

Comparison of the Efficacy of Coconut Bandage with use of Tight Swimming Pants in Prevention of Post-Herniorrhaphy Scrotal Haematoma

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Abstract

Background: Post-herniorrhaphy scrotal haematoma is a common complication following inguinoscrotal hernia repair, particularly in regions like Africa, where delayed presentation and large hernias are prevalent. This study compares the efficacy of two mechanical compression methods—coconut bandage and tight swimming pants—in preventing this complication.

Methods: A prospective randomised interventional study was conducted with 62 male patients (aged ≥ 18 years) undergoing inguinoscrotal herniorrhaphy. Participants were divided into Group A (coconut bandage) and Group B (tight swimming pants). Scrotal size was measured pre- and post-operatively, and haematoma incidence was assessed clinically and via ultrasonography on postoperative days 1, 3, and 5. Data were analysed using SPSS version 20, with statistical significance at $p < 0.05$.

Results: Haematoma incidence was comparable between groups: 16.1% (5/31) in Group A and 12.9% (4/31) in Group B ($p = 1.00$). All haematomas were managed conservatively. Coconut bandages were associated with higher complications, including penile oedema (6.5%), scrotal excoriation (6.5%), and dislodgement (12.9%), while tight pants had no such issues.

Conclusion: Both methods are equally effective in preventing haematoma, but tight pants offer advantages in comfort, compliance, and fewer complications. We recommend their routine use for post-herniorrhaphy scrotal support, especially in resource-limited settings.

Keywords: Inguinoscrotal hernia, scrotal haematoma, coconut bandage, tight pants, postoperative complications, herniorrhaphy.

INTRODUCTION

Hernia repairs are one of the most common surgical procedures globally and a common indication for surgery in Africa.¹⁻³

The surgical management of hernia, especially the inguinoscrotal variety, is frequently complicated by post-operative morbidity, with scrotal haematoma emerging as one of the most vexing complications.^{4,5} In many African regions, the incidence of large inguinoscrotal hernias is markedly higher due to the delay in presentation for surgical care.^{6,7} This delay often results in advanced pathology, which predisposes patients to complications such as post-herniorrhaphy scrotal haematoma.^{5,7,8} The occurrence of such complications not only prolongs recovery but also increases the risk of further issues, including infection and additional surgical interventions.⁸⁻¹¹

This results in increased surgical costs and prolonged hospital stays.^{12,13} In Africa, complications are common because most patients present late as a result of poverty and ignorance.^{7,14} Consequently, they present with huge inguinoscrotal hernias, which are more likely to be complicated by post-operative scrotal haematoma and oedema.^{5,12}

The practice in our centre for the prevention of post-herniorrhaphy haematoma is the use of conventional sterile gauze and crepe bandage support (coconut bandage) in some patients. In contrast, others were asked to wear tight-fitting pants to achieve the same goal following surgery for inguinoscrotal hernias. Studies are yet to be carried out to justify the efficacy of these methods in our centre. There is also the paucity of documented studies in our sub-region to assess the efficacy of these measures.

This study aims to compare the use of conventional scrotal support (coconut bandage) and tight pants in preventing scrotal haematoma following herniorrhaphy for inguinoscrotal hernia.

METHODOLOGY

Study Design

A prospective randomised interventional design was adopted for this study.

Study Area

The study was carried out at the Surgery Department of the University of Port Harcourt Teaching Hospital, Rivers State, Nigeria.

Ethical Consideration

Ethical approval to conduct the study was obtained from the Ethics Committee of the University of Port Harcourt Teaching Hospital before the commencement of the study. Written informed consent was also sought from all intending participants of the study prior to inclusion in the study.

Study Population

Inclusion criteria were males 18 years and above who presented with inguinoscrotal hernia. Patients less than 18 years, jaundiced patients with chronic liver disease, patients with uncontrolled hypertension, and patients with a previous history of bleeding and recurrent hernia were excluded from the study.

A total of 62 patients were recruited for the study.

Randomisation

This study included 31 patients in each group. The patients were assigned to the groups by randomisation via allocation concealment. This was achieved using opaque envelopes containing pieces of paper labelled A or B. The opaque envelopes contained 62 pieces of paper, with 31 labelled as A and 31 labelled as B. Each eligible patient selected a piece of paper from the envelope in the presence of an independent observer, and the patients were then assigned to the group on the paper.

Group A: Patients in this group were fitted with the coconut bandage for post-operative care.

Group B: Patients in this group were fitted with tight pants (tight swimming trunks) for post-operative care.

Study Procedure

The subjects were wheeled into the surgical theatre at the appropriate time after passing the recommended pre-operative assessment. The size of the hernia/scrotum was measured before the commencement of surgery. This measurement was done by tape measurement of scrotal size from the root of the penis to the distal margin of the affected hemiscrotum (vertical) and also from the root of the penis to the lateral margin of the hemiscrotum (horizontal). The darning technique of herniorrhaphy was performed on each subject using spinal anaesthesia.

Surgery was performed mainly by the researcher, after which the patients were transferred to the ward. The size of the patient's scrotum was measured immediately after surgery using a tape measure. This measurement was the baseline for subsequent measurements.

Patients in the group A population were fitted with the coconut bandage as follows: the scrotum was cleaned and dried after surgery, and multiple layers of sterile gauze were applied over the scrotum, followed by compressive crepe bandage application over the scrotum, which was now secured to the patient's perineum with adhesive tape.

Patients in the group B study population were provided with specified tight swimming pants and given clear instructions to wear them for a minimum of 5 days post-operation.

Compliance with both measures was ensured by the researcher, other members of the unit and the ward nurses during patients' stay in the ward.

Postoperative assessment

The size of the patient's scrotum was measured immediately after surgery using a tape measure. This measurement was the baseline for subsequent measurements. The scrotum was measured immediately after surgery, and then they were assessed for scrotal swelling on the 1st, 3rd and 5th days postoperatively. This assessment was conducted by the researcher. It included clinical assessment and examination including tape measurement of scrotal size from the root of the penis to the distal margin of the affected hemiscrotum (vertical) and also from the root of the penis to the lateral margin of the hemiscrotum (horizontal) and the use of ultra-sonography in doubtful cases.

Image 1: Measurement of scrotal size (vertical)



Image 2: Measurement of scrotal size (horizontal)



Image 3. Coconut bandage application



Image 4: Tight pants, day one post-operative



Data Collection

A proforma data form was used to collect information such as biodata and other relevant clinical information. The data sheet was used to collect post-operative progress reports of the subjects, especially on the occurrence of post-surgical haematoma.

Data Analysis

Categorical variables were presented as frequencies and percentages. Categorical variables were compared using chi-square tests or Fisher's exact tests where applicable. All analysis was done with the statistical package for social sciences (SPSS) version 20 software (IBM, USA) and a p-value < 0.05 was considered significant at a 95% confidence interval.

RESULT

Post-herniorrhaphy haematoma

A total of 9 (14.5%) out of 62 patients developed haematoma. The diagnosis was aided by ultrasonography in four patients (figure 1).

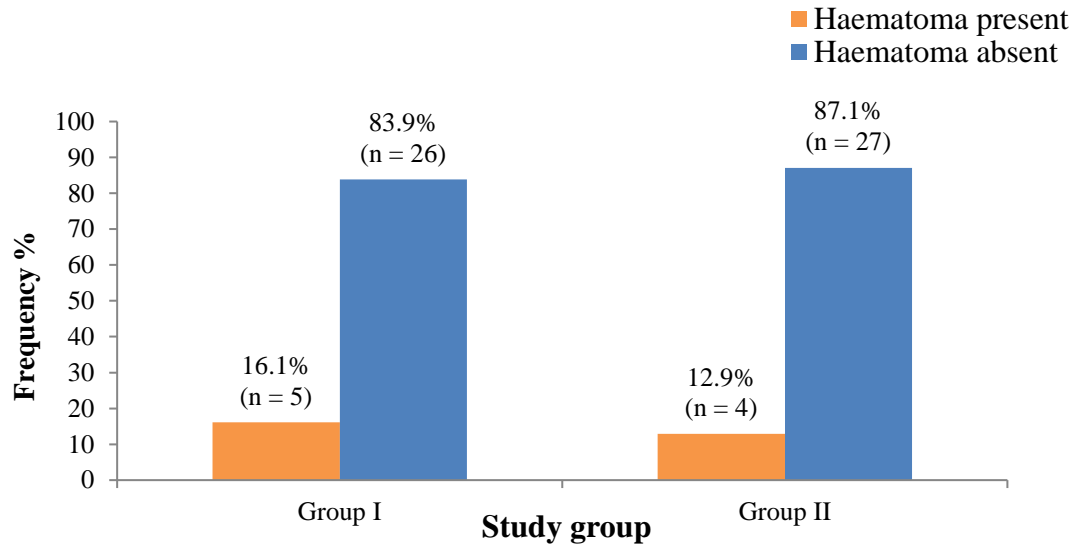


Figure 1: Incidence of post-herniorrhaphy haematoma among groups in the study

Five (16.1%) out of 31 of group A patients who used conventional gauze bandage as scrotal support and 4 (12.9%) out of 31 of group B patients who used tight pants as scrotal support developed haematoma.

The difference between the 2 groups in haematoma occurrence is not statistically significant ($p=1.00$), hence comparable (Table 1).

Table 1: Comparison of the incidence of post-herniorrhaphy haematoma

Incidence of post-herniorrhaphy haematoma	Study group		Total n (%)
	Group A n (%)	Group B n (%)	
Present	5 (16.1)	4 (12.9)	9 (14.5)
Absent	26 (83.9)	27 (87.1)	53 (85.5)
Total	31 (100.0)	31 (100.0)	62 (100.0)

Fisher's exact p-value = 1.000

Interventional measures following haematoma formation and other complications

Nine patients had visible haematoma. Seven (7) out of the nine (9) were managed conservatively with continued scrotal support and rest. Surgical reexploration, evacuation of clots and ligation of bleeders were not required for any of the patients (Table 2).

Table 2: Interventional measures following post-herniorrhaphy haematoma formation among patients

Variables	Post-herniorrhaphy haematoma		Total n (%)
	Present n (%)	Absent n (%)	
Intervention required			
Yes	7 (100.0)	0 (0.0)	7 (77.8)
No	2 (100.0)	0 (0.0)	2 (22.2)
Total	9 (100.0)	0 (0.0)	9 (100.0)

Fisher's exact p-value = 0.300

Complications of scrotal support

Two (2) patients in group A had penile oedema, and two (2) had scrotal excoriation. Coconut bandage dislodgement was noted in four (4) patients.

DISCUSSION

The study aimed to compare the efficacy of coconut bandage and tight swimming pants in preventing post-herniorrhaphy scrotal haematoma in patients undergoing surgery for inguinoscrotal hernia. The findings revealed that both methods were comparable in terms of haematoma prevention, with no statistically significant difference between the two groups ($p=1.00$). This suggests that neither method is superior to the other in reducing the incidence of this postoperative complication.

Our study found comparable haematoma rates between coconut bandage (16.1%) and tight pants (12.9%), suggesting that mechanical compression, regardless of method, reduces haematoma risk. This echoes Garg et al., who reported similar efficacy between facemask supports and coconut bandages, emphasising compression and suspension as key factors.¹⁵ However, Tamilselvan et al. challenged the necessity of conventional supports, demonstrating lower haematoma rates with simple V-shaped garments (4.5%) versus coconut bandages (10%).¹⁶ Their findings question the ritualistic use of compressive bandages, proposing patient comfort and minimal intervention as viable alternatives.

The absence of severe haematomas requiring reoperation in our study mirrors Kosternoy & Bayumi, where scrotal hitching (a suture-based elevation technique) reduced severe oedema (0% vs. 1.7% in controls).¹⁷ Their method, akin to mechanical compression, underscores the role of minimising dead space and lymphatic leakage.¹⁷ Conversely, our conservative management success (77.8% resolved with support alone) aligns with Joseph & O'Boyle, who noted most haematomas resolve without surgery.¹⁸

Coconut bandages were associated with penile oedema (6.5%), excoriation (6.5%), and dislodgement (12.9%), corroborating Garg & Goyal and Tamilselvan et al., who highlighted bandage-related discomfort and slippage.^{15,16} Tight pants, while equally effective, avoided these issues, paralleling Tamilselvan's V-garment group, which reported no dermatitis or displacement.¹⁶

The equivalence of coconut bandages and tight pants supports tailored approaches based on resource availability and patient preference. In low-resource settings, tight pants or garments may be preferable due to cost and ease of use. Tight pants and V-garments offer comfort and adherence advantages, which are critical in regions like Africa where late-presenting hernias are common.

CONCLUSION AND RECOMMENDATION

Our study reinforces that mechanical compression—whether via coconut bandages or tight pants—effectively mitigates post-herniorrhaphy haematoma. However, we observed that while both methods of tight pants and coconut bandage had comparable efficacies, tight pants had fewer complications, were easier to use, and compliance was high, which is also in line with observations from other studies.^{15,16}

Tight pants are recommended due to fewer complications and better compliance.

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