

Magnetically anchored instruments minimize trocar numbers in laparoscopy

The degrees of freedom and working envelope of conventional laparoscopic instrumentation are limited, which often necessitates the use of multiple trocars to improve visibility and efficiency at the expense of reduced cosmesis and an increased risk of complications.

Parks *et al.* developed a transabdominal magnetic anchoring and guidance system (MAGS)—a pair of external permanent magnets, two types of retractor (sling and paddle types) and a camera, each with permanent magnets attached to their base—to see whether the number of trocars required can be reduced. The instruments are introduced through a single standard 12 mm trocar, positioned intra-abdominally, and anchored in place by the external permanent magnets, which are placed on the abdomen. A 12 mm trocar customized with fiberoptic cables and coupled to a conventional light source provides illumination.

In a pig model, the MAGS prototype anchored the instruments in place across an abdominal wall thickness of ~1.5 cm. There was no loss of coupling when the instruments were moved around and the camera could be moved to virtually any location in the peritoneum. The authors completed two nonsurvival pig nephrectomies using only two trocars, without complications.

Laparoscopy with magnetically anchored instruments introduced through a single trocar is, therefore, feasible and could revolutionize surgical practice. Several clinical and engineering limitations (e.g. reduced magnetic attraction across thick tissues) must, however, be addressed before widespread adoption of this MAGS for humans is possible.

Original article Parks *et al.* (2007) Trocar-less instrumentation for laparoscopy: magnetic positioning of intra-abdominal camera and retractor. *Ann Surg* 245: 379–384

Spectrophotometric analysis of leukocyte esterase reagent strips excludes a diagnosis of SBP

The use of leukocyte esterase reagent strips offers a rapid, cheap and simple alternative to manual counting of polymorphonuclear leukocytes (PMNs) in ascitic fluid for the diagnosis of spontaneous bacterial peritonitis (SBP). Reagent

strips have not been widely adopted, however, because of concerns about the subjectivity of reading strip results.

To see whether this problem could be overcome, Gaya *et al.* screened 173 ascitic fluid samples from 105 cirrhotic patients with reagent strips, and read them using an automated spectrophotometer. The results were compared with PMN counts. The spectrophotometrically read reagent strip results confirmed all 14 diagnoses of SBP made by PMN counts, and also showed that 3 of these 14 patients still had SBP 48 h after initiation of antibiotic therapy.

Compared with manual PMN counts, the sensitivity, specificity, positive predictive value, negative predictive value and accuracy of the spectrophotometrically read reagent strip results were 100%, 91%, 50%, 100% and 92%, respectively.

Since the positive predictive value was relatively poor, the authors suggest that a positive strip result should be confirmed by a manual PMN count. A negative strip result, however, reliably excludes a diagnosis of SBP and eliminates the need for a manual PMN count, which could save time, money and resources. They also highlight the need for their data to be replicated in a larger cohort with a higher prevalence of SBP before widespread application of spectrophotometric analysis of reagent strips.

Original article Gaya DR *et al.* (2007) Bedside leukocyte esterase reagent strips with spectrophotometric analysis to rapidly exclude spontaneous bacterial peritonitis: a pilot study. *Eur J Gastroenterol Hepatol* 19: 289–295

Multiband mucosectomy shows promise for endoscopic resection of Barrett's esophagus

Piecemeal endoscopic resection of early neoplastic lesions >15–20 mm can be expensive, laborious and uncomfortable for the patient. Multiband mucosectomy (MBM) is a new technique that uses a modified variceal band ligator to perform multiple resections with a single snare, which eliminates the need for snare pre-looping and submucosal lifting. In this feasibility study, 80 MBM procedures performed in 40 patients with Barrett's esophagus and early neoplasia were compared with 86 historical EMRC (endoscopic mucosal resection with cap) procedures performed in 53 patients.