

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Surgery Quiz – Case 24

A 76-year-old male patient referred to our surgical endoscopy department for elective endoscopic polypectomy of a large pedunculated distal sigmoid colon villous adenoma (2.5 cm base spreading at the right lateral wall, 4.5 cm stalk, 2 cm head) diagnosed during a precedent screening colonoscopy. As the polyp considered endoscopically unresectable, tattooing with submucosal four quadrants non-saline test injection of 2 mL undiluted methylene blue (10 mL vials, sterile, 0.5%–50 mg/10 mL) performed to facilitate localization at the time of surgery. Immediate open surgery performed; the patient submitted to open polypectomy with minor colotomy instead of segmental resection as decided intraoperatively. On postoperative day 3, fever, tachycardia, left abdominal guarding along with leukocytosis and CRP level elevation developed. Computed tomography (CT) depicted extensive rectosigmoid wall thickening, pericolic stranding and extravasation of gas and fluid into the peritoneal cavity as depicted below (fig. 1).

What went wrong?

Re-laparotomy revealed rectosigmoid wall thickening 3 cm from either side of the injection site, blue discoloration of the colotomy representing extensive infiltration of methylene blue far from the injection site, patchy black serosal areas representing areas of non-reversible transmural necrosis, and rupture of the colotomy along with the presence of pus and fibrin purulent



Figure 1. Computed tomography (CT) depicted extensive rectosigmoid wall thickening and pelvic extravasation of gas and fluid.

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membranes in minor pelvis and between bowel loops (fig. 2). Hartmann's procedure performed with uneventful recovery.

Endoscopic submucosal low volume injection of appropriately diluted and sterile tattooing agents is indicated to facilitate localization of luminal abnormalities during surgery. Currently available agents include India ink (10 mL vials, sterile, diluted 1:50 with normal saline solution) and Spot (5 mL vials, sterile, ready-to-use). Other dyes such as methylene blue are less useful compared to the above with respect to ease of use, safety and efficacy. Early reactions to methylene blue that can result in complications such as peritonitis, colonic wall abscess and inflammatory pseudotumor include ischemic ulceration, necrosis, neutrophilic and eosinophilic submucosal infiltration and fibrinoid vessel wall necrosis. Methylene blue is a poor tattoo agent;



Figure 2. Re-laparotomy revealed rectosigmoid wall thickening, blue discoloration of the colotomy along with patchy black serosal areas (black arrow) and rupture of the suture line (white arrow).

however, its occasional use continues and clinicians should be aware of potential complications. In conclusion, preoperative endoscopic tattooing with high volume undiluted methylene blue should be avoided as it can result in colon perforation.

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