

# Detailed, Long-Term Review of the Data on Efficacy and Safety of Mesh Fixation for Laparoscopic Totally Extraperitoneal Inguinal Hernia Repair (TEP IHR)

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## Background

There are various methods to fix the mesh in totally extraperitoneal (TEP) laparoscopic inguinal hernia repair (IHR) over the myopectineal orifice. The most commonly researched and used fixation methods include penetrating (tacks and sutures) and non-penetrating fixations (glue and self-adhesive mesh), or even no fixation.

**Aim:** Our study aims to conduct and update the comparison of all available mesh fixation methods to elucidate differences in the known outcomes, such as immediate and chronic postoperative pain, complication rates, and hernia recurrence.

## Methodology

**Search strategy:** We searched four publicly available databases: PUBMED, CINAHL Complete, Ovid and Cochrane Library from January 2000 to August 2024. **Analysis:** To compare the data, weighted averages and combined standard deviations were calculated from the data points extracted from the papers within each group using an online calculator

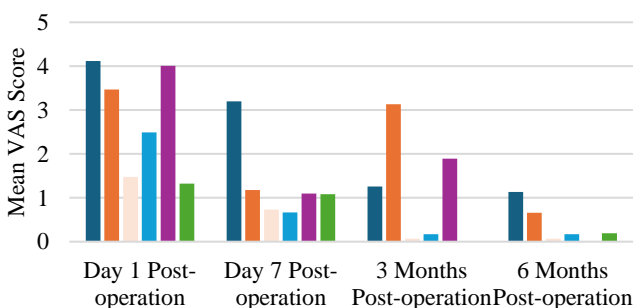
## Discussion

It is proposed that the higher post-operative pain associated with tack is due to the penetrative effect and direct nerve injuries caused by their deep anatomical penetrations leading to neurogenic pain, as well as non-neurogenic pain caused by inflammatory tissue responses from the tacks. The heightened pain response would also explain for the delayed return to normal activities observed in those groups. **Recommendations:** mechanical fixation should be avoided when possible to promote more satisfactory patient outcomes.

## Findings

Our search yielded 213 relevant studies, from which duplicates were removed, titles and abstracts screened, and full texts examined, resulting in the inclusion of 52 studies that met the predefined criteria. The data encompassed a total of 9,508 patients presenting with 13,234 inguinal hernias. The pooled mean of visual analogue scale (VAS) at various post-operative timepoints showed that mechanical fixations were associated with higher immediate and chronic pain (Figures 1 and 2) and delayed return to normal activities. Comparison between recurrence rate and post-operative complications such as urinary retention, seroma and hematoma formation, wound infection, return to hospital or theatre was insignificant.

**Figure 1. Mean VAS score**



**Figure 2. Mean chronic pain prevalence**

