

NOTES-Natural orifice transluminal endoscopic surgery: Why not?

Antonello Forgione

Antonello Forgione, AIMS Advanced International Mini-invasive Surgery Academy, Department of General and Emergency Surgery, Niguarda Ca' Granda Hospital, Piazza Ospedale 3, Milan 20162, Italy

Author contributions: Forgione A solely contributed to this paper. Correspondence to: Antonello Forgione MD, PhD, MBA, Department of General and Emergency Surgery, Niguarda Ca' Granda Hospital, Piazza Ospedale 3, Milan 20162, Italy. antonello.forgione@aimsacademy.org

Telephone: +39-2-64447600 Fax: +39-2-64447603

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Abstract

Since natural orifice transluminal endoscopic surgery (NOTES) was first described by Anthony Kalloo, it has attracted tremendous interest from surgeons and gastroenterologist all around the world. This special issue of the *World Journal of Gastrointestinal Surgery* explores the current possibilities and future potential of the most disruptive revolution in the field of surgery represented by the NOTES approach. In the future, new technologies developed for this approach and deeper insight into several gastrointestinal diseases will lead to the design of completely new interventional procedures and change the way we will operate, bringing us to the previously unimaginable goal of "no scar surgery".

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Key words: Gastrointestinal surgery; Minimally invasive surgery; Natural orifice transluminal endoscopic surgery; Microrobotics

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EDITORIAL

We, human beings, don't like to undergo surgical procedures, not only for the fear and effect of the disease, but also for the expected postoperative pain, the risks and side effects of anesthesia, the recovery time needed after an operation and the permanent visible scars that will forever leave an unpleasant reminder of the experience and alter the esthetic of the person^[1].

The revolutionary concept of natural orifice transluminal endoscopic surgery (NOTES) described by Kalloo *et al*^[2], promises to overcome many of the historical drawbacks of the surgical approach.

After a long period of testing in experimental settings the NOTES approach has now proven its feasibility and safety in preliminary clinical experience in the performance of basic surgical procedures^[3-5]. At same time, new fields of surgery and innovative approaches are being explored in order to allow more advanced procedures to be performed^[6,7].

So far, the major efforts in the field have been primarily concentrated on the use of natural orifice approaches to simply replicate traditional radical procedures whilst respecting established operative strategies. However, the NOTES approach is also stimulating the appreciation of complementary advanced technologies and new surgical concepts, that will allow us not only to perform the procedures *via* a minimal access, but also to minimize the extent or even the need for a surgical resection. These new concepts are represented for example by genetically driven gastrointestinal cancer treatment and manipulation of the gastrointestinal tract for the cure of metabolic disorders^[8-10].

In fact, Better genetic and physiopathological knowledge will help us to customize the surgical approach to the specific needs of the patient. This will avoid the usual "one size fits all" strategy that often relies on extended surgical resection of large specimens simply to perform the correct cancer staging. This approach rarely adds any clinical benefit to the patients while may impair their functional outcome and quality of life^[11].

In this special issue of the *World Journal of Gastrointestinal Surgery*, leading experts in the field report on their current experimental and clinical experience with this new approach, such as “Natural orifice transluminal endoscopic surgery: The transvaginal route moving forward from cholecystectomy” by Targarona *et al*^[12], “Transgastric cholecystectomy: From the laboratory to clinical implementation” by Dallemagne *et al*^[13], “Current experience and future directions of completely NOTES colorectal resection” by Sylla^[14], “Natural orifice transluminal endoscopic surgery and localized resection for colorectal neoplasia” by Cahill *et al*^[15], “NOTES: The question for minimal resection and sentinel node in early gastric cancer” by Asakuma *et al*^[16], “Single access laparoscopic surgery: Complementary or alternative to NOTES?” by Dapri^[17], “Natural orifice transluminal surgery: Flexible platform review” by Shaikh *et al*^[18], “*In vivo* miniature robots for natural orifice surgery: State of the art and future perspectives” by Tiwari *et al*^[19], and “Natural orifice transluminal endoscopic surgery: Educational challenge” by Dunkin^[20]. All The authors in their articles, highlight how technological developments and new concepts will definitively push forward this previously unimaginable frontier of “no scar surgery”, allowing for its widespread application and the conception of completely new techniques that will greatly impact the way we will address many diseases in the future.

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