Orginal Article

Clinical Profile and Outcome of Sub acute Intestinal Obstruction. A Descriptive Cross-sectional Study

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Article History
Recived: 4 July, 2023
Accepted: 14 January, 2024
Published: 31 January, 2024

Funding Sources: None

Conflict of Interest: None

Online Access

DOI:
https://doi.org/10.61122/jkistmc288

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Citation: Simkhada G, Muhkia R, Thapa B, Singh DR, Thapa A, Bohara TP. Clinical Profile and Outcome of Sub acute Intestinal Obstruction. A Descriptive Cross-sectional Study. J. KIST Med. Col. 6(11):5-10.

Abstract

Introduction: Sub-acute intestinal obstruction (SAIO) is a partial blockage of the intestines causing abdominal pain, nausea, vomiting and obstipation. Diagnosing SAIO can be difficult, and CT scans are more accurate than plain X-rays. Treatment involves conservative measure initially, but surgery may be necessary if symptoms persist after 24-48 hours. This study aimed to assess the clinical profile and outcome of patients with SAIO.

Methods: This was a descriptive cross-sectional study conducted in department of surgery at KIST Medical College and Teaching Hospital from 2022 to 2023 after getting ethical clearance. Fifty patients admitted with clinical feature suggestive of SAIO were enrolled for study. Predesigned proforma was used to record information that assessed demographic, clinical and treatment profile. SPSS version 26 was used for data analysis to generate descriptive statistical findings.

Results: Abdominal pain was the most prevalent symptom observed in 39 (78%) patients while exaggerated bowel sound was most common clinical findings that was observed in 31 (62%). Pervious abdominal surgeries were present among 30 (60%) patients. Plain X-Ray showed feature suggestive of SAIO in 49 (98%) patients. Majority patients 35 (70%) were managed successfully with conservative treatment.

Conclusion : In SAIO, abdominal pain was the most prevalent symptom while alteration in bowel sound is important clinical finding that is consistent with intestinal obstruction. Previous abdominal surgeries are an important risk factor to be considered for intestinal obstruction. Plain x-ray findings play important role to make diagnosis of intestinal obstruction. Conservative treatment resolves obstruction in majority of patients.

Keywords: *Conservative management, pain abdomen, previous abdominal surgeries, sub-acute intestinal obstruction*

Introduction

Sub-acute intestinal obstruction (SAIO) refers to a partial impairment of normal passage of intestinal contents caused by either mechanical obstruction or abnormal intestinal motility without an obstructing lesion.[1] Symptoms include colicky abdominal pain, nausea, vomiting, abdominal distention and progressive obstipation.[2,3,4] Diagnosing SAIO can be challenging, particularly when patients present with atypical features resulting in delayed diagnosis. Diagnosis is usually confirmed though diagnostic imaging, with

CT scan being more accurate than plain X-rays. [5] SAIO may resolve spontaneously or progress to acute abdomen. The management aims at correcting physiologic derangements caused by the obstruction, bowel rest, and removing the source of obstruction. The decision to perform surgery for SAIO can be difficult to make. Management involves conservative measurers initially, such as nasogastric decompression, aggressive intravenous fluids, analgesics and antibiotics. Conservative management is successful in 40-70% of clinically stable patients,[6,7] but if resolution doesn't occur with 24 to 48 hours, surgical intervention is necessary. [8] This study aims to analyze clinical profile and outcome of patients with SAIO.

Methods

This was a descriptive cross-sectional study conducted in department of surgery at KIST Medical College and Teaching Hospital from 1st August 2022 to 31st March 2023 after getting ethical clearance from IRC of the institution (IRC NUMBER: 2079/80/87). Patient admitted with the diagnosis of SAIO in department of surgery were enrolled for study. Sample size for the study was calculated using following formula.

$n = z^2 * (pq / d^2)$

$= 1.96^2 * (0.1*0.9/0.1^2)$

$= 34.57$

$= 35$

Where,

n = sample size

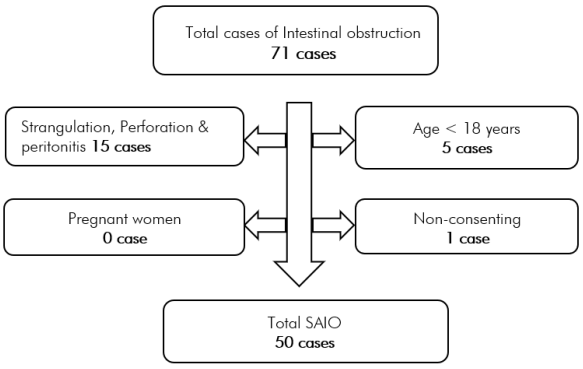
p = prevalence of SAIO was estimated to be 10%. This has been estimated from past one year data of department of surgery of KIST Medical College and Teaching Hospital.

q = 1-p

d = estimate error i.e. 10%.

z = 1.96 at 95% confidence interval.

Those presenting with acute obstruction and/or features of strangulation perforation and generalized peritonitis (15 cases), for which operative treatment was assigned on the first assessment, were excluded from the study. Patient who was under the age of 18 years (5 cases) were also excluded. Informed written consent was taken from the patients. Those who did not give consent (1 case) was also excluded from the study.



We enrolled 50 patients with clinical feature suggestive of SAIO; this represented all of the patients of SAIO admitted to department of surgery during the study period. All relevant information was recorded in predesigned proforma. Proforma consisted of information that assessed demography, clinical sign and symptoms, duration of symptoms to presentation, history of previous abdominal surgeries, hematological parameters like hemoglobin and leucocyte counts, and findings of x-ray abdomen. We also recorded treatment modalities used for the management of the patients. Data were collected by reviewing patient's clinical notes that included patient's history and clinical examination findings recorded at initial assessment by surgeon. A clinical examination finding was carried out by consultant surgeon. SPSS version 26 was used for data entry and analysis. Descriptive analysis was done and result was elaborated in term of mean, standard deviation, frequencies and percentages.

Results

Among the total case 71 of acute abdomen, 50 patients present with SAIO. The mean age of the patients was 38 +/- 15.6 years, ranging from 18 to 82 years. The majority of patients, 23 (46%) fell within the age group of 19 to 30 years as indicated in Table 1. In terms of gender distribution, males accounted for 26 patients (52%), as shown in Table 1.

Table1: Demographic profile of patients with SAIO

	Frequencies	Percentages
Gender		
Male	26	52%
Female	24	48%
Age		
18 to 30 years	23	46%
31 to 40 years	11	22%

Table 1 Continue...

41 to 50 years	6	12%
51 to 60 years	5	10%
61 to 70 years	3	6%
71 to 80 years	1	2%
>80 years	1	2%

Abdominal pain was the most prevalent symptom observed in 39 patients (78%), followed by abdominal fullness in 36 patients (72%). As depicted in Table 2. During physical examination, the most frequently encountered finding was exaggerated bowel sound in 31 patients (62%), followed by abdominal distention in 16 (32%) patients while abdominal tenderness was present in 8 (16%) and decreased or absent bowel sounds in 6 (12%) patients as shown in Table 2.

The mean duration between the onset of symptoms and patients presentation was 2.24 +/- 1.1 days, ranging from 1 to 5 days. The majority of patients sought medical attention within 2 days of experiencing symptoms, as indicated in Table 2.

Table 2: Sign and symptoms of SAIO

	Frequencies	Percentages
Symptoms		
Abdominal pain	39	78%
Abdominal fullness	36	72%
No passage of feces/ flatus	27	54%
Vomiting	25	50%
Fever	23	46%
Clinical Signs		
Exaggerated bowel sound	31	62%
Abdominal distention	16	32%
Visible or palpable bowel loops	10	20%
Abdominal tenderness	8	16%
Absent bowel sound	6	12%
Duration of presentation from initial symptoms		
One day	14	28%
Two days	19	38%
Three days	10	20%
Four Days	5	10%
Five days	2	4%

Thirty patients (60%) had undergone previous abdominal surgery, out of which 12 patients (40%) had laparotomy for gynecological conditions while 10 patients (33.33%) had appendectomies of which 9 were open and 1 was laparoscopic appendectomy, as shown in Table 3.

Table 3: Previous abdominal surgeries in patients with SAIO

	Frequencies	Percentages
Previous abdominal surgeries (n=30)		
Laparotomy for gynecological condition	12	40%
Appendectomies	10	33.33%
Colorectal surgeries	5	16.67%
Hernia Repair	2	6.67%
Open Cholecystectomy	1	3.33%

Out of the plain X-Ray films of 50 patients, a total of 49 (98%) showed findings suggestive of SAIO. Fluid filled bowel loops was most common finding which was present among 23 (46%) patients followed by multiple air fluids levels which was present among 19 (38%) patients as seen in Table 4. Among all, 33 (66%) had leukocytosis[9]. The mean leucocyte count was 11658 +/- 3210 cells/ cm3.

Table 4: X-ray and hematological findings in patients with SAIO

	Frequencies	Percentages
Finding of X-ray abdomen		
Dilated fluid filled bowel loops	23	46%
Multiple air fluid levels	19	38%
Gaseous distension of bowel loops	3	6%
More than one positive findings	4	8%
Normal X- ray	1	2%

All the patients were managed conservatively at first with close monitoring. All the patients received combination of injectable third generation cephalosporin (ceftriaxone) and injectable imidazole (Metronidazole) as antibiotic coverage. Out of the 50 patients, surgery was needed to relieve obstruction in 15 (30%) patients; the remaining 35 patients (70%) were relieved of the symptoms on being managed conservatively. The most commonly performed surgical procedure was adhesiolysis in 9 patients as shown in Table 5.

Table 5: Management modalities of patients with SAIO

	Frequencies	Percentages
Management modalities		
Conservative	35	70%
Surgical	15	30%
Type of surgery performed (n=15)		
Adhesiolysis	9	60%
Resection and anastomosis	6	40%

Out of 15 patients who underwent surgical interventions, 12 patients were operative after 48 hours of conservative management while rest 3 patients became unstable or showed clinical sign or radiological sign of complications.

Out of 30 patients who had history of previous abdominal surgeries 66.7% were successfully managed with conservative modalities while rest needed surgical intervention as depicted in Table 6.

Table 6: Management modalities according to previous abdominal surgeries.

	Previous abdominal surgery	
Management	Yes	No
Conservative	20 (66.7%)	15 (75%)
Surgical	10 (33.33%)	5 (25%)
Total	30 (60%)	20 (40%)

Discussion

SAIO is one of the important causes of morbidity in day to day surgical practice. This is especially true for patients who present with atypical features, thus causing delayed diagnosis.[10]

The mean age of the patient in our study was 38 years while it was 51.9 years[5] and 31.8 years in another study[4]. The male to female in our study was 1.08:1 while it was found to be 1.5:1.0.[4] Both the study shows male preponderance in SAIO.

Abdominal pain was the most prevalent symptom observed in 78% patients. Similarly other studies also showed complaint of pain abdominal/ colicky pain abdomen to be most frequent symptoms at 89.4%[5] and 89%[4]. This shows that abdominal pain as a complaint in our study is comparatively less. Likewise, in our study abdominal fullness in observed in 72%, non-passage of feces/ flatus in 54% and vomiting in 50% patients while in other studies showed non-passage of faeces / flatus in 78.9% patients and vomiting seen in 68.4% patients[5] and vomiting (82%) were more frequent as compared to non- passage of feces /or flatus (46%) and distension of abdomen (44%).[4] This shows that symptoms other than pain abdomen can occur in variable frequencies in patient with SAIO.

Similarly, in our study during physical examination, the most frequently encountered finding was exaggerated bowel sound which was present among 62% patients; the number is similar (60.3% patients) with another study which is also most prevalent physical findings. In our study decreased or absent bowel sounds in observed in 12% patients and remaining patient has sluggish or decreased bowel sound. Thus we can conclude that altered bowel sound is consistent with intestinal obstruction therefore attending doctor should carefully evaluate this clinical finding. In our study abdominal distention was present among 32% patients which comparable to finding in another study which was 28.5%.[11] It was found that abdominal tenderness was present among (8/50) 16% patients and most of them 6 out of 8 underwent laparotomy with resection and anastomosis. Therefore, patients who have abdominal tenderness must be monitored carefully as there are increased chances of operative interventions in these groups of people.

Adhesions resulting from prior abdominal surgery are the predominant cause of small bowel obstruction, accounting for approximately 60 percent of cases.[12] Lower abdominal surgeries, including appendectomies, colorectal surgery, gynecologic procedures, and hernia repairs, confer a greater risk of adhesive small bowel obstruction.[13] Various studies have demonstrated that adhesion is an important cause of surgically managed small bowel obstruction which seen in 45% –80% of patients.[14,15,16,17,18] In our study 9 out of 50 patients (18%) patients were operated and adhesiolysis was done. This makes 60% of all operative intervention.

In our study 60% had undergone previous abdominal surgeries thus it can be regarded as important risk factors for intestinal obstruction. Out of which 40% patients (40%) had laparotomy for gynecological conditions while 33.33% patients had open appendectomy and 16.67% had undergone colorectal surgeries. In a others studies about 50% and 32% patients had undergone previous abdominal surgery[11] which is less when compared to ours.

In patients with small bowel obstruction, supine views show dilation of multiple loops of small bowel, with a paucity of air in the large bowel. Those with large bowel obstruction may have dilation of the colon, with decompressed small bowel in the setting of a competent ileocecal valve. Upright or lateral decubitus films may show laddering air fluid levels. These findings, in conjunction with a lack of air and stool in the distal colon and rectum, are highly suggestive of mechanical intestinal obstruction.[13] The initial evaluation of patients with clinical signs and symptoms of intestinal obstruction should include plain upright abdominal radiography. Radiography accurately diagnoses intestinal obstruction in approximately 60% patients,[19] and its positive predictive value approaches 80% in patients with high-grade intestinal obstruction.[20] However, plain abdominal films can appear normal in early obstruction and in high jejunal or duodenal obstruction. Therefore, when clinical

suspicion for obstruction is high or, non-contrast computed tomography (CT) should be ordered.[21] A CECT scan is an effective and non-invasive diagnostic tool for SAIO but a lack of availability and affordability restrict its use in developing countries.[22] In our study only few patients who were successfully managed conservatively underwent CT scan evaluation due to financial constrict, therefore etiology of most of the cases was not evident to us. However, plain x-ray film was taken for all the patients and it showed normal finding in only 1 (2%) patients who were managed successfully with conservative management modalities while 49 (98%) patients showed features suggestive of intestinal obstruction. Our study showed fluid filled bowel loops was most common finding which was present among 23 (46%) patients followed by multiple air fluids levels which were present among 19 (38%) patients. In one study, plain x-ray films showed multiple air-fluid levels on erect films 74.6% of cases of intestinal obstruction.[4] Therefore plain x-ray findings helped surgeon to make diagnosis of intestinal obstruction.

Management of intestinal obstruction is directed at correcting physiologic derangements caused by the obstruction, bowel rest, and removing the cause of obstruction. Patients are treated with intravenous fluid resuscitation with isotonic fluid to correct dehydration and electrolytes loss. Antibiotics are used to treat intestinal overgrowth of bacteria and translocation across the bowel wall.[23] The presence of fever and leukocytosis should prompt inclusion of antibiotics in the initial treatment regimen.[13] In our study all the patient received prophylactic antibiotics even though only 40% had fever and 66% had leukocytosis.

The decision to perform surgery for intestinal obstruction can be difficult. Peritonitis, clinical instability, or unexplained leukocytosis or acidosis are concerning for abdominal sepsis, intestinal ischemia, or perforation; these findings mandate immediate surgical exploration.[13] Treatment of stable patients with intestinal obstruction and a history of abdominal surgery usually present a challenge. Conservative management of a high-grade obstruction should be attempted initially, by decompression, aggressive intravenous rehydration, and antibiotics.[13] With conservative management, resolution generally occurs within 24 to 48 hours. Beyond this time frame, the risk of complications, including vascular compromise, increases. If intestinal obstruction is not resolved with conservative management, surgical evaluation is required.[24] In our study, 70% were managed successfully with conservative modalities while 30% went under surgical intervention. Similar findings were reported in a study which showed that 68.4% was managed conservatively while 31.6% needed surgical intervention. [11] In contrary to above finding, a study done among 348 patients with intestinal obstruction reported that 67% underwent surgical intervention.[3]

A study has also shown that previous abdominal surgery was found to the predictor of the success of conservative treatment.[11] Our study also showed that conservative treatment was successful in majority of patient with previous abdominal surgeries as out of 30 patients who had history of previous abdominal surgeries 66.7% were successfully managed with conservative modalities.

Conclusion

In patient with SAIO, abdominal pain was the most prevalent symptom. Alteration in bowel sound can is important clinical finding that is consistent with intestinal obstruction. Patients who have abdominal tenderness must be monitored carefully as there are increased chances of operative interventions in these groups of people. Previous abdominal surgeries are important risk factor to be considered for intestinal obstruction. Plain x-ray findings play important role to make diagnosis of intestinal obstruction. Conservative treatment resolves obstruction in majority especially in those patients who had previous abdominal surgeries.

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