

REDO INGUINAL HERNIA REPAIR WITH POLYPROPYLENE MESH: A CASE REPORT

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Abstract

Recurrent inguinal hernia represents a significant surgical challenge, with reoperation rates varying between 1% and 15% globally. Tension-free mesh repair (Lichtenstein technique) has become the gold standard for both primary and recurrent inguinal hernia repair due to its low recurrence rates and favorable postoperative outcomes. We present a case of a 54-year-old male patient from the Tetova region who underwent a successful redo inguinal hernia repair using a polypropylene mesh. The patient had previously undergone primary hernioplasty and developed a symptomatic recurrence eighteen months postoperatively. Intraoperative findings revealed scar tissue around the previous repair site. The redo procedure was completed without complications, with a total operative time of approximately one hour under spinal anesthesia. The patient was discharged on the second postoperative day and reported no pain or recurrence at the six-month follow-up. This case highlights the feasibility and safety of redo mesh-based hernia repair in a regional hospital setting and is contextualized within current literature reporting success rates exceeding 95% for laparoscopic and open mesh redo procedures.

Keywords: recurrent inguinal hernia, redo hernioplasty, Lichtenstein technique, polypropylene mesh, tension-free repair.

Introduction

Inguinal hernia repair is among the most commonly performed operations in general surgery worldwide, with approximately 20 million procedures conducted annually (Kingsnorth A, et al. 2003). Despite advances in surgical technique, recurrence remains one of the most clinically significant complications, with reported rates ranging from 1% to 15% depending on the technique employed and patient-related factors Amid PK (2004). The introduction of tension-free mesh repair — most notably the Lichtenstein technique — has dramatically reduced primary recurrence rates compared with traditional tissue-based repairs such as the Shouldice procedure (Lichtenstein et al., 1989).

Recurrent inguinal hernia, once considered a technically demanding reoperation reserved for specialized centers, is increasingly being managed in regional and district hospitals. The reoperation presents unique challenges, including altered tissue planes, scar formation, and increased risk of iatrogenic injury to the vas deferens and spermatic cord vessels (Dedemadi, et al., 2006). However, with careful preoperative planning and adherence to established principles of tension-free repair, outcomes comparable to primary repair can be achieved.

The present study describes a successful redo inguinal hernioplasty with polypropylene mesh and situates this single case within the broader context of published success rates and complications of redo mesh repair. The study also reviews the relevant literature to provide a framework for managing recurrent hernia in a regional surgical center.

The aim of this study is to present a case of successful redo inguinal hernia repair with polypropylene mesh, and to review contemporary outcomes data for recurrent inguinal hernia repair, with emphasis on success rates, complication profiles, and implications for surgical practice.

The structure of the study is as follows. The second section provides literature review for recurrent inguinal hernia repair and their results. The third section presents a case report. Then the study offers discussion followed by conclusion.

Literature Review

This section provides literature review by highlighting contemporary outcomes data for recurrent inguinal hernia repair, with emphasis on success rates, complication profiles, and implications for surgical practice. The table below summarizes key findings from the published literature regarding success rates and complications following recurrent inguinal hernioplasty.

Table 1. Selected studies on outcomes of recurrent inguinal hernia repair

Study / Author	Technique	N (patients)	Success Rate	Complications (%)
Dedemadi et al., 2006	Open mesh (Lichtenstein)	186	96.8%	8.2%
Kouhia et al., 2009	Open mesh vs. Laparoscopic (TEP)	200	95.5% / 97.1%	9.0% / 6.5%
Miserez et al., 2012 (EHS)	Open mesh (after tissue repair)	~1500	94–97%	7–12%
Bittner et al., 2015 (IEHS)	Laparoscopic (TAPP/TEP)	~3000	97.2%	5.4%
Bay-Nielsen et al., 2001	Various (nationwide registry)	3128	90–95%	10–15%
Haxhirexha et al., 2018 (CHT)	Open mesh (Lichtenstein)	126 (primary)	89%*	11% (chronic pain)
Present case (Alili, 2026)	Open mesh (Lichtenstein redo)	1 (redo)	100% (6-month f/u)	0%

Source: Author's selection of studies.

As demonstrated in Table 1, success rates for redo inguinal hernia repair using mesh techniques consistently exceed 94% across major series, with complication rates ranging from 5% to 15% depending on definition and follow-up duration (Amid, 2004; Kouhia, et al., 2009; Bay-Nielsen, et al., 2001). The most commonly reported complications include chronic groin pain (inguinodynia), wound seroma, haematoma, and — in rare cases — testicular atrophy secondary to vas deferens or cord vessel injury (Alfieri, et al., 2011).

The European Hernia Society guidelines recommend that recurrent inguinal hernias following prior open repair should preferably be approached laparoscopically (TEP or TAPP) to avoid the scarred tissue planes of the previous operation (Miserez, et al., 2007). However, when laparoscopic expertise or equipment is unavailable — as is the case in many regional centres in the Western Balkans — open Lichtenstein redo repair performed by an experienced surgeon remains an acceptable and effective alternative, as demonstrated by Dedemadi et al. (96.8% success) and our own institutional experience (Lichtenstein, et al., 1989).

Particular attention must be paid intraoperatively to the identification and preservation of the ilioinguinal nerve, iliohypogastric nerve, and the genital branch of the genitofemoral nerve to minimize the risk of chronic neuropathic pain — the most frequent long-term complication of inguinal hernia repair (Kehlet, et al., 2006). In the present case, all three nerves were identified and preserved, which likely contributed to the patient's pain-free outcome at six-month follow-up.

Case Report

A 54-year-old male patient presented with a complaint of a progressively enlarging groin bulge on the right side, associated with intermittent pain aggravated by physical exertion. His medical history was significant for a right-sided inguinal hernioplasty performed eighteen months prior,

using a Shouldice tissue repair technique. The patient denied any systemic comorbidities and had no history of smoking or connective tissue disorders.

Physical examination confirmed an easily reducible right inguinal hernia with no signs of incarceration or strangulation. Ultrasound of the inguinal region confirmed recurrence with a defect measuring approximately 2.1 cm in diameter, with no evidence of bowel involvement. Routine preoperative blood work, ECG, and chest X-ray were within normal limits.

The patient was scheduled for elective redo right inguinal hernioplasty. The procedure was performed under spinal anaesthesia. Intraoperatively, a right inguinal incision was made along the previous scar, and careful dissection was carried out through the dense fibrous adhesions of the prior repair. The spermatic cord was identified and protected throughout. The defect at the medial floor of the inguinal canal was clearly delineated, with evidence of partial breakdown of the previous tissue repair. A standard flat polypropylene mesh (15 × 8 cm, medium weight) was positioned to cover the entire myopectineal orifice and secured with continuous prolene suture to the inguinal ligament and interrupted sutures to the conjoint tendon, in adherence to the Lichtenstein tension-free repair principles. The spermatic cord was replaced above the mesh and the external oblique aponeurosis closed in layers. Total operative time was approximately one hour. Estimated blood loss was less than 30 mL.

The postoperative course was uneventful. The patient was mobilized on the evening of surgery and discharged on postoperative day two with oral analgesics. Wound inspection at day 5 confirmed primary healing with no signs of infection, seroma, or haematoma. At three-month and six-month follow-up appointments, the patient reported complete resolution of preoperative symptoms, full return to daily activities, and absence of any groin discomfort. No clinical evidence of hernia recurrence was detected at either follow-up.

Discussion and Conclusion

This case illustrates several important principles in the surgical management of recurrent inguinal hernia at a regional hospital. First, careful patient selection and thorough preoperative assessment — including imaging to confirm recurrence and exclude incarceration — are essential. Second, the intraoperative strategy must account for distorted anatomy from prior surgery, necessitating meticulous dissection to protect neurovascular structures. Third, adherence to the tension-free mesh repair principle, as codified by Lichtenstein et al. and subsequently refined by the European Hernia Society, provides a reliable framework for achieving durable repair even in the redo setting (Lichtenstein et al., 1989; Miserez, et al., 2007).

The choice of a medium-weight polypropylene mesh in this case reflects current evidence suggesting that heavyweight meshes may increase the risk of chronic pain and mesh-related complications without conferring additional benefit in terms of recurrence prevention (O'Dwyer, et al., 2005). Lightweight and medium-weight meshes have demonstrated equivalent recurrence prevention with a more favourable chronic pain profile, and their use is increasingly advocated in both primary and redo settings (O'Dwyer, et al., 2005).

Redo inguinal hernia repair with polypropylene mesh can be performed safely and effectively at a regional surgical center. The case presented demonstrates that a successful outcome — defined as absence of recurrence, freedom from chronic pain, and full return to activities — is achievable with careful operative technique and adherence to tension-free repair principles. The published literature supports success rates exceeding 95% for mesh-based redo hernioplasty, confirming that recurrent inguinal hernia should not be regarded as a prohibitive surgical challenge. Continued prospective documentation of such cases at our institution will contribute to the regional evidence base for hernia surgery in North Macedonia.

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