



THE PARADOX OF CHOICE THE COST OF LIGATING THE BASE OF THE  
APPENDIX

<https://doi.org/10.33762/basjsurg.2025.156759.1103>

Document Type : Editorial

Author

**Samir Johna**

Bernard Tyson KP school of Medicine Loma Linda University school of Medicine

Corresponding Author: Samir Johna

Email: [samir.johna@gmail.com](mailto:samir.johna@gmail.com)

Receive Date: 19 January 2025

Accept Date: 05 February 2025

Publish Date: 22 March 2025

Keywords

[Base of the appendix](#), [safety of ligation](#), [cost of ligation](#)

There is a wide range for the cost of ligating the base of the appendix.

In this editorial we provide the several available options and suggest using a cost effective method as part of financial stewardship to contain the cost of surgical care. “Sir, the operating room is ready for our next laparoscopic appendectomy”, said my surgical resident. As we were scrubbing, I asked what her plan is to ligate the base of the appendix. She confidently replied, “An Endo GIA Stapler.” When I asked why, she replied,” that is how every surgeon I scrubbed with did it.”

This response underscores our dogmatic approach in so many ways when it comes to our daily surgical practice. As a mentor and surgical educator, this was a teaching

moment that I was not about to let go. I guided her through a different technique that I adopted a few years back. It was a new concept for her, a Hem-O-Lok polymer Ligating System (Clip).<sup>1</sup> I assigned to her the task of reviewing the literature, exploring other techniques that have been published, analyze the data, and come up with a rational justification for using one approach vs another- a pragmatic approach to practice-based learning and improvement.

Laparoscopic appendectomy is one of the most common surgical procedures performed worldwide. Perhaps ligating the base of the appendix is the most critical aspect of the procedure to prevent postoperative intraabdominal catastrophes from fecal leak. Several

techniques have been documented in the literature. They are all safe and effective. To list a few; the traditional ligatures (intracorporeal or extracorporeal ligatures or Roeder loops) and the mechanical devices (stapling devices, clips), or the electrothermal devices.<sup>2</sup>

Then how should one decide on which approach to follow? Assuming that all techniques are equally safe,<sup>2,3,4,5</sup> we must factor in some indicators such as availability of the tool, its affordability, the ability to execute the task safely, and the cost. Medical expenditure is on exponential rise, chipping away a big chunk of the National Gross Product of even the most affluent countries in the world. Tending to the cost of delivering healthcare has never been so critical as it is today.

A quick search on the internet shows a wide range of retail prices for some of the tools mentioned above. For example, an Endo GIA Applicator costs between \$250-\$1500 and is a single use per case. The cost of a refill cartilage for US Endo GIA articulating Universal 60 MM cartilage is \$980. Mind you that some surgeons use more than one cartilage per case. In

comparison, the Hem-O-Lok applicator costs \$150-\$250, which is reusable. A rack of 6 clips for it costs less than \$10- all that is needed per case. The cost of laparoscopic DS clip applicator is \$100-\$6,000, and a rack of 6 clips for it costs \$20-\$30. The cost of Endoloop is \$27. On the other hand, some surgeons make their own loops for a cost of less than \$1.<sup>6</sup>

Among those, the most expensive tool for such a task is the bipolar electrothermal device (Ligasure), which costs \$700 - \$9,000 for a single use per case, depending on the vendor.

To state the obvious, the use of laparoscopic stapling devices and the bipolar electrothermal devices are irrational and should be discouraged. Using expensive gadgets does not get translated into better outcomes. An exception to the use of the former is when the base of the appendix is involved, perforated, or there is a need to excise a sleeve of the cecum along with the appendix.

The results of this teaching moment with the surgical resident were surprising, if not shocking. Learning how to use resources appropriately is an essential component

of system-based practice. Implementing financial stewardship is incumbent upon every member of the surgical team from top to bottom. The communities we serve

have laid their trust in our appropriate and responsible spending in healthcare delivery, particularly when the outcomes are not inferior.

## References

1. Mohammed H. Al-Temimi· Mendy A. Berglin· Edwin G. Kim· Deron J. Tessier· Samir D. Johna. . Endostapler versus Hem-O-Lok clip to secure the appendiceal stump and mesoappendix during laparoscopic appendectomy. The American Journal of Surgery, Volume 214, Issue 6, 1143 - 1148. <https://doi.org/10.1016/j.amjsurg.2017.08.031>. PMID:28943064
2. Mannu GS, Sudul MK, Bettencourt-Silva JH, Cumber E, Li F, Clark AB, Loke YK. Closure methods of the appendix stump for complications during laparoscopic appendectomy. Cochrane Database Syst Rev. 2017 Nov 13;11(11):CD006437. <https://doi.org/10.1002/14651858.CD006437.pub3>. PMID:29190038  
PMCID:PMC6486128
3. Delibegović S, Mehmedovic Z. The influence of the different forms of appendix base closure on patient outcome in laparoscopic appendectomy: a randomized trial. Surg Endosc. 2018 May;32(5):2295-2299. <https://doi.org/10.1007/s00464-017-5924-z>. PMID:29098432
4. Mayir B, Ensari CÖ, Bilecik T, Aslaner A, Oruç MT. Methods for closure of appendix stump during laparoscopic appendectomy procedure. Ulus Cerrahi Derg. 2015 Aug 18;31(4):229-31. <https://doi.org/10.5152/UCD.2015.2768>. PMID:26668532 PMCID:PMC4674045
5. Juan HL, Nicolas AM, Daniela CL, Lineth OM, María RA, Camila RM, Gabriela TP, Felipe CL, Catalina C. Use of a Bipolar Device (LigaSure) to Seal the Appendiceal Stump in Pediatric Laparoscopic Appendectomy: 10-year Latin-American Experience. J Pediatr Surg. 2023 Aug;58(8):1471-1475. <https://doi.org/10.1016/j.jpedsurg.2022.10.005>. PMID:36396473
6. Mayir B, Bilecik T, Ensari CO, Oruc MT. Laparoscopic appendectomy with hand-made loop. Wideochir Inne Tech Maloinwazyjne. 2014 Jun;9(2):152-6. <https://doi.org/10.5114/wiitm.2014.41624>. PMID:25097680 PMCID:PMC4105669

---

Cite this article: Johna, S. The Paradox of Choice The Cost of Ligating the Base of the Appendix. *Basrah Journal of Surgery*, 2025; 31(1): 1-3. doi: 10.33762/basjsurg.2025.156759.1103.