Comparison of Postoperative Pain Scores and Operative Duration Between LiVac Retraction Device and Traditional Liver Retractor Systems

Jacob Neary, MD, Majed Al-Hechi, MD, Yewande Alimi, MD, Caron Hong, MD, Ivanesa Pardo, MD
Department of General Surgery, MedStar Washington Hospital Center - MedStar Georgetown University Hospital, Washington, D.C

Objective

To compare operative duration and postoperative pain scores in patients undergoing bariatric surgery using a LiVac retractor versus a traditional Nathanson liver retractor.

Background

Liver retraction allows adequate visualization of the esophageal hiatus in bariatric surgery. Traditional liver retractors require a dedicated port and involve additional liver manipulation. The LiVac Retractor does not require and an additional trocar and minimizes liver manipulation, allowing the potential to reduce postoperative pain. The aim of this study was to compare postoperative pain in patients undergoing bariatric surgery using a LiVac retractor versus a traditional liver retractor.

Methods

A retrospective review was performed of patients who underwent laparoscopic sleeve gastrectomy, Roux-en-Y gastric bypass, and bypass revision between 2017-2022 using either a traditional (Nathanson) or the LiVAC retractor. Variables, including post anesthesia care unit (PACU) pain scores, use of narcotic pain medication during PACU stay, duration of PACU stay, and surgery time, were evaluated. All patients were operated on by the same surgeon, were placed in the same PACU, and managed postoperatively by the same anesthesia staff.

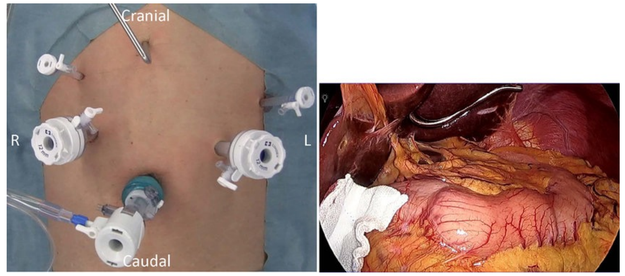


Figure 1: Demonstration of how LiVac mobilizes liver and holds either right or left lobe against the diaphragm[1]

Results

A total of 166 patients were included, of which 115 used the Nathanson Liver Retractor and 51 used the LiVAC Retractor. Compared to the traditional retractor group. LiVAC group had a significantly shorter median operative duration (174.0 vs. 149.0 minutes, p=0.01). There was no significant difference in median postoperative pain scores between groups (5.0 vs. 5.0, p=0.51).

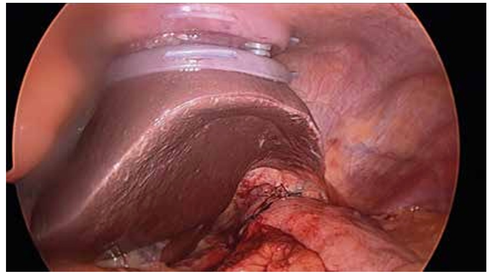


Figure 2: Traditional liver retractor setup (Nathanson) including intracorporal view [2]

References

1. Team L. Sucking the liver out of the way with LiVac. LiVac | Liver Retraction Device. Published April 27, 2016. Accessed April 9, 2024. https://www.livac.com.au/sucking-liver-way-livac/
2. Sw L, M K, K T, et al. The crossover technique for intracorporeal esophagojejunostomy following laparoscopic total gastrectomy: a simple and safe technique using a linear stapler and two barbed sutures. *Surgical endoscopy*. 2019;33(5). doi:10.1007/s00464-018-6413-8

Limitations/Next Steps

Additional adjuvants such as Lidocaine infusions are commonly utilized. Factoring these into pain scores may provide additional insight. Additional research is being performed to expand our patient population and understand the course of pain attributable to liver retraction.

Conclusion

Compared to using a traditional liver retractor in bariatric surgeries, the LiVac retractor is associated with decreased operative time but does not seem to affect postoperative pain. Larger studies are warranted to further elucidate if utilization of the LiVAC retractor can affect postoperative pain.

Acknowledgements

Dr. Ivanesa Pardo and Yewande Alimi, Washington Hospital Center MIS and Bariatric Surgery Department; Dr. Caron Hong and the Department of Anesthesia for providing comprehensive pain scoring and access to PACU data.