Summary and Conclusion

Flexible endoscopy has traditionally been limited to the confines of the gastrointestinal lumen. Recent developments involving transluminal access to intra-abdominal structures, however, hold the potential to revolutionize flexible endoscopy. Over the last few years, various studies have detailed techniques involving intentional luminal breach with endoscopic access to the peritoneal cavity for diagnostic and therapeutic procedures. Unlike standard surgical approaches which require incisions in the abdominal wall, the Natural Orifice Transluminal Endoscopic Surgery (NOTES) approach avoids abdominal incisions and may offer specific advantages in selected patients.

Several NOTES animal models have been described in the literature including: transgastric peritoneoscopy, tubal ligation, gastrojejunostomy, partial hysterectomy and oophorectomy, and transcolonic exploration, liver biopsy and cholecystectomy. To date, there is only verbal report of human appendectomy from India with no other human reports or publications. The focus of this review is to highlight important advances in transluminal endoscopic surgery since its first description and to reflect on future applications.

The application of NOTES will blend the skills of the surgical scrub nurse with the skills of the endoscopy nurse. Gastroenterology teams will work in

tandem with laparoscopic surgeons to provide a variety of trans-luminal operations and in some cases may perform surgical procedures without laparoscopic assistance. The endoscopy nurse will need to be familiar with a new generation of endoscopic instruments and techniques. The speakers will share the adaptation of skills and techniques necessary to assist in endo-surgical procedures.

As NOTES is still in a developmental stage and no human studies have been published, it is difficult to compare the safety and efficacy of using NOTES to perform intra-abdominal surgery with current intra-abdominal surgical interventions, however current NOTES procedures do not appear as safe or effective as alternative surgical options. The outcomes obtained from the 22 studies included in this review indicate that NOTES can in fact be used to perform some intra-abdominal procedures in animal models. What is more apparent is the need for the further development of these procedures, as well as studies comparing NOTES to current intra-abdominal surgical procedures before it can seriously be considered for use in a clinical setting.

The development of new devices will speed the development of NOTES and improve outcomes. There is a definite need for further studies to compare surgical methodology of NOTES procedures and aspects thereof, to determine optimal methods of performing intra-abdominal surgery via a natural orifice. The safety and efficacy of these optimized procedures will then need to be carefully evaluated and compared with existing surgical interventions.