

COMPARISON OF POSTOPERATIVE PAIN FOLLOWING DARNING VERSUS MESH REPAIR TECHNIQUES IN INGUINAL HERNIA SURGERY: A PROSPECTIVE STUDY

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ABSTRACT

Background: Postoperative pain following inguinal hernia surgery is a critical factor impacting patient recovery and quality of life. This study aims to compare the postoperative pain levels between the darning technique and mesh repair in inguinal hernia surgery. **Methods:** A prospective study was conducted at Al-Hakeem General Hospital/Al-Karkh Health Directorate and Al-Zahraa Al-Batool Private Hospital in Baghdad, including 41 patients operated on between January 2021 and May 2024. Patients were divided into two groups based on the surgical technique used: darning technique and mesh repair. Postoperative pain was assessed at various time points using a standardized pain scale. Data were analyzed using descriptive statistics and ANOVA test to determine statistical significance. **Results:** The average pain levels for the darning technique and mesh repair were 0.42 and 0.53, respectively. The ANOVA test revealed no statistically significant difference in postoperative pain levels between the two groups ($p = 0.309$). **Conclusion:** Both the darning technique and mesh repair are effective in managing postoperative pain in inguinal hernia surgery, with no significant difference between the techniques. Further research is needed to evaluate long-term outcomes and patient satisfaction.

KEYWORDS: Inguinal hernia, darning technique, mesh repair, postoperative pain, surgical techniques, prospective study.

INTRODUCTION

Postoperative pain is a significant concern following inguinal hernia surgery, impacting patient recovery and quality of life. Inguinal hernia repair has undergone several modifications since the description of the Bassini technique, with various approaches aimed at reducing recurrence rates and postoperative complications.^[1] The Lichtenstein mesh repair is currently considered the gold standard, offering low recurrence rates and satisfactory outcomes.^[2] However, the technique is associated with postoperative pain in a subset of patients, leading to ongoing investigations into alternative methods.^[3]

The darning technique, originally described by Moloney, is a tissue-based repair method that is relatively tension-free, reducing the risk of recurrence associated with tension-producing methods.^[4] This

technique involves creating a weave of sutures across the posterior wall of the inguinal canal without forcibly approximating tissues, which may contribute to lower postoperative pain levels.^[5]

Comparative studies between the darning technique and mesh repair have shown varying results regarding postoperative pain. Some studies suggest that the darning technique may result in lower pain levels due to the absence of foreign material, which can cause an inflammatory response.^[6] However, the evidence is not conclusive, and further research is required to establish the superiority of one technique over the other regarding chronic pain.^[7]

The aim of this study is to evaluate the relationship between surgical technique and postoperative pain in

patients undergoing inguinal hernia repair, specifically comparing the darning technique and mesh repair.

METHODS

Study Design and Setting

This study was conducted to evaluate the relationship between surgical technique and postoperative pain in patients undergoing inguinal hernia repair. The study was carried out at two medical facilities: Al-Hakeem General Hospital/Al-Karkh Health Directorate and Al-Zahraa Al-Batool Private Hospital in Baghdad. The cases included in the study were operated on during the period from, January 2021 to May 2024.

Patient Selection

Patients diagnosed with inguinal hernia and scheduled for surgical repair were considered for inclusion in the study. Inclusion criteria were.

- Adult patients aged 18 years and above.
- Patients undergoing either the darning technique or mesh repair for inguinal hernia. Exclusion criteria were:
- Patients with recurrent inguinal hernias.
- Patients with complications such as strangulated or incarcerated hernias.
- Patients with co-morbid conditions that could interfere with postoperative recovery or pain assessment.

Surgical Techniques

Patients were divided into two groups based on the surgical technique used for inguinal hernia repair.

1. Darning Technique

○ This method involves creating a weave of sutures across the posterior wall of the inguinal canal without forcibly approximating tissues. The technique aims to provide a tension-free repair and minimize postoperative pain.

2. Mesh Repair (Lichtenstein Technique)

○ This technique involves placing a synthetic mesh over the defect in the inguinal canal, which is then fixed

in place with sutures. The mesh provides additional support to the weakened area and aims to reduce the risk of hernia recurrence.

Data Collection

Data were collected prospectively from medical records and patient interviews. The primary outcome measure was postoperative pain, assessed using a standardized pain scale. Pain levels were recorded at various time points: immediately post-surgery, at discharge, and during a follow-up visit at 10 days post-surgery.

Statistical Analysis

Data were analyzed using statistical software. Descriptive statistics were used to summarize the demographic and clinical characteristics of the patients. The average pain scores were calculated for each group, and an ANOVA test was performed to compare the pain levels between the two groups. A p-value of <0.05 was considered statistically significant.

RESULTS

Patient Demographics and Clinical Characteristics

A total of 41 patients undergoing inguinal hernia repair between January 2021 and May 2024 were included in the study. The patients were divided into two groups based on the surgical technique used: the darning technique and mesh repair.

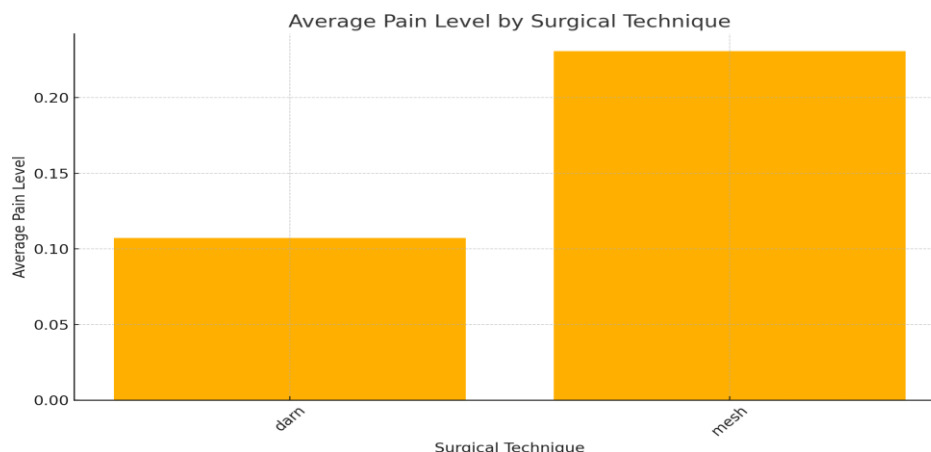
Postoperative Pain

The primary outcome measure was the postoperative pain assessed at 10 days postoperatively. The average pain levels for each surgical technique are summarized in Table 1.

Table 1: Average Pain Levels by Surgical Technique
Technique Average Pain Level.

Darning	0.42
Mesh Repair	0.53

The bar chart below illustrates the average pain levels associated with each surgical technique.



Statistical Analysis

An ANOVA test was conducted to determine if there were statistically significant differences in pain levels between the surgical techniques. The p-value obtained from the ANOVA test was 0.309, indicating no statistically significant difference in pain levels between the darning technique and mesh repair ($p > 0.05$).

Interpretation

Although the darning technique showed a slightly lower average pain level compared to the mesh repair, the difference was not statistically significant. This suggests that both techniques are comparable in terms of postoperative pain management.

The bar chart and statistical results highlight the need for further research to conclusively determine the best surgical technique for minimizing postoperative pain in inguinal hernia repair.

DISCUSSION

The results of our study indicate no statistically significant difference in postoperative pain levels between the darning technique and mesh repair for inguinal hernia. This finding is consistent with previous studies that have shown comparable outcomes between the two techniques regarding chronic pain and other postoperative complications. For instance, a systematic review and meta-analysis found no significant difference in chronic pain, recurrence rates, or complications such as hematoma and seroma between the two techniques.^[7]

The darning technique, originally described by Moloney, has been shown to provide a tension-free repair with satisfactory outcomes.^[5] Studies comparing the darning technique to the Lichtenstein mesh repair have reported that the darning technique may result in lower immediate postoperative pain levels due to the absence of a foreign body reaction.^[10] However, the lack of a statistically significant difference in our study suggests that both techniques are effective in managing postoperative pain.

Our findings are also in line with studies conducted in developing countries, where the cost-effectiveness of the darning technique makes it a viable alternative to mesh repair.^[7] The darning technique is particularly beneficial in settings where the cost of synthetic mesh is prohibitive. Furthermore, the shorter hospital stays associated with the darning technique can reduce the risk of hospital-acquired infections and overall healthcare costs.^[4]

Despite the comparable outcomes, the choice between the darning technique and mesh repair should consider individual patient factors, including the surgeon's expertise and the patient's socioeconomic status. Further studies focusing on long-term outcomes and patient satisfaction are needed to provide more definitive guidance on the optimal technique for inguinal hernia repair.

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