

## Beyond Laparoscopy: Embracing a Scarless Solution for Gallstones “The Notes”

Sir,

Gallstones (cholelithiasis) are solid deposits of excess bile materials that are formed in the gallbladder or bile ducts, causing pain, nausea, and vomiting, especially after consuming fatty foods. They can lead to serious conditions such as infections or inflammation, if they obstruct bile ducts. A study found a 10.2% prevalence of gallstones in Karachi alone.<sup>1</sup> Natural Orifice Transluminal Endoscopic Surgery (NOTES) cholecystectomy is a minimally invasive procedure that uses natural body openings to remove the gallbladder, leaving no visible scars and promoting faster recovery. NOTES can be performed via three main approaches: Per oral NOTES (subdivided into transoesophageal and transgastric NOTES), per vaginal NOTES, and per rectal NOTES.

In 2007, transgastric peritoneoscopy was used as a complementary diagnostic procedure with laparoscopy without any procedure-related postoperative complication.<sup>2</sup> Recently, Liu *et al.* demonstrated endoscopic transgastric cholecystectomy as a safe and effective procedure, with an average surgery averaging 4 hours and a hospital stay of 2.5 days.<sup>3</sup>

The transvaginal cholecystectomy is the most common NOTES procedure with superior cosmetic outcomes and lesser pain when compared to its laparoscopic counterpart. A randomised controlled trial reported no conversions of NOTES to laparoscopic or open procedure. There were no instances of injuries, bile leaks, haemorrhagic complications, wound infections, or wound dehiscence in either group, nor were there any readmissions.<sup>4</sup>

Transrectal gallbladder preserving cholecystolithotomy has also been reported with successful outcomes and improved visualisation of the gallbladder. Nevertheless, the bowel preparation needs to be carried out prior to the surgery.<sup>5</sup>

NOTES has been successfully performed worldwide with no scar and little discomfort. Additionally, NOTES can also facilitate other intra-abdominal procedures. Regrettably, this minimally invasive and rapidly evolving operative technique is non-existent in Pakistan due to the lack of trained surgeons and the lack of specific instruments. There is a strong need for introduction of NOTES in Pakistan by providing proper training to surgeons and provision of instruments.

### COMPETING INTEREST:

The authors declared no conflict of interest.

### AUTHORS' CONTRIBUTION:

ASA: Design, guidance, literature search, and review.

MAAS: Concept, literature search, review, writing of the manuscript, proofreading and editing.

AAK: Literature search, writing of the manuscript, and editing.

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### REFERENCES

1. Bilal M, Haseeb A, Saad M, Ahsan M, Raza M, Ahmed A, *et al.* The prevalence and risk factors of gallstone among adults in Karachi, South Pakistan: A population-based study. *Glob J Health Sci* 2016; **9(4)**:106. doi: 10.5539/gjhs.v9n4p106.
2. Hyder Q, Zahid MA, Ahmad W, Rashid R, Hadi SF, Qazi S, *et al.* Diagnostic transgastric flexible peritoneoscopy: Is pure natural orifice transluminal endoscopic surgery a fantasy? *Singapore Med J* 2008; **49(12)**:e375-81.
3. Liu XY, Li QL, Xu XY, Xu JX, Cai MY, Wang P, *et al.* Endoscopic transgastric cholecystectomy: A novel approach for minimally invasive cholecystectomy. *Endoscopy* 2021; **53(2)**:E50-1. doi: 10.1055/a-1180-7661.
4. Schwaitzberg SD, Roberts K, Romanelli JR, Desilets DJ, Earle D, Horgan S, *et al.* The NOVEL trial: Natural orifice versus laparoscopic cholecystectomy- A prospective, randomized evaluation. *Surg Endosc* 2018; **32(5)**:2505-16. doi: 10.1007/s00464-017-5955-5.
5. Liu B, Du B, Pan Y. Video of the Month: Transrectal gallbladder-preserving cholecystolithotomy via pure natural orifice transluminal endoscopic surgery: First time in humans. *Am J Gastroenterol* 2015; **110(12)**:1655. doi: 10.1038/ajg.2015.266.

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