

Is it Time to Embark on Laparoscopic Daycare Surgery in Resource-Limited Settings? Perspectives from a Series of Laparoscopic Heller's Myotomy and Fundoplication for Achalasia Cardia

Kitembo S. Kibwana^a, William M. Lutege^a, Alfred N. Chibwae^b, Daniel W. Kitua^{b*}

^aDepartment of Surgery, Muhimbili National Hospital, Malik Rd., Upanga, Dar es Salaam, Tanzania; ^bDepartment of Surgery, Muhimbili University of Health and Allied Sciences, United Nations Rd., Upanga, Dar es Salaam, Tanzania.

Correspondence to Daniel W. Kitua (deekitua@hotmail.com)

ABSTRACT

Background: In developing countries, delivering advanced surgical procedures presents a unique array of challenges and opportunities, including the potential to address the escalating demand for such procedures in resource-constrained settings. Based on insights gleaned from a case series, we highlight the potential of incorporating daycare practices for advanced laparoscopic surgeries in Lower- and Middle-Income Countries (LMICs).

Case Presentations: We report a case series of randomly selected patients who underwent laparoscopic Heller's myotomy and fundoplication for achalasia cardia at Muhimbili National Hospital in Tanzania. We observed an uneventful postoperative in-hospital course marked by significant improvement within 24 hours following surgery. However, all cases had a relatively extended hospital stay; likely stemming from healthcare provider-, patient-, and facility-related factors.

Conclusion: Given the patient-centered, economic, operational efficiency, and resource utilization advantages associated with daycare laparoscopic surgery, adopting this method may prove appropriate for LMICs. Therefore, collaborative efforts from stakeholders are necessary for the integration of this practice into the healthcare systems of developing economies.

BACKGROUND

Modern daycare/ambulatory surgery has shown a consistent rise on a global scale over the past century since its introduction by James Nicoll between the years 1864 and 1921.¹ This progression owes its momentum to advancements in medical technology, refined surgical proficiencies, and the introduction of advanced anesthetic and analgesic methods.² However, implementing such services in developing nations as Tanzania lags despite the swiftly increasing trend of minimally invasive surgical services.

In developed nations, the popularity of daycare surgery has surged, accounting for over 80% of all surgical procedures.^{3,4} The United States serves as a prime example of this trend.⁵ Notably, both Eastern and West African regions exhibit high acceptance of daycare surgery.^{6,7} However, there exists a significant disparity between this acceptance and actual practice. Adopting laparoscopic surgery has also emerged as a pivotal factor in facilitating daycare surgery for more complex and advanced procedures, contributing to its growing popularity and feasibility across different regions.⁶

Embracing these dual approaches (daycare-laparoscopic surgery) is a critical strategy to address the

escalating demand for advanced surgeries within resource-constrained settings. This approach has the potential to mitigate challenges such as limited hospital bed capacity and enhance access to surgical care, aligning with the goals outlined in National Surgical, Obstetric, and Anesthesia Plans (NSOAPs), particularly in low- and middle-income countries (LMICs).⁸

In this article, we present our perspective on the state of daycare surgical services for patients undergoing laparoscopic surgeries at Muhimbili National Hospital, a public tertiary referral hospital in Tanzania with the capacity to perform advanced laparoscopic procedures. Our insights are gleaned from reviews of literature and observations from a case series of randomly selected (via lottery) patients who exclusively underwent laparoscopic Heller's myotomy and fundoplication for achalasia cardia at our facility.

CASE PRESENTATIONS

Case 1:

A 29-year-old male presented with dysphagia for five years. The symptoms had been progressively worsening, particularly with liquid feeds. He also reported a globus sensation in his chest and recurrent heartburn; however, no weight loss was reported.

After conducting upper gastrointestinal (GI) barium studies and endoscopy, a diagnosis of achalasia cardia was confirmed.

Subsequently, the patient underwent laparoscopic Heller's myotomy and fundoplication. Post-surgery, the patient received intravenous (IV) analgesics, Proton Pump Inhibitors (PPIs), and fluids. The nasogastric tube (NGT) was removed eight hours after the surgery, and the patient was started on oral sips and resumed ambulation. Within the first 24 hours post-surgery, the patient could tolerate semi-solid and liquid feeds. He was discharged on the second postoperative day, and his outpatient follow-up was uneventful, with resolution of the presenting symptoms.

Case 2:

A 41-year-old female presented with progressive dysphagia, from liquid to semi-solid feeds for 2 years. She also reported occasional odynophagia, globus sensation in the chest, and regurgitation; however, no weight loss was reported. A diagnosis of achalasia cardia was reached after conducting upper GI barium studies and endoscopy.

Subsequently, laparoscopic Heller's myotomy and fundoplication were successfully performed. Post-surgery, the patient received IV analgesics, PPIs, and fluids. Within 24 hours of the surgery, the patient was started on oral sips after the removal of the NGT and encouraged to ambulate. Her in-hospital course was uneventful as she tolerated diet advancement. She was discharged for outpatient clinic follow-up 48 hours postoperatively and reported resolution of symptoms on subsequent visits.

Case 3:

A 60-year-old female presented with a complaint of intermittent dysphagia for 2 years. Initially, symptoms were present when consuming liquid feeds but later progressed to solid feeds. The symptoms were also associated with heartburn, regurgitation, and unintentional weight loss. A diagnosis of achalasia cardia was confirmed after conducting upper GI barium studies and endoscopy.

Following confirmation of the diagnosis, laparoscopic Heller's myotomy and fundoplication were successfully performed, and the patient was kept on IV analgesics, PPIs, and fluids. The patient was ambulant 12 hours postoperatively and reported improvement in symptoms after initiating oral sips 16 hours postoperatively; however, she still experienced mild dysphagia. Seventy-two hours after the procedure, the patient was discharged for follow-up at the outpatient clinic after tolerating diet advancement.

DISCUSSION

The introduction of modern ambulatory surgery faced initial obstacles in Europe and North America, primarily because of the negative outlook of healthcare providers.¹ A similar situation is observed in LMICs, where the adoption of this approach has been gradual. The challenges in Tanzania, for instance, are well outlined in the 2020 findings by Cullen et al.⁶ These included unfavorable attitudes toward same-day discharge among healthcare providers, subpar preoperative planning (i.e., suboptimal preoperative anesthesia reviews, etc.), and poorly

executed discharge plans. Additional factors included patients' pessimistic perceptions of daycare surgery due to insufficient preoperative counseling, poor access to health facilities, absence of dedicated day surgery units, and resource limitations (i.e., limited access to suitable anesthetic medications and insufficient staffing).⁶

In this case series, we randomly selected three patients who underwent laparoscopic Heller's myotomy and fundoplication for achalasia cardia. The post-operative in-hospital course for each patient was relatively uneventful, marked by significant improvement within the initial 24 hours following surgery. However, all cases had a relatively extended hospital stay (> 24 hours), which was likely attributed to factors similar to those described by Cullen et al., 2020.⁶ These observations may mirror the typical hospital stay pattern for other patients undergoing laparoscopic procedures in the index and other comparable settings. However, a significant number of well-selected patients who followed a similar hospital course could have derived advantages from daycare surgeries; an approach that is gradually being adopted in the index settings.

Daycare laparoscopic surgeries have gained significant acceptance across various medical fields, with positive results documented for most frequently conducted procedures such as laparoscopic cholecystectomy, hernia repair, hysterectomy, and others.⁹⁻¹¹ Moreover, uncomplicated daycare laparoscopic upper GI surgeries (i.e., Heller's myotomy and fundoplication) have also been performed with low complication rates.^{12,13} These cases, as presented, have shown comparable outcomes, except for longer hospital stays. Cullen et al., also examined the feasibility of daycare surgery at a specialized zonal hospital in Northern Tanzania, demonstrating a high rate of achievement.⁶ With this model, a similar approach could be considered for potential adoption within our healthcare settings.

Considering the backdrop of constrained resources that often characterize healthcare systems in LMICs, daycare surgery emerges as a prudent and economically feasible choice, offering several benefits that can be maximized to benefit LMIC settings. Some of these include reduced rates of operation cancellations, shorter hospital waiting times, optimal resource allocation, a lowered risk of hospital-acquired infections, cost-effectiveness, quicker recovery, enhanced patient satisfaction, and minimal disturbance to daily routines.^{6,14} However, day-case surgery places additional responsibilities on caregivers and may lead to delayed management of postoperative complications.¹⁴ Thus, day surgery requires healthcare providers to ensure not only an uneventful in-hospital course but also comprehensive and well-coordinated postoperative follow-up.

The implementation of this practice presents a significant opportunity to improve healthcare delivery and patient care. Therefore, it is essential for all stakeholders to actively advocate the widespread adoption of advanced laparoscopic daycare surgery in developing nations, including Tanzania. Establishing the essential infrastructure and comprehensive guidelines to foster the growth of these practices emerges as a pivotal step, particularly in regions such as East Africa situated within

the context of developing economies. Furthermore, the aforementioned local challenges not only underscore the existing hurdles but also pave a promising path for refining practices in similar situations, thereby contributing to the ongoing improvement of healthcare delivery standards within these dynamic contexts. Nevertheless, it's important to acknowledge that deriving a definitive conclusion from this case series could be constrained by its limited generalizability attributable to a small sample size and a lack of diversity among the patients studied.

CONCLUSION

This article sheds light on the potential of advanced laparoscopic ambulatory surgery in enhancing surgical healthcare provision in resource-limited settings. Nonetheless, its successful adoption necessitates collaborative efforts among stakeholders. Advocacy plays a crucial role in integrating this approach into LMIC healthcare systems, addressing identified challenges, and establishing essential infrastructure. To realize this potential, we recommend further studies to assess the technical, economic, and logistical feasibility of this approach.

REFERENCES

- Lemos P, Jarrett P, Philip B. A Day Surgery Development and Practice. (Paulo Lemos, Paul Jarrett, Beverly Philip. eds). United Kingdom; 2006. Accessed 29th March 2024. <https://theiaqs.net/wp-content/uploads/2022/06/DaySurgery.pdf>
- Kulkarni S, Harsoor S, Chandrasekar M, et al. Consensus statement on anaesthesia for day care surgeries. *Indian J Anaesth* 2017;61(2):110. doi: [10.4103/ija.ija_659_16](https://doi.org/10.4103/ija.ija_659_16).
- Leapfrog Group. Same Day Surgery in the U.S. Findings of Two Inaugural Leapfrog Surveys. 2019. Accessed 29th March 2024. <https://psnet.ahrq.gov/issue/same-day-surgery-us-findings-two-inaugural-leapfrog-surveys-2019>
- Ojo E. Day case surgery and developing countries: a review. *Niger J Clin Pract* 2010;13(4):459–466.
- Cukierman DS, Cata JP, Gan TJ. Enhanced recovery protocols for ambulatory surgery. *Best Pract Res Clin Anaesthesiol* 2023;37(3):285–303. doi: [10.1016/j.bpa.2023.04.007](https://doi.org/10.1016/j.bpa.2023.04.007).
- Cullen I, Shaban F, Ali O, et al. Day case laparoscopic cholecystectomy at Kilimanjaro Christian Medical Centre, Tanzania. *Surg Endosc* 2021;35(8):4259–4265. doi: [10.1007/s00464-020-07914-9](https://doi.org/10.1007/s00464-020-07914-9).
- Agbakwuru EA, Faponle AF, Adesunkanmi ARK, et al. Practice and acceptance of day-care surgery in a semi-urban Nigerian Hospital. *East Afr Med J* 2001;78(4):170–3. doi: [10.4314/eamj.v78i4.9057](https://doi.org/10.4314/eamj.v78i4.9057).
- Peters AW, Roa L, Rwamasirabo E, et al. National Surgical, Obstetric, and Anesthesia Plans Supporting the Vision of Universal Health Coverage. *Glob Health Sci Pract* 2020;8(1):1–9. doi: [10.9745/GHSP-D-19-00314](https://doi.org/10.9745/GHSP-D-19-00314).
- Thyagaraju C, Modi R. Feasibility of total laparoscopic hysterectomy as a day care procedure. *Int J Reprod Contracept Obstet Gynecol* 2014;735–741. doi: [10.5455/2320-1770.ijrcog20140982](https://doi.org/10.5455/2320-1770.ijrcog20140982).
- Hewitt DB, Chojnacki K. Laparoscopic Groin Hernia Repair. *JAMA* 2017;318(13):1294. doi: [10.1001/jama.2017.11620](https://doi.org/10.1001/jama.2017.11620).
- Zirpe D, Swain S, Das S, et al. Short-stay daycare laparoscopic cholecystectomy at a dedicated daycare centre: Feasible or futile. *J Minim Access Surg* 2016;12(4):350. doi: [10.4103/0972-9941.181314](https://doi.org/10.4103/0972-9941.181314).
- Naumann D, Zaman S, Daskalakis M, et al. Day surgery for achalasia cardia: Time for consensus? *The Annals of The Royal College of Surgeons of England* 2016;98(2):150–154. doi: [10.1308/rcsann.2016.0063](https://doi.org/10.1308/rcsann.2016.0063).
- Brazer ML, Russell DM, Nguyen SH, et al. Same day discharge does not lead to worse outcomes in patients undergoing uncomplicated laparoscopic foregut surgery. *Surg Endosc* 2022;36(10):7679–7683. doi: [10.1007/s00464-022-09084-2](https://doi.org/10.1007/s00464-022-09084-2).
- Elsobky S, Ahmad N, Qureshi M, et al. Paediatric day case tonsillectomy: a safe, feasible and an economical way to treat patients – Yorkhill experience. *Scott Med J* 2014;59(1):5–8. doi: [10.1177/0036933013518140](https://doi.org/10.1177/0036933013518140).

Peer Reviewed

Competing Interests: None declared.

Funding: The study did not receive any funding.

Received: 13 October 2023;

Accepted: 03 March 2024

Cite this article as Kibwana SK, Lutege MW, Chibwae NA, Kitua WD. Is it Time to Embark on Laparoscopic Daycare Surgery in Resource-Limited Settings? Perspectives from a Series of Laparoscopic Heller's Myotomy and Fundoplication for Achalasia Cardia. *East Afr Science J*. 2024; 6(1): 1-3. <https://doi.org/10.24248/easci.v6i1.84>

© Kibwana et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are properly cited. To view a copy of the license, visit <http://creativecommons.org/licenses/by/4.0/>. When linking to this article, please use the following permanent link: <https://doi.org/10.24248/easci.v6i1.84>