Original Research

A CLINICOPATHOLOGICAL STUDY OF SUBACUTE INTESTINAL OBSTRUCTION WITH SPECIAL EMPHASIS ON THE ROLE OF LAPAROSCOPY IN DIAGNOSIS

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ABSTRACT

Introduction: The term "intestinal obstruction" refers to the impairment of the normal transit of intestinal contents, which can be caused by a lesion or, in the absence of one, by a mechanical obstruction or a lack of normal intestinal motility.
Aims: Analysis of clinical, investigative and pathologic data to arrive at the diagnosis of subacute intestinal obstruction, its etiologic causes and to figure out the role of diagnostic laparoscopy in its evaluation.
Materials & Methods: Study design was Prospective Study, from January 2021 to June 2022, total sample size 40 and Study area were Department of General Surgery, CNMC&H, Kolkata
Result: 6 (37.5%) patients in our study underwent appendectomy; 2 (12.5%) underwent Cholecystectomy; 5 (31.2%) underwent gynecological; and 3 (18.8%) underwent exploratory laparotomy. Nan is the value of z. P has a value of less than.00001. At p<.05 the finding is significant.
Conclusion: We concluded that in cases where traditional diagnostic techniques are unsatisfactory, laparoscopy is a vital diagnostic tool for subacute intestinal blockage. Because to its minimally invasiveness, patients may benefit from more effective treatment as well as clearer diagnosis.

Keywords: Intestinal Obstruction, Laparoscopy, Diagnosis and Abdomen.

INTRODUCTION

The term "intestinal obstruction" refers to the impairment of the normal transit of intestinal contents, which can be caused by a lesion or, in the absence of one, by a mechanical obstruction or a lack of normal intestinal motility. About 15% of patients who arrive at the emergency room complaining of severe abdominal discomfort have an intestinal blockage, which is one of the surgical entities most frequently encountered across all age groups. [1].

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The underlying etiology influences the way of presentation. The consequences linked to intestinal blockage include sepsis, bowel perforation, and ischemia. The morbidity and mortality rate linked to intestinal obstruction have significantly decreased as a result of advances in pathophysiology knowledge, improved radiological techniques, and improved approaches to correcting fluid and electrolyte imbalances, the use of antibiotics to control bacterial infections, nasogastric decompression, and a variety of surgical techniques. However, effectively managing the illness is a difficulty. [2].
Incomplete obstruction is implied by the term "sub-acute intestinal obstruction" (SAIO). Numerous definitions exist, and the treatment regimens contain numerous ambiguities. It is distinguished by the presence of colicky abdominal pain, vomiting, and distension of the abdomen, as well as persistent flatus and/or facial passages that persist for more than 6 to 12 hours after the onset of symptoms.

Usually, the patient exhibits intermittent and recurring intestinal blockage, with healthy intervals between episodes.

The reason of subacute intestinal blockage can be determined using a variety of inquiry techniques. One such invention from the 20th century is laparoscopy, which provides a quick, easy, and secure way to assess and identify subacute intestinal obstruction (SAIO) [3]. In the underdeveloped world, diagnostic laparoscopy is the most significant and effective application. In the poor world, fewer than 20% of people have access to imaging technologies such as abdominal magnetic resonance imaging

(MRI), CT scanning, and USG. It has been demonstrated that laparoscopy is a valuable

tool for the minimally invasive examination of certain patients with subacute intestinal obstruction (SAIO), whose diagnosis is still unclear even after employing other imaging modalities such as CT scans and USGs. Abdominal TB can be easily diagnosed with the help of diagnostic laparoscopy. [4].

METERIALS AND METHODS

Study design: Prospective Study

Study area: Department of General Surgery, CNMC&H, Kolkata Study period: January 2021 to June 2022

Sample size: 40

Inclusion Criteria:

- All age patients presenting to the surgery OPD or the emergency department with the following features of Sub acute intestinal obstruction will be identified and included in the study:
- Patient>12 years of age
- All patients presented with features of SAIO

Exclusion Criteria:

- Patient<12 years of age.
- Patient presenting with acute intestinal obstruction

Statistical Analysis:

For statistical analysis, data were initially entered into a Microsoft Excel spreadsheet and then analyzed using SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism (version 5). Numerical variables were summarized using means and standard deviations, while categorical variables were described with counts and percentages. Two-sample t-tests, which compare the means of independent or unpaired samples, were used to assess differences between groups. Paired t-tests, which account for the correlation between paired observations, offer greater power

Than unpaired tests. Chi-square tests (χ^2 tests) were employed to evaluate hypotheses where the sampling distribution of the test statistic follows a chi-squared distribution

Under the null hypothesis; Pearson's chi-squared test is often referred to simply as the

Chi-squared test. For comparisons of unpaired proportions, either the chi-square test or Fisher's exact test was used, depending on the context. To perform t-tests, the relevant formulae for test statistics, which either exactly follow or closely approximate a t-distribution under the null hypothesis, were applied, with specific degrees of freedom indicated for each test. P-values were determined from Student's t-distribution tables. A p-value ≤ 0.05 was considered statistically significant, leading to the rejection of the null hypothesis in favour of the alternative hypothesis.

RESULT AND ANALYSIS

Table 1: Distribution of History of Abdominal Surgery in Past

Surgery	Frequency	Percent
Appendicectomy	6	37.5%
Cholecystectomy	2	12.5%
Gynecological	5	31.2%
Exploratory laparotomy	3	18.8%
Total	16	100%

Table 2: Distribution of Sputum for AFB

Sputum for AFB	Frequency	Percent
Negative	35	87.50%
Positive	5	12.50%
Total	40	100

Table 3: Distribution of USG Abdomen and pelvis

USG Abdomen and Pelvis Findings	Frequency	Percent
Contracted pulled up caecum	1	2.50%
Dilated bowel loop	22	55.00%
Free fluid in abdomen	5	12.50%

Herniation of content	5	12.50%
Ileal stricture	4	10.00%
Mesenteric lymphadenopathy	3	7.50%
Total	40	100.00%

Table 4: Distribution of Laparoscopic Findings

Laparoscopic Findings	Frequency	Percent
Band adhesion between ileocecal junction and abdominal wall	1	7.10%
Single band adhesion at two ileal loops	3	21.40%
Koch's abdomen (ileocecal tuberculosis)	1	7.10%
Multiple interloop adhesions at small bowel	9	64.20%
Total	14	100.00%

Six (37.5%) patients in our study underwent appendectomy; two (12.5%) underwent cholecystectomy; five (31.2%) underwent gynecological; and three (18.8%) underwent exploratory laparotomy.Nan is the value of z. P has a value of less than.00001. At p <.05., the finding is significant.Five patients (12.5%) in our study exhibited AFB-positive sputum.Nan is the value of z. P has a value of less than.00001. At p <.05., the finding is significant.Seven (2.5%) of the patients in our study had a contracted pulled-up caecum, twenty-two (55.0%) had a dilated bowel loop, five (12.5%) had free fluid in the abdomen, five (12.5%) had a herniation of content, four (10.0%) had an ileac structure, and three (7.5%) had mesenteric lymphadenopathy in the USG abdomen and pelvis. Nan is the value of z. P has a value of less than.00001. At p <.05. the finding is significant. One patient (7.1%) in our study had a band adhesion between the abdominal wall and ileo caeca junction, three patients (21.4%) had a single band adhesion at two ileal loops, one patient (7.1%) had Koch's abdomen, and nine patients (64.2%) had several interloop adhesions at the small bowel in the laparoscopic findings.NaN is the value of z. P has a value of less than.00001. At p <.05. the finding is significant. The patients' mean history of a previous episode (mean ± standard deviation) was 1.7500±.8742, as seen in the above table.

DISCUSSION

One of the major causes of morbidity encountered in daily practice is sub-acute intestinal obstruction (SAIO), particularly in cases where the patient presents with unusual symptoms, which significantly delays diagnosis. Out of the 40 patients in this study, 16 (40.5%) belonged to the 51– 60 age range, and the mean age of the patients was [53.9750± 9.4936] years. There were more women [25 (62.5%)] than men [15 (37.5%)] in the population.

These findings are comparable with the study conducted by Girón et al [5 (2023)], where they observed that intestinal obstruction was more common in middle-aged and older adults, with a mean age around the fifth decade of life. They also reported a slight female predominance in non-malignant obstruction cases (approximately 55–60%), similar to the present study, supporting demographic consistency across populations.

The majority of patients [18 (45.0%)] showed up 2–5 days after their symptoms started. Thirteen individuals (40%) had experienced only one prior incident, while around 36 out of 40 patients had recurrent symptoms. These results attest to the patients' lengthy suffering from SAIO as well as their condition's waxing and waning.

This observation is supported by Kushram et al [6 (2025)], who reported that 42% of patients with intestinal obstruction presented after 3–5 days of symptom onset, and nearly 60% had recurrent episodes before definitive diagnosis, highlighting the intermittent nature of subacute obstruction.

In this study, the majority of SAIO patients had numerous symptoms, with vomiting (70%) and stomach pain (100%) being more common than abdominal distension (18%) and constipation (25%). Similar findings were reported by Jackson et al [1 (2011)], where abdominal pain (95–100%) and vomiting (65–75%) were the most frequent symptoms, whereas abdominal distension was relatively less common in early or subacute obstruction cases (around 20–30%).

Exaggerated bowel sounds were the most common clinical examination finding, occurring in 70% of patients, and abdominal discomfort in 55% of patients. Visible/palpable bowel loops and abdominal masses were noted in 2% and 7.5% of patients, respectively.

Chitumalla et al [2 (2017)] also observed hyperactive bowel sounds in approximately 65–72% of cases and abdominal tenderness in nearly 50–60% of patients, while palpable masses were rare (<10%), closely correlating with the present study findings.

An increased risk of sticky small bowel obstruction is linked to certain surgical procedures, such as exploratory laparotomies, appendectomies, and gynecological procedures. 16 out of 40 patients (or 40%) in this study had a history of prior abdominal procedures; 6 of these patients had an

appendectomy, and 5 of them had a gynecological treatment.

Kushram et al [6 (2025)] reported prior abdominal surgery in 38–45% of patients with adhesive obstruction, with appendectomy and gynecological surgeries being the most common antecedent procedures, supporting the present study findings.

In cases of SAIO, abdominal TB may mimic other abdominal pathologies due to its generic features. In this study, 5 (12.5%) patients had positive sputum for Acid Fast Bacilli (AFB), and 5 (12.5%) patients' chest x-rays revealed an active tubercular lesion.

Malik et al [4 (2011)] demonstrated that abdominal tuberculosis accounted for 10–15% of cases of intestinal obstruction in endemic regions, with associated pulmonary TB findings in nearly 10–13% of patients, similar to the current study observations.

In this study, only 4/40 (10%) patients had multiple air fluid levels on a straight X-ray of the abdomen, but 19/40 (47.5%) patients had gaseous distension of bowel loops. However, 10 out of 40 patients (about 25%) had normal abdominal X-rays, which may have been the result of early blockage.

Jackson et al [1 (2011)] reported that plain abdominal X-ray may be normal in up to 20–30% of early intestinal obstruction cases, while air-fluid levels are seen in only 10–20% of subacute cases, supporting limited sensitivity of plain radiography.

High grade intestinal blockage can be diagnosed by ultrasonography with remarkable sensitivity. In 22 patients in this investigation, dilated bowel loops were the most common finding. Less frequently, mesenteric lymphadenopathy (reported in 3 patients) and contracted drawn up caecum (1 patient) were discovered. Ultrasonography accuracy can vary greatly and is largely operator-dependent.

Chitumalla et al [2 (2017)] noted that ultrasonography detected dilated bowel loops in nearly 55–70% of patients with intestinal obstruction and had an overall diagnostic accuracy of around 70–80%, though significantly operator dependent, consistent with present findings.

For additional assessment, Contrast Enhanced Computed Tomography (CECT) of the abdomen was performed in cases when intestinal obstruction is clinically suspected. In this investigation, the diagnosis of SAIO and its cause in 26 individuals was confirmed by CT results. Dilated bowel loops were the most common CT finding in 11 out of 40 individuals. Bowel thickening was found on abdominal CT in 3 out of 40 individuals.

Girón et al [5 (2023)] reported that CECT had a diagnostic accuracy of nearly 85–95% in intestinal obstruction, with dilated bowel loops being the most frequent finding (around 60–70%), and bowel wall thickening seen in approximately 15–25% of cases, supporting its high diagnostic value.

The etiology of SAIO could not be determined due to the comparatively non-specific signs of bowel dilatation and thickening of the intestinal wall. Thus, 14 of the 40 patients in total had a diagnostic laparoscopy. During a diagnostic laparoscopy, many inter-loop adhesions and bands are the most common findings. The patient with Koch's abdomen (ileocecal tuberculosis) was 1 in 14 (7.1%).

Liu et al [7 (2024)] demonstrated that diagnostic laparoscopy successfully identified the cause of obstruction in 80–90% of undiagnosed cases, with adhesions being the most common finding (60–75%), and abdominal tuberculosis accounting for 5–10% in endemic populations, similar to present study.

Surgical assessment is necessary if conservative therapy is unable to resolve intestinal blockage. In this study, 27 (67.5%) of the patients underwent surgery, whereas 13 (32.5%) received conservative care. The most often performed surgical procedure was adhesive lysis.

Kushram et al [6 (2025)] reported that 60–70% of patients with SAIO eventually required surgical intervention, with adhesiolysis being the most common procedure (around 50–65%), which closely matches the current findings.

In this investigation, histopathology examinations were performed on 14 patients. Inflammation was the most frequent histological finding among those patients, accounting for 71.4% of the cases. Malignancy was identified in 21.4% of cases, while tuberculosis was found in 7.1% of cases. Patients with adhesions were primarily observed to have inflammatory pathology. Patients with caecal growth, transverse colon growth, and descending colon growth all had malignancy. After a diagnostic laparoscopy, the patient's tubercular pathology was identified as Koch's abdomen.

Girón et al [5 (2023)] also reported inflammatory pathology in approximately 65–75% of benign intestinal obstruction cases, while malignancy contributed to nearly 15–25% of cases, and tuberculosis accounted for 5–10% in endemic regions, which is consistent with the present study findings.

CONCLUSION

We concluded that in cases where traditional diagnostic techniques are unsatisfactory, laparoscopy is a vital diagnostic tool for subacute intestinal blockage. Because to its minimally invasiveness, patients may benefit from more effective treatment as well as clearer diagnosis. Including laparoscopy in the subacute intestinal obstruction diagnosis process can improve clinical judgment and treatment plans.

REFERENCE

1. Jackson PG, Raiji M. Evaluation and management of intestinal obstruction. American family physician. 2011 Jan 15;83(2):159-65.

2. Chitumalla PK, Vemulapally NK, Reddy SN. Clinical study of bowel obstruction in relation to etiological factors. International Surgery Journal. 2017 Jan 25;4(2):485-90.
3. Udwadia TE, Udwadia RT, Menon K, Kaul P, Kukreja L, Jain R, Prasad S. Laparoscopic surgery in the developing world. An overview of the Indian scene. International surgery. 1995 Oct 1;80(4):371-5.
4. Malik AM, Talpur KA, Soomro AG, Qureshi JN. Yield of diagnostic laparoscopy in abdominal tuberculosis: is it worth attempting?. Surgical Laparoscopy Endoscopy & Percutaneous Techniques. 2011 Jun 1;21(3):191-3.
5. Girón F, Chaves CE, Rodríguez L, Rueda-Esteban RJ, Núñez-Rocha RE, Pedraza JD, Conde D, Vanegas M, Nassar R, Herrera G, Hernández JD. Association between clinical and surgical variables with postoperative outcomes in patients treated for intestinal obstruction for non-malignant conditions: a cross-sectional study. Scientific Reports. 2023 Sep 4;13(1):14544.
6. Kushram B, Kori A, Thakur DK, Kumar A, Singh M. Assessment of intestinal obstruction: Clinical presentation, pathological findings and management. Bioinformation. 2025 Apr 30;21(4):892.
7. Liu W, Zhao Z, Hu B, Zeng L. Laparoscopic surgery for intestinal obstruction. Asian J Surg. 2024 Jul;47(7):3175. doi: 10.1016/j.asjsur.2024.03.033. Epub 2024 Mar 15. PMID: 38490863.

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