



## Conservative Treatment is the First Choice for Mechanical Bowel Obstruction Caused by Colonic Inertia

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### Abstract

**Objective:** To analyze and determine the clinical characteristics and diagnosis of mechanical bowel obstruction caused by colonic inertia and finds the best way to manage.

**Method:** We reviewed the medical record of all 23 patients who diagnosed with mechanical bowel obstruction caused by colonic inertia in National Center for Colorectal Surgery, the Third Affiliated Hospital of Nanjing University of Chinese Medicine from 2005 to 2013 and analyze the clinical character characteristics and follow up them after treatment.

**Results:** 21 patients were relieved by conservative treatment. Abdominal distension occurs repeatedly in one patient, ileostomy was performed for him. The patient who had history of transverse colostomy and the stoma closing surgery was not relieved by conservative treatment and the obstruction progressed. Emergency Subtotal colectomy and ilealrectal anastomosis was performed for her. Follow-up 1-8 years (mean follow-up time: 4.7yrs ) was done for the 23 patients. Two patients who were performed surgical operation without any discomfort. The symptoms of bowel obstruction were recurrence in 8 patients, symptoms of 6 patients were relieved by conservative treatment again, and subtotal colectomy and ilealrectal anastomosis was performed for 2 patients. The remaining 13 patients without recurrence.

**Conclusion:** The conservative treatment is the first choice for mechanical bowel obstruction caused by colonic inertia. Ileostomy is a good choice for the patients whose obstruction symptoms sustained. At the emergency condition, the total colectomy should not be performed for it is in high risk.

**Keywords:** Colonic inertia; Bowel obstruction; Clinical characteristics; Management

### Introduction

Colonic inertia results from the severe functional disturbance of colonic motility and no specific reason had been found. Patients with colonic inertia often complain of infrequent defecation, abdominal distention, formation of stool stone and sometimes causing the bowel obstruction [1,2]. However, in clinical experience, some patients without very long history of constipation may present abdominal pain, distension, vomiting, stop exhaust, defecation, sometimes present colon intestinal pattern and ileum peristalsis waves on right lower quadrant. The symptoms of distal small bowel obstruction cannot be relieved through transverse colostomy, and it is difficult to deal with in clinical experience. We defined the symptom as "mechanical bowel obstruction caused by colonic inertia (MBOCI)". In our study, we report 23 consecutive patients with mechanical bowel obstruction caused by colonic inertia in National Center for Colorectal Surgery, the third Affiliated Hospital of Nanjing University of Chinese Medicine from Mar. 2005 to Dec.2013. We analyze their clinical features and treatment of the MBOCI.

### Materials and Methods

#### Diagnostic criteria of MBOCI

① with or without constipation history; ② present with symptoms of bowel obstruction as abdominal distension, pain, anal stop exhaust, defecation; ③ present with colon intestinal pattern and ileum peristalsis waves; ④ abdominal X ray show distal ileum obstruction often exist in abdominal X ray. Colon, even rectum, expanded exists in abdominal CT scan. And there is no evidence of colon tumor or stool mass obstruction; ⑤ no colorectal tumor was found via colonoscopy after the enema, bowel infarction was excluded.

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**Figure 1:** Abdominal X ray of patients with MBOCI (show patients presented with intestinal pattern; abdominal X ray of all patients showing characteristics of distal ileum obstruction).



**Figure 2:** Abdominal CT scan of patients with MBOCI (Colon expanded exist in abdominal CT scan, even rectum expanded).

### Clinical data collection and patient's follow-up

Patients with MBOCI in National Center for Colorectal Surgery, the third Affiliated Hospital of Nanjing University of Chinese Medicine from Mar. 2005 to Dec.2013. All clinical data were reviewed and collected the information about patient's age, sex, clinical characteristics. All the patients were followed-up in out-patient clinics. The study was proved by the ethic committee of the third Affiliated Hospital of Nanjing University of Chinese Medicine and all the patients got the informed consent.

## Results

### Characteristics of patients with MBOCI

Twenty three patients were diagnosed with MBOCI in National Center for Colorectal Surgery, the third Affiliated Hospital of Nanjing University of Chinese Medicine from Mar. 2005 to Dec.2013. (7 male, 16 female, median age 51years, range 16-75 years). Ten patients have no constipation history. Two patients have 1-2 months history of constipation. Eleven patients have 1-10 years constipation history. One patient had history of transverse colostomy and the stoma closing surgery. One patient had history of rectal cancer surgery, and another one presented with abdominal distension, pain after eating "buckwheat" for 3 months. One patient presented with abdominal distension, pain after diarrhea for 2 months and the remaining patients had no obvious incentive. All patients presented with symptoms of bowel obstruction as abdominal distension, pain, anal stop exhaust and defecation. All patients presented with symptoms

of mechanical bowel obstruction as hyperactive bowel sounds. 15 patients presented with ileum peristalsis waves. All patients presented with intestinal pattern; abdominal X ray of all patients showing characteristics of distal ileum obstruction (Figure 1). Colon expanded exists in abdominal CT scan, even rectum expanded in 5 patients (Figure 2). And there is no evidence of colon tumor or stool mass obstruction.

### Treatment strategy and short-term outcome

All patients were given conventional treatment for bowel obstruction, such as nutritional support, anti-infection, maintain fluid and electrolyte balance. Also, "small chengqitang" (traditional Chinese medicine) was given by enema. 21 patients were relieved by conservative treatment after 2 to 7days. Laxative medication was given after hospital discharge. One patient presented abdominal distension repeatedly within 2 months and ileostomy was performed for him. The patient who had history of transverse colostomy and the stoma closing surgery was not relieved by conservative treatment and the obstruction progressed. Emergency Subtotal colectomy and ilealrectal anastomosis was performed for her.

### Long-term outcome after treatment

Follow-up 2-10 years (mean follow-up time: 5.7yrs) was done for the 23 patients. Two patients who were performed surgical operation without any discomfort. The symptoms of bowel obstruction were recurrence in 8 patients, symptoms of 6 patients were relieved by conservative treatment, and subtotal colectomy and ilealrectal anastomosis was performed for 2 patients. The remaining 13 patients without recurrence (Table 1).

## Discussion

Bowel obstruction remains a frequently encountered problem in abdominal surgery, and was classified by the location of obstruction, whether the obstruction is partial or complete, with or without blood circulation disorder, whether the obstruction is functional or mechanical, reasons of obstruction. In clinical practice, the "mechanical bowel obstruction caused by colonic inertia (MBOCI)" can be diagnosed as simple mechanical low level small bowel obstruction. Because of the colonic inertia and normal function of small bowel, the MBOCI can present mechanical bowel obstruction in small bowel and functional obstruction in colon and rectum. MBOCI should be differentially diagnosed to Ogilvie syndrome [3-5], chronic intestinal pseudo-obstruction [6-9], and paralytic ileus [10].

Ogilvie's syndrome is acute colonic dilatation without organic obstruction in a previously healthy colon. The exact cause of Ogilvie's syndrome remains unknown. It may be that relatively increased sympathetic tone and/or decreased parasympathetic tone leading to relaxed colon. Paralytic ileus usually coexisting with Ogilvie's syndrome [4-6]. Chronic intestinal pseudo-obstruction is a severe digestive syndrome characterized by derangement of gut propulsive motility, in the absence of any obstructive process. It may be idiopathic or secondary to a variety of diseases. Based on histological features intestinal pseudo-obstruction can be classified into three main categories: neuropathies, mesenchymopathies, and myopathies, according on the predominant involvement of enteric neurones, interstitial cells of Cajal or smooth muscle cells, respectively [8,9]. Paralytic ileus may be caused by abdominal surgery or certain medications, such as opioids, and the patient can be gradually recover after conservative treatment [10]. MBOCI seems to be a special type of mechanical distal ileum obstruction.

**Table 1:** Results of treatment and follow-up.

S.no.	Gender	Age	History of constipation	Treatment	Relief time (days)	Times of obstruction
1	F	22	10 years	conservative	16	1
2	F	33	15 years	conservative	7	1
3	F	16	2 years	conservative	15	1
4	M	62	no	conservative	10	1
5	F	39	2 years	total colectomy	11	5
6	F	29	no	conservative	12	1
7	M	23	2 months	conservative	12	2
8	M	75	no	conservative	10	1
9	F	47	8 years	conservative	30	2
10	M	67	2 years	conservative	10	2
11	F	66	no	conservative	9	2
12	M	51	no	conservative	13	1
13	F	27	no	conservative	4	1
14	F	29	1 years	conservative	11	3
15	F	43	20 years	conservative	18	1
16	F	56	no	conservative	8	1
17	F	53	2 years	conservative	8	1
18	F	70	no	conservative	7	1
19	F	16	1 month	conservative	9	2
20	M	66	no	conservative	10	1
21	F	35	8 years	conservative	12	2
22	F	20	3 years	conservative	13	2
23	M	66	no	ileostomy	28	3

For lack of knowledge to MBOCI in the past, conventional treatments for bowel obstruction may be ineffective. In our study, one patient had history of transverse colostomy for bowel obstruction, but the symptoms of bowel obstruction were not relieved. To relieve the symptom of MBOCI, the colonic inertia should be treated. In our study, except for conventional treatments for bowel obstruction were given, "small chengqitang" (traditional Chinese medicine) was given by enema. These herbs can improve the motility of colon and can relieve the symptom of MBOCI.

Colonoscopy was undertaken for patients with MBOCI to exclude colon tumor or stool mass obstruction, also abdominal distension will be relieved obviously after the examination of colonoscopy. If the conservative treatment does not work, ileostomy should be choice of treatment for the patients MBOCI. It should be further discussed on deciding whether to perform Subtotal colectomy and timing of the surgery and emergency subtotal colectomy should not avoid because of high mortality and morbidity [11,12]. In our series, one patient was not relieved by conservative treatment, the obstruction progressed. Subtotal colectomy and ileo-rectal anastomosis was performed for him. But the complications experienced after surgery, such as slow recovery of intestinal motility, surgical wound infection and pneumonia. Therefore, even at the emergency condition, the subtotal colectomy should not be avoided; ileostomy may be a good choice at the moment. In our study, symptoms of bowel obstruction were recurrence in 8 patients, symptoms of 6 patients were relieved by conservative treatment, and subtotal colectomy and ilealrectal anastomosis was performed for 2 patients in other hospital. The mechanism of MBOCI remains unknown. Pathological examination

of the patient who undergone total colectomy suggested no abnormalities, and intestinal ganglion cells also are normal. Further studies are necessary for the etiology.

In conclusion, MBOCI is a special type of bowel obstruction. Symptoms of mechanical low bowel obstruction usually presents abruptly, with colon intestinal pattern and ileum peristalsis waves. Colon, even rectum, expanded exist in abdominal CT scan. And there is no evidence of colon tumor or stool mass obstruction. The conservative treatment is the main choice for mechanical bowel obstruction caused by colonic inertia. Ileostomy is a good choice for the patients whose obstruction symptoms sustained. At the emergency condition, the total colectomy should not be avoided and the proper surgical moment should be further discussed.

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