

## Natural orifice transluminal endoscopic surgery (NOTES) for innovation in hepatobiliary and pancreatic surgery: preface

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### Abstract

**Introduction** Natural orifice transluminal endoscopic surgery (NOTES) has captured the interest of interventional endoscopists and may represent the next stage of evolution of minimally invasive surgery. It provides the potential for performance of incisionless operations. It is gaining momentum both in the animal laboratory and in human case reports. Developments in the field of NOTES have led to the formation of the Natural Orifice Surgery Consortium for Assessment and Research (NOSCAR) in 2006.

**Materials and methods** In this special issue, the current trends in NOTES in the field of hepatobiliary and pancreatic surgery are featured, including NOTES cholecystectomy, hepatectomy splenectomy, pancreatic necrosectomy, and the future of NOTES. In this issue, we discuss the potential benefits of these procedures in hepatobiliary and pancreatic surgery.

**Conclusion** We have just started the evaluation process for this new technology. The concept of NOTES is becoming established and is enormously advantageous for the patient. Both the surgeon and gastroenterologist should contribute to developing NOTES in making use of their specialties.

**Keywords** Natural orifice transluminal endoscopic surgery (NOTES)

In recent years, gastrointestinal endoscopy has been distorted from serving diagnostic purposes to interventional therapeutic applications. In the meantime, the advances in surgical technique have led to an urge to minimize the surgical approach to less invasive surgery. Recently, the invasiveness of surgery and gastroenterology has been getting closer attention, and the field of minimally invasive surgery has seen tremendous growth recently. Natural orifice transluminal endoscopic surgery (NOTES) has captured the interest of interventional endoscopists and may represent the next stage of evolution of minimally invasive surgery. NOTES is a new therapeutic procedure that combines surgical (especially laparoscopic) and endoscopic skills. It provides the potential for performance of incisionless operations. The patients and physicians would realize the benefits of less invasive surgery by reducing the recovery time, experiencing less physical discomfort associated with traditional procedures, and having virtually no visible scarring following this type of surgery. Although not currently widely used, it is gaining momentum both in the animal laboratory and in human case reports. Developments in the field of NOTES led to the formation of the Natural Orifice Surgery Consortium for Assessment and Research (NOSCAR) in 2006, followed by the first international meeting on NOTES held in 2006 [1, 2]. The way to move NOTES from the laboratory to the clinical arena is to do high-quality research in the areas described by the NOSCAR working group to represent barriers to NOTES procedures.

In this special issue, the current trends of NOTES in the field of hepatobiliary and pancreatic surgery are featured.

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Eight topics on NOTES biliary surgery, including cholecystectomy from the laboratory to the clinical application, transintestinal hepatectomy by hybrid NOTES, approach to the liver and spleen, endoscopic necrosectomy of pancreatic necrosis, and the future of NOTES, are discussed. Numerous procedures in the field of hepatobiliary and pancreatic surgery, including hybrid techniques that combine NOTES technology with alternative conventional laparoscopic techniques, have been described in animal and human clinical trials [3–15]. In this issue, we discuss the potential benefits of these procedures in hepatobiliary and pancreatic surgery over conventional surgical interventions, review the major challenges to the technique, and point out the technological limitations that severely handicap its potential. Despite the extensive interest in NOTES, there are many inadequacies, limitations to the device, lack of clinical outcome data, and absence of randomized trials that compare it with alternative conventional surgical interventions. We have just started the evaluation process for this new technology. The concept of NOTES is becoming established and is enormously advantageous to the patient. Both the surgeon and gastroenterologist should contribute to developing NOTES in making use of it in their specialties and sharing their knowledge and experiences.

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