

## Original Research Article

# Scrotal hitch: a novel technique to reduce post-operative scrotal oedema in inguinal hernia surgeries: a pilot study

Raadhika Raja<sup>1</sup>, P. N. Sreeramulu<sup>1\*</sup>, Vikranth Suresh N.<sup>2</sup>, Srinivasan D.<sup>2</sup>

<sup>1</sup>Department of Surgery, <sup>2</sup>Department of General Surgery, Sri Devaraj Urs Medical College, Kolar, Karnataka, India

**Received:** 05 December 2019

**Revised:** 02 March 2020

**Accepted:** 03 March 2020

### \*Correspondence:

Dr. P. N. Sreeramulu,

E-mail: [drsreeramulupn@yahoo.in](mailto:drsreeramulupn@yahoo.in)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** Inguinoscrotal swellings are the most common presenting complaints in the surgical outpatient department and surgeries for the same are the most commonly done elective procedures. However meticulous the surgeon is, there is always some amount of scrotal oedema. Our study is intended to use a simple and novel technique by applying a scrotal hitch after the surgery to prevent the scrotal oedema. The aim of the study was to evaluate the effectiveness of a scrotal hitch in reducing the scrotal oedema and pain postoperatively.

**Methods:** In this study all subjects undergoing inguinal hernia surgeries at undergoing at R.L. Jalappa Hospital, Kolar from June 2019 to August 2019 were included. Of the 60 subjects, 30 in group A were given scrotal hitch and subjects in group B were given scrotal support alone. The incidence of scrotal oedema and postoperative pain and development of any complications will be compared in both the groups.

**Results:** A total of 60 subjects were included in this study. Mean age of patients in group A is 45.63±21.745 and group B is 41.43±24.579. 2 patients with scrotal hitch developed scrotal edema whereas 6 patients developed scrotal edema in group B. The post-operative pain score was lower in patients with scrotal hitch.

**Conclusions:** Scrotal hitch is a simple and effective technique in preventing post-operative oedema and pain. The results of this study would encourage surgeons to take up this simple procedure to prevent the commonest complication of inguino-scrotal surgeries.

**Keywords:** Hernioplasty, Scrotal hitch, Scrotal edema

## INTRODUCTION

Inguinoscrotal swellings are the most commonly presenting complaints in the surgical outpatient department and surgeries for the same are the most commonly done elective procedures. Scrotal surgery, although generally considered to be technically easy and routine, the incidence of complications is considerable.

The scrotum is a well vascularised structure with many vessels coursing in the skin, dartos muscle and various tunic layers.<sup>1</sup> Because the scrotum is expandable and

there is no tamponading effect, even capillary bleeding that remains unrecognized can result in extensive hemorrhage and hematoma formation, which in turn can lead to prolonged convalescence with marked scrotal discomfort that may last 2 to 3 months. Such patients also are at an increased risk for scrotal infection. Most bleeding originates within the scrotal wall, primarily from the dartos layer, and dissects subcutaneously.<sup>1</sup> As a result, placement of a drain in the scrotum at operation or repeat exploration and drainage usually are ineffective in resolving this situation.

Thus, at the scrotal procedure it is extremely important that meticulous hemostasis be obtained, and that the scrotum be positioned and dressed in a manner to prevent postoperative edema formation and subcutaneous hemorrhage. However meticulous the surgeon is there is always some amount of scrotal oedema. Many techniques have been used to prevent postoperative scrotal oedema like T-bandages, tight undergarments etc.

Our study is intended to use a simple and novel technique by applying a scrotal hitch after the surgery to prevent the scrotal oedema.

The aim of the study was to evaluate the effectiveness of a scrotal hitch in reducing the scrotal oedema and pain postoperatively.

## METHODS

In this cross-sectional comparative study 60 male subjects undergoing inguinal hernia surgeries at R.L. Jalappa Hospital, Kolar were included after due consent.

From June 2019 to August 2019, 60 cases of inguino-scrotal swelling who underwent hernia repair with or without mesh were divided in two groups randomly.

Subjects in group A were given scrotal hitch- a suture from the bottom of scrotum to the skin near pubic symphysis with an absorbable suture material (chromic catgut).

Subjects in group B were given scrotal support alone in the form of coconut bandage immediately post-surgery followed by use of tight undergarment from next day.

### *Ethical approval*

The study was approved by the Institutional Ethics Committee of Sri Devaraj Urs Medical College, Kolar

### *Follow-up*

Patients were followed up at 6,24,48 and 72 hours for various parameters such as operative time, complications (cord edema, seroma, or hematoma), postoperative pain.

Scrotal hitch is removed on 3<sup>rd</sup> postoperative day.

The incidence of scrotal oedema and postoperative pain and development of any complications will be compared in both the groups. Postoperative pain was measured by visual analog scale (VAS).

### *Statistical analysis*

Data was analyzed using SPSS 22 version software. Categorical data was represented in the form of frequencies and proportions. Chi-square test was used as

test of significance for qualitative data. Continuous data was represented as mean and standard deviation. Mann Whitney U test was used as test of significance to identify the mean difference between two qualitative variables. P value (probability that the result is true) of <0.05 was considered as statistically significant after assuming all the rules of statistical tests.



**Figure 1: Right hernioplasty with scrotal hitch.**

## RESULTS

Of the 60 subjects studied, group A had 30 subjects and group B had 30 subjects. Mean age of patients in group A is  $45.63 \pm 21.745$  and group B is  $41.43 \pm 24.579$  years.

There was no significant difference in age distribution between two groups.

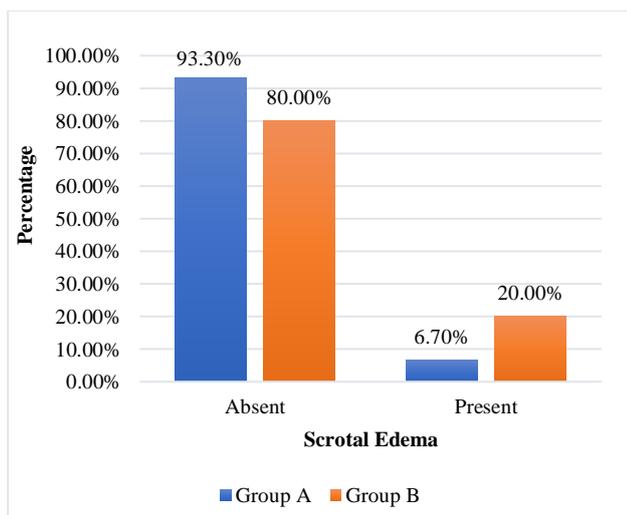
Right indirect hernia was the most common type of hernia encountered in our study. Majority of the subjects underwent hernioplasty.

In group A, 6.7% had scrotal edema. In group B, 20% had scrotal edema.

However, there was no statistically significant difference in scrotal edema between two groups.

In the group A, median VAS score at 6 hrs was 3, at 24 hrs was 2, at 48 hrs was 1 and 72 hrs were 1. In group B, median VAS score at 6 hrs was 4, at 24 hrs was 4, at 48 hrs was 2 and 72 hrs were 2. There was significant difference in median VAS score or pain score between two groups from 6 hrs to 72 hrs. Group A had lower pain score compared to group B.

Other complications noted were superficial surgical site infection in 2 patients in group B and 1 patient in group A. Inguinodynia was observed in 1 patient from each group.



**Figure 2: Comparison of post-operative scrotal edema in the study subjects.**

## DISCUSSION

Post-surgical oedema is proposed to be a normal consequence and not a complication of tissue injury.<sup>3</sup> Oedema occurs due to rise of osmotic pressures, altered capillary permeability and transudation of fluid through the vessels into the area of damage. Also, obstruction of the local lymphatic system by fibrinogen clots derived from the adjacent injured tissues will cause oedema.

Eventually, all these changes make the fluid accumulates in the interstitial spaces. Oedema varies from area to area and accumulates more freely in areas of loose connective tissues, whereas the tightly bound down tissues to underlying structures tend to have less oedema. This immediate oedema maximizes within 24-72 hours during the post-operative period.

Because the scrotum is extremely vascular and distensible, an effective method to prevent postoperative hemorrhage and edema is necessary. During the years many different scrotal dressings have been used to achieve this. Mandler used a surgical face mask with elastoplast coursing diagonally from the inferior gluteal area of the thigh to the contralateral lower abdomen in an effort to apply constant pressure to the scrotum postoperatively.<sup>4</sup> Another technique is to grasp the most dependent portion of the scrotum and, with slight traction, wrap tightly the entire scrotum with a 2-inch wide roll of gauze or tape.<sup>5,6</sup>

Manson and MacDonald developed the turban scrotal dressing in which the 2-inch wide roll of gauze is wrapped around the scrotum in the style of a turban.<sup>7</sup> Despite this dressing 1 of their 289 patients had a postoperative hematoma and 1 had an intrascrotal abscess; both complications required surgical intervention. Others have simply recommended tying a gauze roll or several gauze pads rolled into a tight

cylinder over the incision and applying a scrotal support.<sup>8-10</sup> However, none of these dressings produces scrotal elevation. In addition, many are cumbersome and do not provide effective, constant pressure to the scrotum.

In our study we used a simple suture from the bottom of the scrotum to the skin over the pubic symphysis with an absorbable suture material. This elevates the scrotum as a whole thus allowing for little collection of oedema or superficial hematoma and at the same time does not cause any inconvenience to the patient in voiding as the penis is pushed to one side. Only 2 of the 30 subjects developed oedema in our study. Also, there were no side effects with the technique and no subject complained of discomfort due to the application of this stitch.

## CONCLUSION

Scrotal hitch is a simple and effective technique in preventing post-operative oedema and reducing post-operative pain.

The results of this study would encourage surgeons to adopt this simple technique to prevent the commonest complication of inguinal hernia surgeries.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

- Oesterling JE. Scrotal surgery: a reliable method for the prevention of postoperative hematoma and edema. *J Urol.* 1990;143:1201-2.
- Agha RA, Borrelli MR, Vella-Baldacchino M, Thavayogan R, Orgill DP, for the STROCSS Group. The STROCSS Statement: Strengthening the Reporting of Cohort Studies in Surgery. *Int J Surg.* 2017;46:198-202.
- Elhanbly S, Youssef T, Elkholy A, Abdel-Gawad M, Mostafa TJ. Hydrocortisone relieves the immediate post-operative scrotal oedema after inguinal varicocelectomy: A prospective clinical trial. *Adv Res.* 2017;8(4):445-7.
- Mandler JI. An improved scrotal pressure dressing. *J Urol.* 1966;96:235.
- Haas GP, Melser M, Miles BJ. Method of circumferential pressure dressing of scrotum following bilateral orchiectomy. *Urology.* 1989;33:429-30.
- Shreedhar R, Duncan T. A technique for preventing postoperative scrotal haematoma. *Brit J Clin Pract.* 1984;38:93-4.
- Manson AL, MacDonald G. "Turban" scrotal dressing. *J Urol.* 1987;137:238-9.
- Wright JE. The mid-line scrotal incision, and a simple scrotal dressing. *Med J Aust.* 1966;2:14-6.

9. O'Collins J. Plication sutures for prevention of scrotal haematoma. *Med J Aust.* 1972;2(20):1148-9.
10. Nieh PT, Kerr WS Jr. Simple scrotal compression dressing. *Urology.* 1984;23(1):73.

**Cite this article as:** Raja R, Sreeramulu PN, Vikranth SN, Srinivasan D. Scrotal hitch: a novel technique to reduce post-operative scrotal oedema in inguinal hernia surgeries: a pilot study. *Int Surg J* 2020;7:1095-8.