CASE REPORT

Laparoscopic colon resection with intraoperative polyp localisation with high resolution ultrasonography coupled with colour power Doppler

F Panaro, M Casaccia, D Cavaliere, P Torelli

A 40 year old woman with a 3 cm sigmoid polyp lesion who underwent a laparoscopic colon resection after intraoperative localisation of the lesion using laparoscopic ultrasonography coupled with power Doppler is described. She has successful intraoperative detection of the polyp followed by radical laparoscopic removal of the lesion. The advantage of using laparoscopic high resolution ultrasonography coupled with power Doppler to locate colonic polyp lesions during laparoscopic colonoscopy can be avoided. Intraoperative ultrasonography of the colon can accurately localise colonic polyp lesions that are not detectable during laparoscopy and represents a quick and effective alternative to other imaging techniques.

Intraoperative laparoscopic ultrasonography to locate colonic polyp lesions during a laparoscopic colon resection has several advantages: it is easy, fast, and highly accurate in localising intraoperatively the presence of a lesion otherwise non-palpable during laparoscopy. In our experience it does not require the instillation of normal saline to increase the sonographic enhancement of the surrounding structures. A lack of adverse effects and short examination time are some advantages of this method. However, adequate training for surgeons unfamiliar with this technology is recommended.

We describe a successful intraoperative detection of a polyp in a 40 year old woman with high resolution ultrasonography using a flexible tip ultrasound probe coupled with power Doppler followed by radical laparoscopic removal of the lesion.

A 40 year old woman with a body mass index of 21% was admitted for a single episode of rectal bleeding. Double contrast enema revealed a 3 cm polyp at the level of the sigma. An endoscopic extirpation of the polyp was attempted but not completed because of its large base of implantation. Biopsy during colonoscopy (fig 1) revealed a focal adenocarcinoma in situ, 30 cm from the anal verge. The patient was then referred for surgery: a laparoscopic approach was chosen with the patient placed in the supine position; four ports (one 10 mm, one 12 mm, and two 5 mm) were placed in the lower abdomen in a diamond fashion. Intraoperative ultrasound was performed using a 7.5 MHz flexible tip probe with power Doppler placed through the 12 mm port. The probe was directed in the operative field under direct laparoscopic viewing. The left colon was scanned from the rectosigmoid junction to the splenic flexure, focusing at the sigma region. The polyp was easily identified as an isohypoechoic image (fig 2) with a vascular structure at colour power Doppler.

Operative time was 62 minutes. No perioperative complications occurred. Postoperative hospital stay was characterised by return of bowel peristalsis on postoperative day 1, resumption of oral feeding on postoperative day 2, and discharge on postoperative day 3. Recovery was uneventful. Histological examination confirmed the malignant nature of the lesion (polyp...
DISCUSSION

The most common strategies now used to localise colonic polyp lesions include preoperative detection by contrast enema, intraoperative colonoscopy, and marking of the colonic wall adjacent to the lesion with activated carbon or India ink during preoperative colonoscopy. Recent reports have suggested laparoscopic intracorporeal ultrasonography to be a useful imaging technique in abdominal surgery. Intraoperative colonic polyp localisation using intracorporeal ultrasound has been described only recently. However, this technique requires instillation of sterile normal saline into the colon and rectum. We showed that detection of polyp lesions that were not detectable during laparoscopy, using the most up-to-date ultrasonographic intraoperative instrument (high resolution 7.5 MHz flexible tip probe with colour power Doppler), does not require intracolic or extracolic, intrabdominal, saline instillation as a means of hyperechoic enhancement but only the natural intraluminal bowel gas. The colour power Doppler feature of the ultrasonographic probe also allowed us to identify the presence of a vascular structure in the polyp, thus increasing the sensitivity and the specificity of the procedure. A disadvantage is that adequate training for surgeons is necessary to optimise its efficacy.

CONCLUSION

Intraoperative high resolution ultrasonography with colour power Doppler of the colon without intraluminal or extraluminal instillation of sterile normal saline is feasible, non-invasive, and highly accurate in localising a polyp lesion. It is a quick, efficient alternative to other common strategies used to localise colonic polyp lesions.

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