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Editorial

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The Resilient Craft: Open Inguinal Hernia Surgery in the Era of Minimally Invasive Dominance

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Abstract

Minimally invasive techniques have advanced inguinal hernia repair, offering benefits such as reduced postoperative pain and faster recovery, particularly for bilateral and recurrent hernias. However, open Lichtenstein repair remains an important, effective option. Its lower equipment costs, broad availability and suitability for local anaesthesia make it valuable in resource-limited settings and for selected patients with significant comorbidities or prior abdominal surgery. Open repair also remains relevant in emergencies and as a core surgical skill rather than viewing open and minimally invasive approaches as competing standards. This editorial advocates tailored, patient-centred decision-making based on clinical circumstances, resources and surgical expertise. Preserving proficiency in both approaches is essential to comprehensive hernia care.

Keywords: Inguinal hernia; Open hernia repair; Lichtenstein technique; Minimally invasive surgery; Local anaesthesia; Tailored surgery; Surgical education

Editorial

In the rapidly evolving landscape of modern surgery, the narrative is often dominated by the sleek silhouettes of robotic arms and the high-definition clarity of laparoscopic towers. As we navigate the third decade of the 21st century, Minimally Invasive Surgery (MIS) has become the de facto benchmark for patient expectations and surgical innovation. Yet, in the realm of inguinal hernia repair, one of the world's most frequently performed operations, a fundamental question persists. Does the traditional open approach still hold a seat at the table or is it a relic of a bygone era?

The ascent of laparoscopic and robotic-assisted hernia repair is well-supported by a robust body of clinical evidence [1,2]. Key advantages such as reduced postoperative pain, lower rates of wound infection and a significantly faster return to daily activities have solidified MIS as a premier choice for many [3-5]. Furthermore, the posterior view provided by laparoscopy offers a clear clinical advantage in managing bilateral

hernias or recurrent cases where previous anterior scarring would make a second open attempt treacherous [6,7]. However, the editorial lens must zoom out to capture the global reality of surgical practice, where the definition of a "gold standard" must be meticulously balanced against accessibility, cost-effectiveness and the nuanced contraindications presented by individual patients.

The Case for the Open Approach: Beyond Tradition

Open hernia repair, most notably the Lichtenstein tension free mesh technique, remains a marvel of surgical efficiency and reliability [7]. While MIS requires significant capital investment, specialized disposable equipment and a steep technical learning curve for the surgical team, the open approach offers a level of universality that is impossible to ignore [8]. In many healthcare systems across the globe ranging from rural clinics to underfunded urban centers, the economic burden of maintaining robotic platforms or laparoscopic stacks is prohibitive. In these settings, the open repair is not a compromise or a second-best option but is a vital, evidence-based lifeline that provides durable results without the high overhead of digital technology [9,10].

Furthermore, there are specific, critical clinical scenarios where the open technique is not just an alternative, but the objectively preferred strategy for patient safety:

- **Complex Comorbidities:** Patients with severe cardiopulmonary disease often cannot tolerate the physiological stress of pneumoperitoneum (the CO_2 insufflation of the abdomen) or the steep Trendelenburg positioning required for MIS [3]. For these individuals, the open approach is the only safe surgical pathway.
- **The Safety of Local Anaesthesia:** One of the most significant advantages of open repair is the ability to perform the procedure under local or regional anaesthesia with conscious sedation [11]. This avoids the inherent risks of general anaesthesia, which is mandatory for all laparoscopic and robotic repairs, making open surgery the gold standard for the frail and the elderly [12,13].
- **The "Hostile" Abdomen:** In patients with a history of extensive pelvic surgeries, prostatectomies or severe intra-abdominal adhesions, an anterior open approach avoids the high risk of visceral or vascular injury that occurs when trying to establish a preperitoneal space through a scarred cavity [6].
- **Emergency Incarceration and Strangulation:** While laparoscopic expertise is expanding into emergency settings, the open technique remains the most direct and reliable method for surgeons when bowel viability is in question and an immediate resection might be required [14,15].

The Educational Gap and the Threat of Skill Fade

A burgeoning concern in the global surgical community is the phenomenon of "skill fade" associated with traditional open techniques. As modern residency programs increasingly prioritize MIS training to meet current trends, there is a looming risk that the next generation of surgeons may lack the tactical proficiency to perform complex open repairs when MIS is contraindicated or when a laparoscopic case must be "converted" due to complications. Mastering the intricate anatomy of the inguinal canal from the "outside-in" is not merely an exercise in tradition but is undoubtedly foundational to surgical education. A surgeon who understands the three-dimensional relationship of the spermatic cord, the inguinal nerves and the transversalis fascia from an open perspective is inherently better equipped to navigate those same structures through a lens. Losing this craft would

represent a profound regression in the versatility of the surgical profession.

A Balanced Paradigm: Towards Tailored Hernia Surgery

"The hallmark of a great surgeon is not the ability to use the newest tool, but the wisdom to choose the right tool for the specific patient."

The contemporary debate should no longer be framed as a binary conflict between *Open vs. Minimally Invasive*. Instead, we must advocate for a pursuit of *Tailored Hernia Surgery*. The modern herniologist must be technically "ambidextrous," possessing a repertoire that spans from the robotic console to the traditional scalpel **(Table 1)**. True surgical excellence lies in patient-centric decision-making **[1,4]**. We must recognize that while a young, healthy athlete might benefit most from the rapid recovery of a robotic TAPP (Transabdominal Preperitoneal) repair, a seventy-year-old patient with significant heart failure and a primary unilateral hernia is best served by a meticulous, tension-free Lichtenstein repair performed under local anesthesia with minimal physiological disruption **[11,12]**.

Table 1: Comparison between open repair and minimally invasive approach.

Comparison Features	Open Repair (Lichtenstein)	Minimally Invasive (Lap/Robotic)
Anesthesia Requirements	Local, Regional, or General (High Versatility)	General Anaesthesia Only (Mandatory)
Global Accessibility	High (Universal)	Moderate to Low (Resource Dependent)
Economic Impact	Low-cost, Minimal Equipment	High-cost, Specialized Hardware/Disposables
Physiological Stress	Minimal (No Pneumoperitoneum)	Significant (Due to Insufflation/Positioning)
Recovery Profile	Moderate (1-2 weeks for full activity)	Rapid (Days for full activity)
Primary Indications	Primary Unilateral, Elderly, High-risk Medical	Bilateral, Recurrent, Active/Working Lifestyle

Conclusion: The Enduring Scalpel

Open hernia surgery is far from reaching its obsolescence. It remains the bedrock of global surgical care, a necessary safeguard for high-risk patients and a vital component of robust surgical training. In our rush towards the digital and autonomous future of the operating room, we must ensure that the art of the open incision is preserved, refined and respected. The era of minimally invasive surgery has not replaced open surgery. It has refined its indications, challenging us to be more deliberate, more versatile and more patient-centric in our surgical choices. The scalpel and the robot are not rivals. They are the dual

pillars of a modern, comprehensive approach to hernia pathology.

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