

Urinary Discoloration After Rectal Instillation of Methylene Blue Dye

K P L Yap, H C Chng

ABSTRACT

Methylene blue is a vital dye that is used in the treatment of methaemoglobinaemia. It is also used to delineate tissues to facilitate identification during surgery. Discoloration of the urine is known after oral and intravenous administration of the dye. We have used it routinely to detect the presence of defects after colorectal anastomosis. However, there have not been any previous reports of urinary discoloration after brief rectal instillation of the dye. We report a case of self-limiting urinary discoloration after anterior resection with colorectal anastomosis.

Keywords: methylene blue, rectal neoplasms, surgical anastomosis

Singapore Med J 2003 Vol 44(5):268

CASE REPORT

An 81-year-old woman underwent elective anterior resection for adenocarcinoma of the rectum situated 8 cm from the anal margin. During surgery, a synchronous tumour was found in the sigmoid colon. Both tumours were limited to the bowel wall and were resected en bloc. The proximal and distal bowel resections were accomplished using linear staplers and intestinal continuity was restored with a circular stapler. The excised tissue doughnuts were intact. A soft intestinal clamp was placed proximal to the anastomosis. Using a 24F Foley's catheter placed within the rectum, 50 mls of diluted methylene blue (0.1%) were instilled till the rectum was distended but not tense. A small area of leak was seen anterolaterally. The catheter was removed and the rectum decompressed. The anastomosis was oversewn and a defunctioning ileostomy was created.

Postoperatively, the patient's urine was noted to have a green discoloration. This cleared after two days. There was microscopic haematuria on urine microscopy. This was attributed to intra-operative

bladder retraction. The urine cultures were sterile. The catheter was removed five days after surgery and she was discharged on the seventh day.

DISCUSSION

Methylene blue is a vital dye that is used in the treatment of methaemoglobinaemia. It is also used to delineate tissues to facilitate identification during surgery. Discoloration of the urine is known after oral and intravenous administration of the dye⁽¹⁾. We have used it routinely to detect the presence of defects after colorectal anastomosis⁽²⁾. Urinary discoloration by methylene blue indicates systemic absorption of the dye, possibly occurring across the mucosa or through the exposed ends of the transected intestine. Thus, as in intravenous or oral administration of the dye, its use is contraindicated in patients with renal failure⁽¹⁾, as most of the dye is excreted in the urine. Caution should be applied when it is used in patients with glucose-6-phosphate dehydrogenase deficiency, in which it can precipitate haemolysis⁽¹⁾.

Histologic changes after injection of methylene blue for localisation of colonic lesions has been reported⁽³⁾. These include ischaemic ulceration, necrosis and eosinophilic infiltration. Thus far, there have not been any reports of histologic change after intraluminal contact with methylene blue. This case emphasises the potential systemic consequences of transient rectal administration of methylene blue and the caution that should accompany its use.

REFERENCES

1. Methylene Blue Injection U.S.P. David Bull Laboratories Pty. Ltd. February 1991.
2. Bergamaschi R, Arnaud JP. Intracorporeal colorectal anastomosis following laparoscopic left colon resection. *Surg Endosc* 1997; 11:800-1.
3. Lane KL, Vallera R, Washington K, Gottfried MR. Endoscopic tattoo agents in the colon. Tissue responses and clinical implications. *Am J Surg Pathol* 1996; 20(10):1266-70.

Department of
Surgery
Changi General
Hospital
2 Simei Street 3
Singapore 529889

K P L Yap, MBBS,
FRCS, FAMS
Associate Consultant

H C Chng, MBBS,
MMed (Surgery),
FRACS
Senior Consultant

Correspondence to:
Dr Karen Yap
Currently working at
Department of
Surgical Oncology
National Cancer Centre
11 Hospital Drive
Level 4
Singapore 169610
Tel: (65) 6436 8284
Fax: (65) 6225 7559
Email: dsoypl@
nccs.com.sg