bandage is attached to the skin so as to provide the cervical spine with contralateral flexion and rotation. The second strip was 5-cm wide and shaped as a capital 'I'. It was applied perpendicular to the Y-strip, over the midcervical region (C3-C6), with the cervical spine in flexion to apply tension to the posterior structures. In the Group 2 (sham group), only a 5-cm wide I-shaped tape was placed over the midcervical region with the patient's cervical spine in flexion to apply tension to the posterior structures without applying tension in the transverse plane. All tape applications were performed by the same researcher (AG).

Neck pain, cervical ROM, and neck disability were evaluated with VAS, inclinometer, and Neck Disability Index (NDI) questionnaire, respectively. While VAS was recorded preoperatively and 30 min, 4 hr, 12 hr, 24 hr, and 7 days after surgery, ROM and NDI was recorded preoperatively and 24 hr after surgery. Patients were only allowed to use paracetamol after surgery and the daily dose was recorded.

Results

The mean ages of the Group 1 and Group 2 were 51.6 ± 14.9 and 49.2 ± 16.3 years, respectively. Table 1 shows a comparison of the baseline demographics and clinical characteristics between the two groups. There was no significant differences with respect to age, gender, educational background, body mass index, ASA score, and surgery duration.

The improvement in VAS values was more significant in favor of Group 1 (p=0.032) (Figure 1). There was no significant differences with respect to improvement of ROM values of the cervical spine in flexion, extension, right-left flexion, and right-left rotation between groups during the study. The changes between preoperative and postoperative 7th day of the NDI score was 0.6% in Group 1 and

3.1% in Group 2, but this difference was not statistically significant (p=0.486) (Table 2). However, the mean requirement for the use of analgesics within the first 7 days after the operation was significantly (p=0.011) less in the Group 1 (3.4 ± 3.5 tablets, mean ± SD) than in the Group 2 (5.1 ± 3.2 tablets, mean ± SD).

Table 1. Demographics and the clinical characteristics of the two groups.

Variable	Group 1, n=34	Group 2, n=34	p
Age (years), mean ± SD	51.6 ± 14.9	49.2 ± 16.3	NS
Gender (male / female)	10 / 24	7 / 27	NS
Educational background, n			NS
Primary school	14	10	
Secondary school	8	8	
High school	6	9	
University	6	7	
BMI (kg/m ²), mean ± SD	30.2 ± 5.8	28.3 ± 6.0	NS
ASA physical status (I / II / III)	22 / 11 / 1	20 / 10 / 4	NS
Surgery duration (min)	113.1 ± 40.6	117.5 ± 30.0	NS

NS: not significant; BMI: body mass index; ASA: American Society of Anesthesiologists

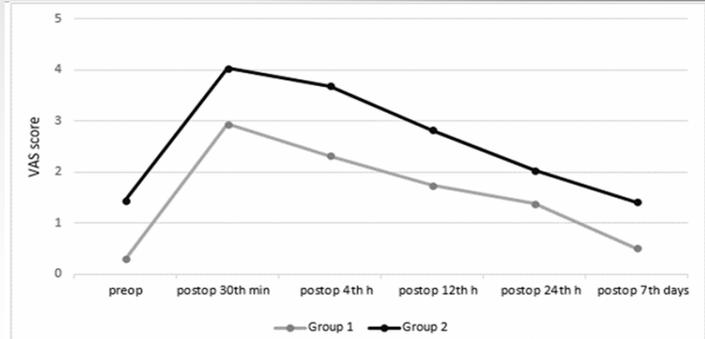


Figure 1. The change of visual analog scale (VAS) in groups during the study.

Table 2. Comparison of VAS, ROM and NDI values before and after surgery.

VAS (0-10)	BS	30th min	4th h	12th h	24th h	7th day	p ¹
Group 1	0.29 ± 0.87	2.94 ± 2.96	2.32 ± 2.67	1.74 ± 2.15	1.38 ± 1.74	0.50 ± 0.90	0.032
Group 2	1.44 ± 2.06	4.03 ± 3.05	3.68 ± 3.01	2.82 ± 2.09	2.03 ± 1.94	1.41 ± 1.98	

ROM (percentage changes BS to 24th h)	Extension	Flexion	Right lateral flexion	Left lateral flexion	Right rotation	Left rotation
Group 1	33.14 ± 21.18	14.50 ± 20.19	15.47 ± 20.55	15.27 ± 18.50	22.32 ± 21.52	20.98 ± 18.59
Group 2	26.00 ± 24.03	17.60 ± 16.78	13.40 ± 22.40	15.59 ± 22.66	19.56 ± 20.29	20.32 ± 20.08
p ²	0.152	0.510	0.871	0.474	0.662	0.417

NDI (0-100%)	BS	7th day	BS to 7th day
Group 1	9.23 ± 6.66	9.87 ± 6.33	0.64 ± 7.14
Group 2	16.01 ± 14.44	19.14 ± 15.55	3.12 ± 14.51
p ³			0.486

VAS: visual analog scale; ROM: range of motion; NDI: neck disability index

Values are mean units ± SD. BS: Before surgery, AS: After surgery (30th min, 4th h, 12th h, 24th h, 7th day)

p¹: The comparison of changes from BS values to AS values between two groups. (Pillai's Trace)

p²: The comparison of percentage changes of ROM values from BS values to 24 h AS values between two groups.

p³: The comparison of percentage changes of NDI% values from BS values to 24 h AS values between two groups.

Conclusion

Thyroidectomy is a common surgical procedure. In the postoperative period, an effective pain management is essential and also the primary target is to improve the postoperative comfort and satisfaction of the patient, to facilitate recovery and functional ability, and to promote rapid discharge from the hospital. KT has a positive effect on pain, prevention and treatment of joint injury and provides a great pain-free ROM in the musculoskeletal system.

To date, no published report has previously described the use of KT for decreasing postoperative neck pain in patients undergoing thyroidectomy. To our knowledge, this prospective study is the first to report the use of KT applied to the cervical spine to decrease postoperative neck pain and analgesic consumption after thyroidectomy.

References

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