

## “Prospective Study of Clinical Features and Management of Sub Acute Intestinal Obstruction”

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**Abstract:** Subacute intestinal obstruction (SAIO) implies incomplete, intermittent or recurrent obstruction. Patients often present with non-specific symptoms and ambiguous abdominal signs and the symptoms may ease spontaneously or after conservative treatment. These confounding features contribute to the delay in the diagnosis and patients may continue to suffer for weeks or months. Although the underlying cause may be identified in some patients subjected to diligent investigations, in cases of unresolved obstruction diagnostic laparoscopy or laparotomy will usually discover the aetiology in the majority.

There is a lack of information on the various facets of SAIO such as the clinicopathological profile, role of investigations and management strategies. This study has been undertaken in order to study patients presenting with the features of SAIO to elucidate the patient's profile, role of investigations in diagnosis, cause of obstruction, underlying pathology, to follow-up the progress of patients and find out the outcome of management.

**Key words:** SAIO- sub acute intestinal obstruction

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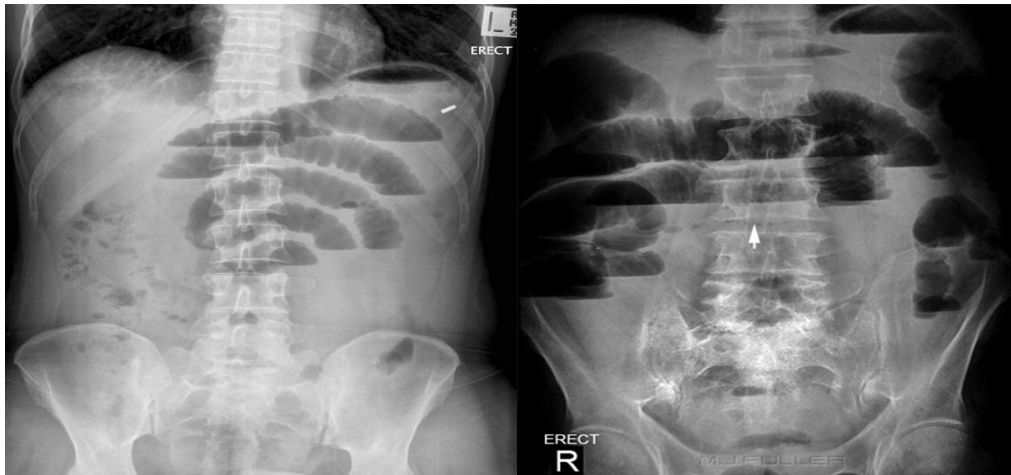
### I. Introduction

Bowel obstruction occurs when the normal propulsion and passage of intestinal contents does not occur. This obstruction can involve only the small intestine (small bowel obstruction), the large intestine (large bowel obstruction), or via systemic alterations, involving both the small and large intestine (generalized ileus).

**Clinical features:** Acute obstruction usually occurs in small bowel obstruction, with sudden onset of severe colicky central abdominal pain, distension and early vomiting and constipation. Chronic obstruction is usually seen in large bowel obstruction, with lower abdominal colic and absolute constipation followed by distension. In acute on chronic obstruction there is a short history of distension and vomiting against a background of pain and constipation. Subacute obstruction implies an incomplete obstruction where patients continue to suffer from symptoms for weeks and months due to the waxing and waning nature of the disease.

**Diagnosis: Laboratory investigations:** Full blood count, Packed cell volume [PCV], Serum electrolytes, Blood urea. Elevation of Haemoglobin and PCV is an important indicator for haemoconcentration and a valuable guide to fluid replacement. Severe electrolyte depletion owing to loss of gastrointestinal fluid will be reflected lowered by serum sodium, potassium, chloride and bicarbonate with a raised blood urea.

**Radiological features of obstruction:** The obstructed small bowel is characterised by straight segments that are generally central and lie transversely. No gas is seen in colon. Jejunum is characterised by its valvulae conniventes, which completely pass across the width of bowel and are regularly spaced, giving a concertina or ladder effect. Caecum- a distended caecum is shown by a round gas shadow in RIF.

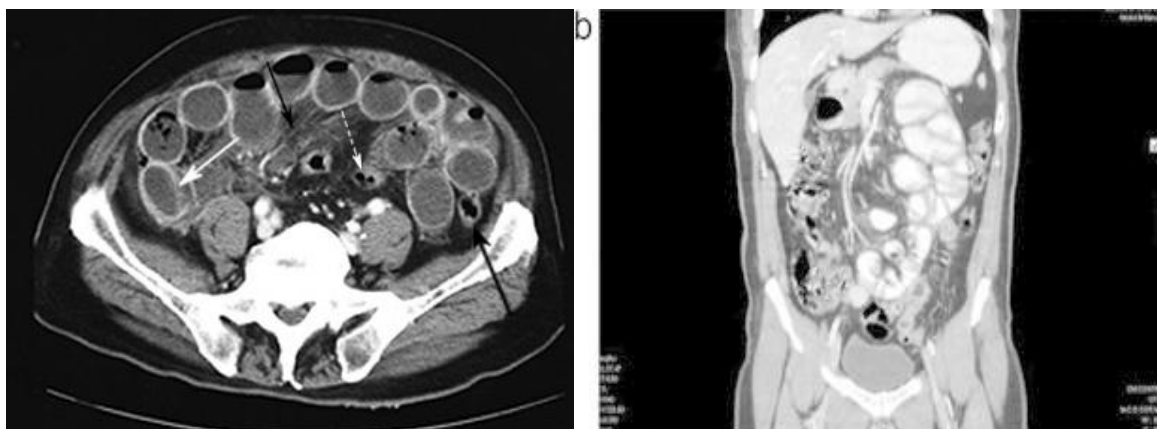


**X-ray showing step ladder pattern multiple air fluid levels.**

**Contrast studies:** The indications for prograde or retrograde intraluminal radiologic contrast studies in bowel obstruction are controversial. The use of contrast is helpful when the diagnosis is uncertain in patients with a nonresolving partial small bowel obstruction and to differentiate between partial and complete bowel obstruction. These intraluminal contrast studies can also identify the specific site and often the cause of the obstruction. Contrast studies are contraindicated in patients with a clear diagnosis of complete bowel obstruction and when strangulation or perforation is suspected.

**Ultrasonography:** Although ultrasonography (US) has been disregarded by many clinicians, in experienced hands, US is more sensitive and specific than plain abdominal films for the diagnosis of bowel obstruction. One should always bear in mind that US is very much operator-dependent, and the accuracy may be quite variable. The diagnosis of small bowel obstruction is made when the intestinal loops measure more than 25 mm in diameter and the distal ileum is found to be collapsed. The aetiology can sometimes be determined, but US is less accurate than CT, except in cases of intraluminal obstructions. The reported specificity is 82%, sensitivity is 95%, and overall accuracy is 81%.

**Computed tomography:** Recently, computed tomography (CT) has become a valuable tool in the diagnosis of bowel obstruction, especially when abdominal films are nonspecific and fail to provide an accurate diagnosis or when strangulation is suspected. CT findings diagnostic of bowel obstruction include intestinal loops greater than 25 mm in diameter and a transition zone between dilated and collapsed bowel loops. With its sensitivity of 93%, specificity of up to 100%, and accuracy of 94% in diagnosing small bowel obstruction, CT has replaced the typical small bowel contrast studies in many centres.



**CT showing partial small bowel obstruction CT showing ileal stricture**

## II. Materials And Methods

This prospective study was carried out on patients presenting with features of sub acute intestinal obstruction to the General surgical department, Osmania general hospital, Afzalgunj, Hyderabad, Telangana from September 2014 to October 2016. A total of 60 patients were in this study.

**Study Design & Selection method: Inclusion criteria:**

- continuation of the passage of flatus/faeces beyond 12 hr of the onset of symptoms
- a lesser degree of abdominal distension
- gas distended bowel loops/multiple air-fluid levels on X-ray abdomen;
- the allocation of conservative treatment in first instance.

**Exclusion criteria:**

- Those presenting with acute obstruction and/or features of strangulation, for which operative treatment was assigned on the first assessment.
- Patients Less than 10yrs old.

**Table No.1 showing Age distribution**

Age interval(years)	No. of patients(%)
20 -30	11(18.3)
30 - 40	10(16.6)
40 - 50	17(28.3)
50 - 60	11(18.6)
60 - 70	10(16.6)
> 70	4(6.6)

The patients were interviewed and the presenting complaints detailed history of illness, past history, information regarding co-morbid conditions, previous treatment/surgery history, etc. were recorded on the pre-designed data sheet. Findings of clinical examination, and investigations (hemogram, random blood sugar, blood urea, serum electrolytes, urine routine and microscopy etc.) were also recorded. A detailed clinical examination was undertaken especially noting presence of tachycardia, fever, and abdominal signs like abdominal distension, tenderness, presence of palpable/visible bowel loops, lumps and nature of bowel sound. Digital rectal examination was done in every case noting its findings. Patients were initially managed conservatively. Oral intake was withheld, nasogastric tube was inserted for aspiration of gastrointestinal secretions, intra-venous fluids were administered. Electrolyte imbalance, if present, was corrected.

The patients were observed for features of relief of obstruction like reduction in vomiting, pain score, and passage of faeces/flatus, reduction in tenderness and abdominal girth; disappearance of visible/palpable bowel loops; and reduction in nasogastric tube output. The patients were monitored regularly for development of signs of strangulation, viz., tachycardia, fever, abdominal tenderness, etc. If patient developed signs of strangulation, patient was operated on emergency basis.

The patients who got relieved within few hours on conservative treatment were further investigated if there was a history of recurrent similar attacks or if patient developed recurrent symptoms. In case the investigation provided sufficient information to confirm the diagnosis of a lesion explaining the symptoms of SAIO in the patient, appropriate operation intervention was undertaken. When laparoscopy demonstrated any lesion, it was tackled under the same anaesthesia either laparoscopically or by open exploratory laparotomy. All the patients were followed up for a minimum of 6 weeks.

**Treatment:**

**Supportive management:** Nasogastric decompression is achieved by the passage of a non vented (Ryle) or vented (Salem) tube. The tubes are normally placed on free drainage with 4-hourly aspiration but may be placed on continuous or intermittent suction. As well as facilitating decompression proximal to the obstruction, they also reduce the risk of subsequent aspiration during induction of anaesthesia and post extubation.

**Surgical treatment:** The timing of surgical intervention is dependent on the clinical picture. The classic clinical advice that ‘the sun should not both rise and set’ on a case of unrelieved acute intestinal obstruction is sound and should be followed unless there are positive reasons for delay. Such cases may include obstruction secondary to adhesions when there is no pain or tenderness, despite continued radiological evidence of obstruction. In these circumstances, conservative management may be continued for up to 72 hours in the hope of spontaneous resolution. If the site of obstruction is unknown, adequate exposure is best achieved by a midline incision.

**Table No. 2 Recurrent attacks of SAIO.**

No. of previous attacks	No. of patients(%)
1	10(37)
2	7(25.9)
3	4(14.8)
4	4(14.8)
>5	2(7.4)

**Treatment of recurrent obstruction caused by adhesions:** Several procedures may be considered in the presence of recurrent obstruction including repeat adhesiolysis (enterolysis) alone, Noble’s plication operation, Charles–Phillips trans mesenteric plication, intestinal intubation.

**III. Observation And Analysis**

Out of 60 patients studied, the incidence of subacute intestinal obstruction was found to 63.4% among males and 26.6% among females, suggesting male predominance. 45% of patients had a H/O of previous attacks with No. of attacks ranging from 1-10. 37% (10/27) of them had one previous attack.

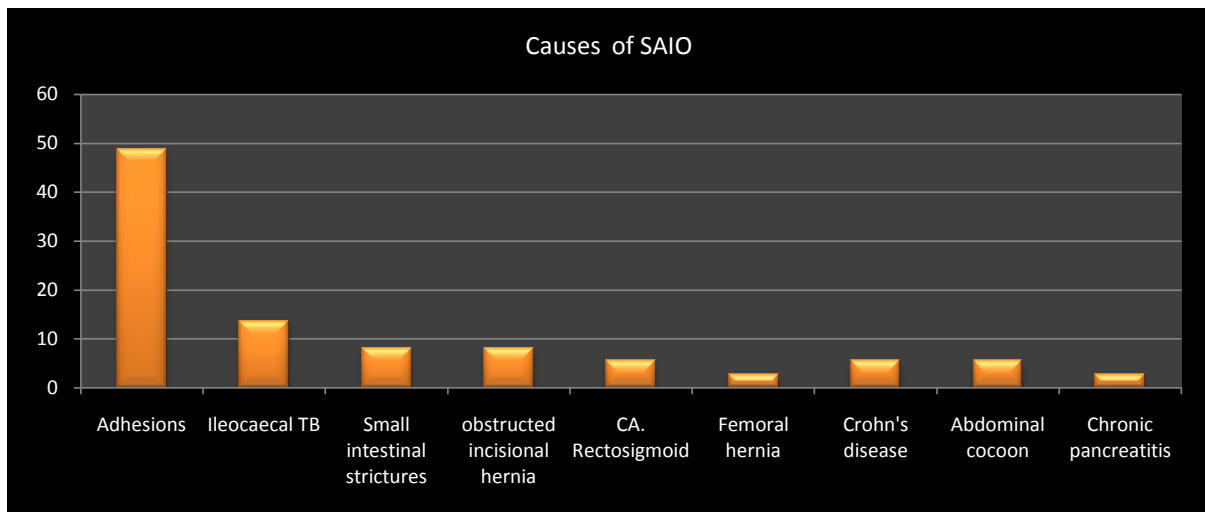
Pain is the most common symptom, which is found in all patients, and 90% of them had colicky abdominal pain and it is continuous in 10% of the patients. Second most common symptom in our study was found to be distension (78.3%), followed by constipation /obstipation (66.6%) and vomiting (53.3)<sup>7</sup>. 36.6% (22/60) of patients had undergone previous surgeries, among them 81.8% of patients had open laparotomy for various reasons and 18.1% had laparoscopy which included laparoscopic tubal ligation, laparoscopic hernia repair and diagnostic laparoscopy. 61% of patients presented with distension of abdomen, which if found to be the most frequent physical finding followed by sluggish bowel sounds (50%), tenderness (33.3%), visible or palpable loops (11.6%) and exaggerated bowel sounds (6.6%)

**Table No. 3 showing distribution of symptoms.**

Symptoms	No. of patients(%)
Pain	60(100)
Colicky continuous	54(90)
Distension	6(10)
Non passage of faeces or flatus	47(78.3)
vomiting	40(66.6)
	32(53.3)

**Table No. 4 showing Causes of SAIO in 37 pts**

Causes	No. of patients (%)
Adhesions	18(48.6)
Ileo caecal TB	5(13.5)
Small intestinal stricture	3(8.1)
obstructed incisional hernia	3(8.1)
Ca. Recto sigmoid	2(5.4)
Crohn’s disease	2(5.4)
Femoral hernia	1(2.7)
Abdominal cocoon	2(5.4)
Chronic pancreatitis	1(2.7)



In our study, postoperative adhesions are found to be the most common cause of obstruction (48.6%)<sup>5</sup>, and the second common cause being ileocaecal TB in 13.5% of patients followed by small intestinal stricture, incisional hernia, rectosigmoid carcinoma, crohn’s disease, femoral hernia, abdominal cocoon and chronic pancreatitis.

**IV. Discussion**

This is a prospective study of 60 patients done during a time span of 25 months from sep 2014-oct 2016. Study included those patients presenting with clinical features suggestive of SAIO. The mean age of presentation was 28.3 yrs. 28% of patients presented to us are in the age group of 40-50 yrs and 18% are in the age group of 20-30 yrs. Duration of symptoms ranged from 1-365 days in our study. Recurrent symptoms are reported in 30% of patients in our study with 37% presenting with single previous attack with episodes ranging from 1-10 attacks [Table No.1&2].

**Distribution of symptoms:** Abdominal pain was reported in 100% of the patients with colicky pain in 90% and 10% of them presenting with continuous abdominal pain, other symptoms in decreasing order are Distension, constipation or obstipation and vomiting [ Table No.3].

**H/O Previous surgery:** 22 patients had a history of previous abdominal surgery and the indication for the surgery was known in all. It was for intestinal obstruction (6), Gynaecological procedures(4), Appendectomy (2), Incisional hernia repair (3), PUD(2), abdominal trauma(2), Laparoscopic tubectomy(2), Lap hernia repair(1), Diagnostic laparoscopy (1).

**Distribution of physical findings:** Distension of abdomen was reported in 61.6% of patients, which is the most frequent finding in our study followed by sluggish bowel sounds(50%), abdominal tenderness (33.3%), visible or palpable loops(11.6) and exaggerated bowel sounds(6.6%) [Table No.6].

**Role of Imaging:** X-ray showed positive findings in 73.3% pts (44/60), finding being multiple air fluid levels. USG abdomen reported positive findings in 80% of patients (48/60), with most frequent finding being dilated bowel loops. CT abdomen is positive in 90% of pts (9/10).

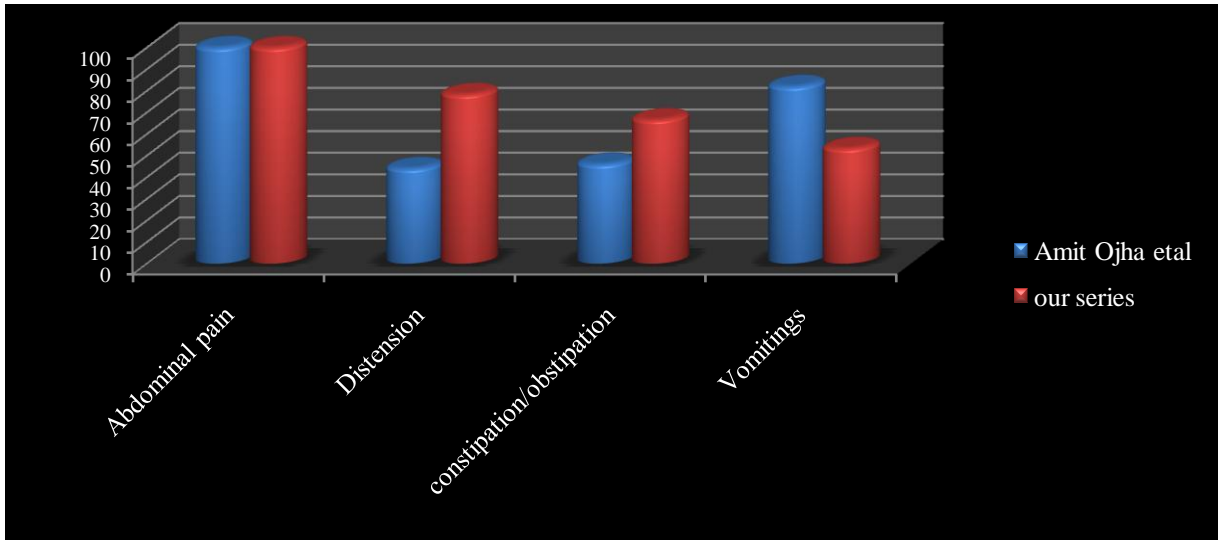
**Table no. 5 Comparative study showing Age & Sex distribution**

study	age incidence(mean)	males (%)	Females(%)
Amit Ojha etal	31.2	60.3	39.7
Bhupendra jain etal	31.2	60.4	39.6
Our series	28.3	63.4	26.6



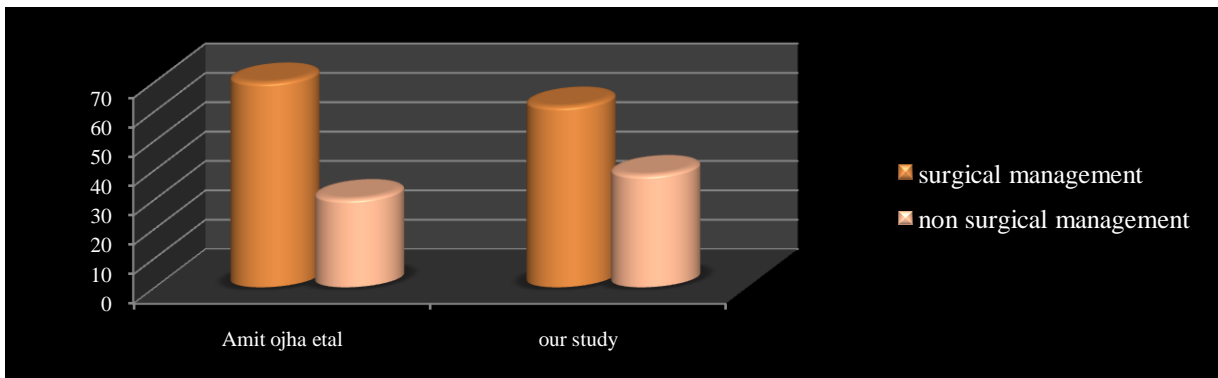
**Table No.6 showing distribution of various symptoms**

Study	Abdominal Pain (%)	Distension of abdomen(%)	Constipation/obstipation(%)	Vomiting(%)
Amit Ojha etal	100	44	66.6	53.3
Our series	100	78.3	46	82



**Treatment:** 45% of patients (27/60) patients underwent emergency laparotomy as they had not responded to conservative treatment after 48hrs or developed features of acute obstruction or investigation during the initial episode were seen to have lesions requiring surgery. 55% of patients (33/60) relieved of obstruction conservative management, time taken for relief of symptoms is 1-4 days with an average of 2.3 days.

Patients relieved of obstruction were subjected to further investigations to find out the cause of obstruction, where investigations showed lesions requiring surgery in 10 patients.



**Cause of obstruction:** A total of 40 patients underwent surgery, where the cause of obstruction was found to be adhesions in 48.6% (18/37), next common being Ileo caecal TB<sup>4</sup>. Similar results were found in a study by Amit Ojha et al, in which adhesions are the most common cause in 33% of patients but small intestinal stricture reported in 28% of pts and TB is the 3<sup>rd</sup> most common cause suggesting prevalence of TB in our area<sup>3</sup>.

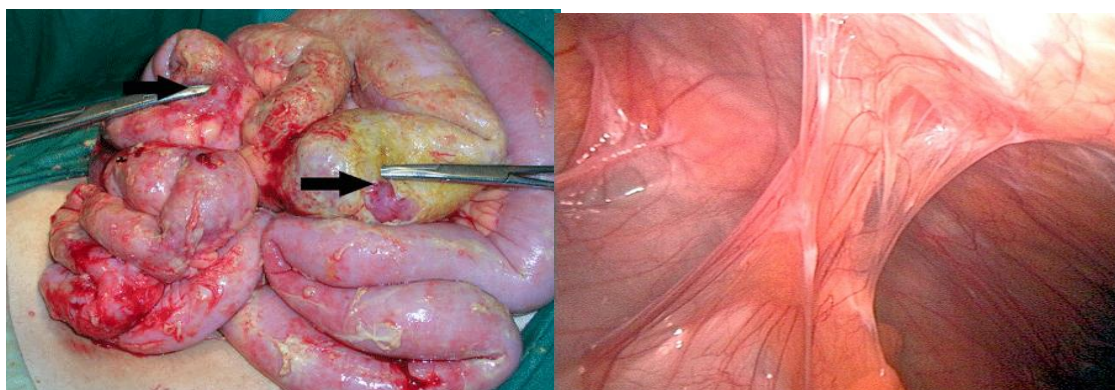


Figure showing chronic pancreatitis

Adhesions



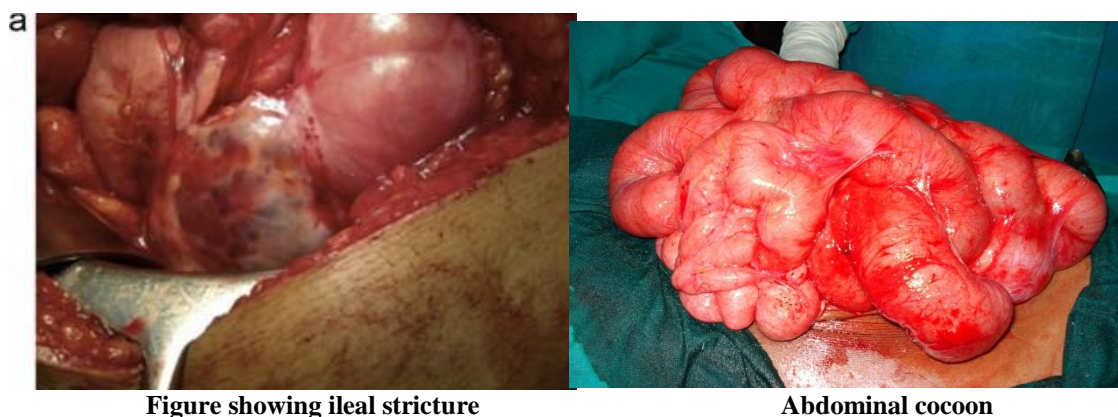


Figure showing ileal stricture

Abdominal cocoon

**Type of surgery performed:** Adhesiolysis was the most common procedure performed followed by resection and anastomosis, incisional hernia repair, appendectomy, stricturoplasty, femoral hernia repair, Ladd's procedure<sup>6</sup>

**Biopsy:** Tuberculous pathology was demonstrated on HPE of resected specimens in 50% of patients (20/37) which were seen as Ileal strictures, Ileal perforation, Abdominal cocoon and Ileocaecal mass. 23 patients did not require surgical intervention. Of them, there was H/O previous abdominal surgery in 16 patients.

**Follow up:** All the patients were followed up to a period of 6 weeks. No recurrences were seen except a 60y old man, who had ileal stricture and for whom resection and anastomosis has been done presented with recurrence after 1 month who responded to conservative management. His HPE showed TB and patient started ATT.

## V. Conclusion And Summary

The diagnosis of SAIO is usually delayed and several patients continue to suffer from symptoms for weeks and months due to the waxing and waning nature of the disease. This study is unique in that it included only patients presenting with features of SAIO whereas most studies reported in the published literature refer to patients of acute intestinal obstruction or to a particular cause of intestinal obstruction.

CT abdomen positive in 90%, suggesting its major role in diagnosing the cause of obstruction. Those few patients in which CT was negative, diagnostic laparoscopy showed the lesions. 55% of the patients relieved of obstruction by conservative management and 45% needed laparotomy as they didn't respond to conservative treatment after 48hrs or developed features of strangulation. Of those who responded to conservative treatment, 30% had lesions requiring surgery on further investigations.

Postoperative adhesions were found 48.6% of patients, which is found to be the most common cause of SAIO in our study followed by Ileo caecal TB, Small intestinal strictures, incisional hernia, CA, Rectosigmoid, femoral hernia, Abdominal cocoon, Crohn's disease and chronic pancreatitis. Adhesiolysis was the most frequently performed procedure followed by resection and anastomosis. After comparing all the variables in those who responded and not responded to conservative management, previous abdominal surgery was found to be the only predictor of conservative treatment.

## References

- [1]. Winslet MC. Intestinal Obstruction. In: Bailey & Love's Short Practice of Surgery. Russel RCG, Norman WS, Bulstrode Christopher JK, eds. London: Arnold, 2004: 1186–202
- [2]. Miller G, Boman J, Shrier I, Gordon PH. Natural history of patients with adhesive small bowel obstruction. Br J Surgery 2000;87:1240–7
- [3]. Miller G, Boman J, Shrier I, Gordon PH, et al. Etiology of small bowel obstruction. Am J Surg 2000;180:33–6
- [4]. Hadeedi SA, Walia HS, Al-Sayer HM. Abdominal tuberculosis. Can J Surg 1990;33:233–7
- [5]. Tanphiphat C, Chittmittraprap S, Prasopsunti K. Adhesive small bowel obstructions. A review of 321 cases in a Thai hospital. Am J Surg 1987;154:283–7
- [6]. Wilson MS, Ellis H, Menzies D, Moran BJ, Parker MC, Thompson JN. A review of the management of small bowel obstruction. Ann R Coll Surg Engl 1999;81:320–8
- [7]. Eskelinen M, Ikonen J, Lipponen P. Contribution of history taking, physical examination, computer assistance to diagnosis of acute small bowel obstruction, Prospective study of 1333 patients with acute abdominal pain. Scand J Gastroenterol 1994; 29:715–21
- [8]. Mucha P. Small intestinal obstruction. Surg Clin North Am 1987;67:597–620

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