

Appendix 2b: Studies on MBP vs. no MBP

Author, year, reference	Design, setting, population	Type of surgery	SSI /anastomotic leakage definition	Preoperative prophylactic antibiotics	Intervention	Results
Barrera, 2012 (8)	RCT single centre	Elective colorectal surgery	Unknown (“both superficial and deep”)	Cefazoline 1 g and metronidazole 500 mg IV	A) Sodium phosphate B) No MBP	A) 60 patients SSI: 4/60 (6.7%); 4/60 with anastomotic leakage B) 62 patients SSI: 12/62 (19.4%); 2/62 with anastomotic leakage
Bretagnol, 2010 (9)	RCT multicentre, adult patients	Sphincter-saving rectal resection for cancer	“Wound abscess” (unknown definition) Clinical anastomotic leakage defined as symptoms related to leakage were noted (i.e. gas, pus, or faecal discharge from the drain, peritonitis, discharge of pus per rectum).	IV Ceftriaxone 1 g and metronidazole 500 mg	A) Senna on day before surgery and 1 litre of povidone-iodine enema (night before and morning of surgery) B) No MBP	A) 89 patients SSI: 3/89 (3%); 6/89 with anastomotic leakage B) 89 patients SSI: 1/89 (1%); 14/89 with anastomotic leakage
Bucher, 2005 (10)	RCT dual centre, adult patients	Elective left-sided colorectal resection with primary anastomosis.	“Wound requiring partial or complete opening for drainage of a purulent collection, or erythema requiring initiation of antibiotic treatment.” “Anastomotic dehiscence was defined by the demonstration of extraluminal leakage of contrast by imaging or was documented during reoperation.”	Metronidazole and ceftriaxone IV	A) Polyethylene glycol (3 litres) on the day before surgery B) No MBP (one saline enema was given to patients undergoing rectal resection in both groups)	A) 78 patients SSI: 10/78 (13%); 5/78 with anastomotic leakage B) 75 patients SSI: 3/75 (4%); 1/75 with anastomotic leakage
Burke, 1994 (11)	RCT single centre	Elective left colonic or rectal resection.	Unknown “Anastomotic dehiscence was diagnosed clinically and suspected if there was deterioration in the general condition, abdominal distension, diarrhoea, or blond clot passed per anum, or signs of peritonitis. If necessary, leakage was confirmed radiologically using a water-soluble enema.”	Ceftriaxone 1 g and metronidazole 500 mg IV	A) Sodium picosulphate 10 mg in 2 dd on the day before surgery B) No MBP	A) 82 patients SSI: 4/82 (4.9%); 3/82 with anastomotic leakage B) 87 patients SSI: 3/87 (3.4%); 4/87 with anastomotic leakage
Contant, 2007 (12)	RCT multicentre	Elective colorectal surgery.	“Wound infection was regarded as mild if it manifested only with erythema or discharge of seroma, and severe if it was characterised by discharge of pus, wound necrosis, or wound dehiscence.” Anastomotic leakage: “Clinical suspicion based on persistent fever, abdominal pain, local or generalized peritonitis, or leucocytosis was followed by contrast radiography, CT	IV: Cefuroxim and metronidazole, cefazoline and metronidazole, cefamandole and metronidazole, gentamycin and metronidazole, amoxicillin-clavulanate or others	A) Polyethylene glycol (2-4 litres) and bisacodyl or sodium phosphate solution (at two hospitals). B) No MBP	A) 670 patients SSI: 90/670 (13.4%); 32/670 with anastomotic leakage B) 684 patients SSI: 96/684 (14.0%); 37/684 with anastomotic leakage

			scan, or laparotomy to substantiate the diagnosis.”			
Fa-Si-Oen, 2005 (14)	RCT, multicentre	Elective colon surgery.	“Clinically significant infection of the skin for which the wound had to be evacuated.” “Anastomotic leakage was defined as major when leakage was clinically significant leading to a relaparotomy and minor when leakage was subclinical, verified by radiographic examination, and treated conservatively.”	IV: Cefazoline 2 g and metronidazole 1.5 g or gentamicin 240 mg and metronidazole 1.5 g	A) Polyethylene glycol 4L B) No MBP	A) 125 patients SSI: 9/125 (7.2%); 7/125 with anastomotic leakage B) 125 patients SSI: 7/125 (5.6%); 6/125 with anastomotic leakage
Jung, 2007 (17)	RCT multicentre, adult patients	Elective open colon surgery involving an anastomosis.	“Superficial infection needing surgical intervention in the wound.” “Anastomotic leak verified at surgery or contrast radiography.”	Oral sulfamethoxazole-trimethoprim and metronidazole in 46%, intravenous cephalosporin and metronidazole in 33%, and doxycycline and metronidazole in 14%	A) Polyethylene glycol or sodium phosphate B) No MBP	A) 686 patients SSI: 54/686 (7.9%); 13/686 with anastomotic leakage B) 657 patients SSI: 42/657 (6.4%); 17/657 with anastomotic leakage
Miettinen, 2000 (20)	RCT dual centre	Elective colorectal surgery.	“Presence of pus or discharge with positive bacteriologic culture.” “Rupture of the anastomosis was detected by radiologic imaging using water-soluble contrast enema done on clinical grounds.”	IV ceftriaxone 2 g and metronidazole 1 g	A) Polyethylene glycol electrolyte solution on day before surgery (until clear fluid was evacuated) B) No MBP	A) 138 patients SSI: 5/138 (4%); 5/138 with anastomotic leakage B) 129 patients SSI: 3/129 (2%); 3/129 anastomotic leakage
Pena-Soria, 2008 (22)	RCT single centre	Elective colon or proximal rectal resection with a primary anastomosis.	CDC guidelines “Anastomotic failure was diagnosed if there was a fecal fistula, an anastomotic dehiscence was identified at re-operation or during post mortem, and/or if clinical suspicion was confirmed by a radiological test (CT).”	Gentamicin 80 mg and metronidazole 500 mg IV	A) Oral polyethylene glycol B) No MBP	A) 65 patients SSI: 19/65 (29.2%); 4/65 with anastomotic leakage B) 64 patients SSI: 11/64 (17.2%); 3/64 with anastomotic leakage
Ram, 2005 (23)	RCT single centre	Elective colorectal surgery.	“The presence of pus or discharge resulting in a culture positive for bacteria.” “Anastomotic dehiscence was detected by radiologic imaging using water-soluble contrast.”	Metronidazole 500 mg and ceftriaxone 1g IV	A) Monobasic sodium phosphate 2.4 g and dibasic sodium phosphate 0.9 g B) No MBP	A) 164 patients SSI: 16/164 (9.8%); 1/164 with anastomotic leakage B) 165 patients SSI: 10/165 (6.1%); 2/165 with anastomotic leakage
Santos, 1994 (26)	RCT single centre	Elective colorectal surgery.	“Presence of pus or discharge resulting in a positive bacteriological culture.” “Anastomotic dehiscence was confirmed on clinical, radiographic or intraoperative examination.”	Cephalothin 2 g in 2 dd (followed by 1 g at 6 and 12 hours) and metronidazole 1g IV (followed by 500 mg at 8 and 16 hours)	A) Mineral oil, agar and phenolphthalein 15 ml in 3 dd for 5 days before surgery, enema in 1dd for 2 days before surgery and mannitol 1 L on the day before surgery B) No MBP	A) 72 patients SSI: 17/72 (24%); 7/72 with anastomotic leakage B) 77 patients SSI: 9/77 (12%); 4/77 with anastomotic leakage

Young Tabusso, 2002 (30)	RCT single centre	Elective surgery for colorectal cancer.	Unknown “Anastomotic dehiscence was evidenced by the discharge of intestinal contents through the drainage system and those who had abdominopelvic infection: peritonitis, abscess or purulent drainage with positive culture.”	“Antibiotics prophylaxis with anaerobic Gram-negative coverage”	A) Mannitol or polyethylene glycol on the day before surgery B) No MBP	A) 24 patients SSI: 2/24 (8.3%); 5/24 with anastomotic leakage B) 23 patients SSI: 0/23 (0%); 0/23 with anastomotic leakage
Zmora, 2003 (31)	RCT dual centre	Elective colon and rectal surgery with primary anastomosis.	“Wound requiring partial or complete opening for drainage of purulent collection, or erythema requiring initiation of antibiotic treatment,” “Anastomotic leak was identified if demonstrated by imaging or documented in surgery, or if fecal drainage was evident through a peri-anastomotic drain.”	1 g neomycin and 1 g erythromycin in 3 dd orally on the day before surgery and 500 mg metronidazole, 240 mg gentamicin, and 1 g ampicillin IV	A) Polyethylene glycol (1 gallon) on day before surgery B) No MBP (one phosphate enema was given to patients undergoing rectal surgery in both groups)	A) 187 patients SSI: 12/187 (6.4%); 7/187 with anastomotic leakage B) 193 patients SSI: 11/193 (5.7%); 4/193 with anastomotic leakage Mortality: 4 deaths, none was attributed to surgical infectious complications

MBP: mechanical bowel preparation; dd: divided dose; SSI: surgical site infection; RCT; randomized clinical trial; CDC: Centers for Disease Control and Prevention; IV: intravenous, CT: computed tomography