

MECHANICAL BOWEL OBSTRUCTION

Muhamed H Al-Jawher

Summary In our series, 162 patients were admitted to Basrah General Hospital over a period of 5 years (1987 to 1991) in a state of mechanical bowel obstruction due to intra-peritoneal adhesions; 130 patients (80%) had a previous laparotomy, 98 of which were due to shrapnel injuries, 12 had had appendectomies and the remaining 20 patients had different intra-abdominal pathologies; 32 patients had no previous laparotomy. Eighty-eight patients (54.3%) had strangulated bowel, 45 of which had gangrenous segments that necessitated resection of the involved segment with end-to-end anastomosis. Seventy four patients (45.7%) had simple adhesive obstruction. About 90% of the patients had small bowel obstruction; the rest had colonic obstruction. Surgical exploration was mandatory in 117 patients (73%) while the remaining 45 patients (27%) were successfully treated conservatively. Mortality rate was 10% for simple adhesive obstruction and 28% for strangulated obstruction. We conclude that a previous laparotomy for abdominal shrapnel injury carries a high risk for intra-peritoneal adhesion formation which may, later, lead to mechanical bowel obstruction.

Introduction

Intra-peritoneal adhesions form in the majority of patients following abdominal surgery¹ and also following other causes of peritoneal inflammation that may lead to mechanical bowel obstruction^{1,2,3}. Physical (radiation), chemical, bacteriological and other factors, like reaction to foreign bodies (e.g. talc powder and suture material) contribute to the process of fibrosis which ultimately lead to the formation of adhesions⁴. The improvement in the prognosis of intestinal obstruction could be attributed to the combination of improved anaesthesia, with consequent reduction in post-operative vomiting and regurgitation of gastric contents, perfect pre-operative management including fluid & electrolytes replacement, the introduction of powerful antibiotics and proper timing of surgery⁵.

Patients and methods

A retrospective study of 162 patients with bowel obstruction caused by adhesions treated in Basrah General Hospital between January 1987 and December 1991. All patients were aggressively managed on admission including nasogastric suction, intravenous fluid and close follow up of their electrolyte status. This conservative line of treatment proved successful in 45 patients while the other 117 patients had exploratory laparotomies after failure of the initial treatment. All were explored through a mid-line incision.

Results

Of the 162 patients presenting with mechanical bowel obstruction, 129 were males and 33 were females. Their ages ranged from 5 to 84 years, with 112 patients (69%) in the age range of 20-50 years. Thirty two patients (20%) presented with adhesive bowel obstruction without history of a previous laparotomy while the

Correspondence to:

Muhamed H Al-Jawher; Arab Board Certified Surgeon. Consultant Surgeon, Basrah General Hospital & Lecturer, Dept. of Surgery, University of Basrah College of Medicine, Basrah, IRAQ.

remaining 130 (80%) gave such a history; 98 patients of them had their laparotomies for intra-abdominal shrapnel injuries sustained during the Iraqi-Iranian war, 12 had appendectomies and the remaining 20 were explored for different pathologies.

Strangulated segments of bowel were encountered in 88 patients (54.3%), 43 of which (27%) had the involved segment resected with end-to-end anastomosis, while uncomplicated obstruction was encountered in 74 patients (45.7%). Surgical intervention was necessary in 117 patients (73%) while conservative management was all that was needed in the remaining 45 (27%).

The mortality rate was 10% for simple mechanical obstruction and 28% for strangulated bowel obstruction.

Discussion

In our series, abdominal shrapnel injury played the major role in the formation of adhesions that may later on lead to mechanical bowel obstruction. Shrapnel injury to the abdomen usually lead to haemoperitoneum which may stimulate fibrosis and the formation of adhesions⁶. It may also lead to chemical and/or bacteriological peritonitis due

to visceral injuries and entry of foreign bodies into the peritoneal cavity. In addition, such injuries almost always mandate a laparotomy with long exposure time and the use of a lot of suture material dictated by the multiplicity of injuries; all of which contribute to the formation of adhesions^{6,7}.

Zollinger and Kinsey⁸ reported mortality of 16.5% in mechanical bowel obstruction, however other researchers reported different figures (4.5% & 24%)⁹. We, on the other hand, recorded a rate of 19% which was consistent with that of most centres. This high mortality rate is mainly due to the delay in the evacuation of casualties and the prolonged time between the onset and the management of the injury.

We **conclude** that:

1. A previous laparotomy for intra-abdominal shrapnel injury carries a high risk for the formation of intra-peritoneal adhesions that may lead later to mechanical bowel obstruction.
2. Decreasing the peritoneal insult would decrease the chance of the formation of adhesions.
3. Conservative management plays an important role in the management of bowel obstruction caused by adhesions (since 45 patients were successfully treated in this manner).