Emergency Laparoscopic Surgery: A Call to Action

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Laparoscopic surgery has revolutionized modern surgical practice and has become the standard of care for many elective procedures worldwide. Compared with traditional open surgery, laparoscopic techniques offer numerous well-established benefits for both patients and healthcare systems [1–3]. One of the most significant advantages is the reduction of postoperative pain [4]. This leads to a decreased need for analgesia and improved patient comfort in the immediate postoperative period. Smaller incisions result in lower rates of wound-related complications, such as surgical site infection and incisional hernia, while providing superior cosmetic outcomes [5].

Laparoscopic surgery is associated with shorter hospital stays, allowing earlier mobilisation and a faster return to normal daily activities and work [1]. The reduced inflammatory and physiological stress responses contribute to quicker recovery and earlier discharge [6], which may also translate into reduced healthcare costs. In addition, patients often experience less postoperative ileus and a more rapid return of bowel function [7,8].

Despite these well-documented advantages of laparoscopic surgery and its wide adaptation in elective surgery; the use of laparoscopic surgery in emergency surgery lags [9,10]. Specifically, the penetration of laparoscopic surgery in emergency surgery was reported to be less than 20% (i.e., 1 in 5 cases) and only 28% of surgeons have reported that they use laparoscopic surgery in more than 50% of their emergency cases [9].

Although appropriate patient selection remains essential, and limitations in training and institutional readiness may hinder wider adoption, the evidence above suggests that one of the most deconditioned patient populations with significant physiological derangements [11] is excluded from laparoscopic surgery. Consequently, these high-risk patients may be disproportionately missing out on the potential benefits of laparoscopic surgery**,** despite emerging data indicating that minimally invasive techniques can be safe and advantageous even in complex emergency settings [10,12,13].

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In 2006, European Association for Endoscopic Surgerym (EAES) issued the Clinical Practice Guidelines on Laparoscopy for Abdominal Emergencies. The EAES guidance took a pragmatic view: laparoscopy is clearly advantageous for specific conditions (appendicitis, acute cholecystitis, certain perforations and gynaecological causes of acute pain) and less well established for adhesive small-bowel obstruction, mesenteric ischemia or incarcerated hernia [14]. Since then, higher-quality comparative data and registry work have expanded the evidence base showing that a laparoscopic approach can be safe and effective in many emergency scenarios when used in appropriately selected patients.

A national propensity-matched analysis of emergency laparoscopic versus open abdominal surgery of the National Emergency Laparotomy Audit (NELA) database, in England and Wales reported that, among matched patients, in-hospital mortality was significantly lower for laparoscopic surgery (6.0% vs 9.1%). Median length of hospital stay was shorter for laparoscopic cases (8 vs 10 days). Lower intraoperative blood loss was observed in laparoscopic procedures. These outcomes support the notion that, in appropriately selected emergency cases, a minimally invasive approach is associated with improved survival and recovery compared with open surgery [10].

A large retrospective cohort study based on the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) database compared emergency laparoscopic with open colectomy. Open surgery was associated with higher odds of mortality, overall morbidity, and failure-to-rescue relative to laparoscopic surgery. Laparoscopic surgery was associated with shorter hospital stays**.** This real-world evidence suggests clinical advantages of laparoscopy for emergent colectomy in large patient samples [13].

Further evidence was provided by systematic reviews and meta-analyses. Warps *et al.* [15] evaluated outcomes of laparoscopic versus open emergency colorectal surgery**.** They showed lower postoperative mortality for laparoscopic emergency colorectal surgery, reduced overall morbidity and complication rates (overall complications, wound infection and dehiscence, postoperative ileus, pulmonary and cardiac complications) and shorter length of stay in laparoscopic groups. Although these findings are primarily based on observational evidence (28 observational studies and 1 Randomised Controlled Trials [RCT]),

they may indicate a potential superiority of the minimally invasive approach in emergency settings when technically feasible [15].

In December 2023, the World Society of Emergency Surgery (WSES) published a high-profile consensus which explicitly recommends a laparoscopic-first approach for stable patients undergoing emergency abdominal surgery for many general surgical emergencies and for abdominal trauma in selected circumstances [16]. This statement is notable for its breadth: it synthesised hundreds of studies and emphasised that, when feasible, laparoscopy offers reduced wound morbidity, shorter hospital stay and potentially lower overall resource use. At the same time, the panel reiterated that haemodynamic instability and uncontrolled contamination remain important contraindications, and that the safety of a laparoscopic-first policy depends on surgeon experience and local capability [16].

With an expanding body of evidence demonstrating the superiority of laparoscopic approaches in emergency surgery, the persistently low rate of adoption remains striking. Historically, organisational barriers—such as limited access to fully equipped theatres, specialised instruments, and trained multidisciplinary teams outside normal working hours—were commonly cited as major obstacles [17]. However, in contemporary practice, particularly within high-income countries and privately funded healthcare systems, these constraints are increasingly less applicable. This suggests that factors beyond infrastructure alone, including training, cultural inertia, and risk perception, may play a more significant role in limiting the widespread implementation of emergency laparoscopic surgery.

It may be time to acknowledge that reluctance to implement these guidelines lies, to a significant extent, within the surgical community itself. While most surgeons are comfortable performing low-complexity emergency procedures such as appendicectomy and cholecystectomy laparoscopically, minimally invasive techniques are far less frequently applied to more complex emergency presentations, including perforation, ischaemia, or obstructed hernias. National survey data from the UK suggest that, beyond patient-related operative factors, this limited uptake is strongly influenced by surgeon preference and subspecialty training. Furthermore, despite a growing body of evidence supporting emergency laparoscopy, many surgeons continue to exhibit equipoise regarding the relative benefits of laparoscopic versus open approaches in complex emergency conditions, indicating a persistent lack of conviction in its effectiveness in these settings [18].

The lack of confidence in employing laparoscopic techniques in emergency surgery may, in part, reflect a fundamental gap in training. For the subspecialised surgeon, the spectrum of pathology encountered in emergency practice is considerably broader and less predictable than in elective work, making it more difficult to gain consistent exposure to a sufficient volume and variety of cases. Moreover, there is currently little consensus on the number of cases or specific competencies required to achieve proficiency in emergency laparoscopic surgery. While elective laparoscopic training is supported by well-defined curricula, formal benchmarks, and clearly articulated training goals, equivalent structured pathways for emergency laparoscopic surgery remain poorly developed or absent [16]. The grade of the operating surgeon is also an important determinant in the choice between laparoscopic and open surgery [18]. In the absence of direct supervision by an experienced laparoscopic surgeon, trainees may revert to the relative familiarity of open techniques. The overall low uptake of laparoscopic approaches in emergency settings further limits trainees' exposure, restricting opportunities to develop technical proficiency and confidence. This, in turn, perpetuates a self-reinforcing cycle, whereby surgeons who train with limited experience in emergency laparoscopy are more likely to continue favouring open surgery once they progress to independent practice.

In summary, current evidence demonstrates that, in appropriately selected patients, emergency laparoscopic surgery is superior to open surgery and is associated with meaningful improvements in patient outcomes. While institutional and perceptual barriers undoubtedly exist, these are not insurmountable. The time has come for the surgical community show resolve and actively support the wider implementation of emergency laparoscopic surgery.

Achieving this will require coordinated, multilevel interventions. At national and international levels, key stakeholders must collaborate to develop validated curricula, competency frameworks, and structured training pathways specific to emergency laparoscopic surgery. At an institutional level, hospitals must support emergency laparoscopy beyond a narrow focus on perceived increases in operating time or the logistical challenges of emergency theatre planning, instead investing in training, staffing models, and rota structures that facilitate safe minimally invasive practice. At an individual level, senior surgeons must be present and engaged, providing supervision and mentorship to support trainees in performing emergency laparoscopic procedures safely and efficiently, regardless of the time of day or night. As systems and training pathways evolve towards a well-supported model of emergency laparoscopic surgery, a laparoscopy-first approach should be implemented for haemodynamically stable patients undergoing emergency surgical intervention.

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Author Contributions

MY is the sole contributor to this manuscript. The author confirms sole responsibility for the conception preparation and editing of the editorial and for being accountable for all aspects of the work.

Ethics Approval and Consent to Participate

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Declaration of Generative AI and AI-Assisted Technologies in Manuscript Preparation

We use GPT-5.3, the free version (https://chatgpt.com), to improve the language quality and take responsibility for the accuracy, integrity, and originality of this article.

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