



Research Article

## A STUDY OF ROLE OF CT SCAN IN EVALUATION AND MANAGEMENT OF INTESTINAL OBSTRUCTION

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CT Scan, Extraluminal, Intestinal obstruction.

### ABSTRACT

**Background:** Intestinal obstruction is one of the most common diseases in abdominal surgery. It can slowly lead to changes in intestinal structure and function, and in extreme cases it can be life-threatening. CT allows imaging of the abdominal contents outside the lumen, because of this advantage, the nature and site of the obstruction, especially extraluminal or intramural process, can be established.

**Methods:** A prospective Hospital Based study conducted in Department of radiology, PBM Hospital attached to S.P. Medical College, Bikaner from Jan, 16- Nov, 16 (11 months) with patients presenting to Department of radiology. Consecutive sampling till 100 patients were selected with inclusion criteria (1) Clinically presented as intestinal obstruction (2) Patients who gave an informed consent. Exclusion criteria (1) Severely decompensated patients (2) Pregnancy, (3) Patients with deranged kidney function test (4) Patients below 14 years of age. (5) Patients who didn't give informed consent.

**Result:** Majority (51.0%) of study population belonged to 41-60 years age group followed by 21% patients in >60 years age group and 25% in 21-40 years age groups. In our study 62% were males whereas 38% study participants were females. In CT imaging, maximum 36% presented with dilated bowel loops followed by constriction/bands-18%, subacute intestinal obstruction-16%, 10% as intussusception cases. In present study, 60% patients were treated by surgery. 40% patients were treated by conservative management.

**Conclusion;** In CT imaging, maximum 36% presented with dilated bowel loops followed by constriction/bands-18%, subacute intestinal obstruction-16%, 10% as intussusception cases. In present study, 60% patients were treated by surgery. 40% patients were treated by conservative management.

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### INTRODUCTION

Bowel obstruction was recognized, described and treated by Hippocrates. The earliest recorded operation as treatment was performed by Praxagoras circa 350 BC, when he created an enterocutaneous fistula to relieve the obstruction of a segment of bowel.<sup>1</sup> Bowel obstruction occurs when the normal flow of intraluminal contents is interrupted. Obstruction can be functional (due to abnormal intestinal physiology) or due to a mechanical obstruction, which can be acute or chronic.<sup>2,3</sup> The most common causes of mechanical small bowel obstruction are postoperative adhesions and hernias. Acute, mechanical small bowel obstruction is a common surgical emergency.<sup>4</sup> It is estimated that over 300,000 laparotomies per year are performed in the United States for adhesion-

related obstructions.<sup>5,6</sup> The first imaging procedure used in patients with bowel obstruction is conventional radiography with 46-80% accuracy in determining the presence of obstruction. The next step in patients with indeterminate radiographic findings is radiography with intraluminal injection of contrast material. Its use should be avoided in patients with markedly diminished intestinal peristalsis.<sup>7</sup> On ultrasonography, bowel obstruction is considered to be present when dilated loop measures >2.5 cm and length of segment is >10 cm.

### MATERIAL AND METHODS

This prospective Hospital Based study is conducted in department of radiology, PBM Hospital attached to S.P. Medical College, Bikaner from Jan, 16- Nov, 16 (11 months). Patients presenting to Department of radio-diagnosis, whether in OPD or Emergency, with complaints suggestive of Intestinal Obstruction. Consecutive sampling till 50 patients were selected

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**Inclusion Criteria**

Clinically presented as intestinal obstruction, Patients who gave an informed consent.

**Exclusion criteria**

Severely decompensated patients, Pregnancy, Patients with deranged kidney function test, Patients below 14 years of age. Patients who didn't give informed consent

**Study Tool**

A Pre-tested pre-structured questionnaire

**Method of study**

After obtaining permission from institutional ethical committee and consent from eligible study participants as per inclusion and exclusion criteria, 100 consecutive patients presenting with suggestive signs and symptoms of intestinal obstruction to Surgery OPD as well as Emergency, PBM Hospital attached to S.P. Medical College, Bikaner; within duration of Jan-Nov, 2016 were enrolled in this study.

**Statistical analysis**

The information thus collected was entered into Microsoft Excel sheet. Thereafter the data were analyzed with the help of SPSS 22.0 software in terms of mean, SD, Range, sensitivity, specificity and appropriate test of significance wherever required.

**RESULTS**

**Table 1** Distribution of study population according to age.

Age group (yrs)	No.
<20	3
21-40	25
41-60	51
>60	21
Total	100

**Table 2** Distribution of study population according to sex.

Sex	No.
Male	62
Female	38
Total	100

In our study 62% were males whereas 38% study participants were females.

**Table 3** Distribution of study population according to CT findings.

CT findings	No.
Acute intestinal obstruction	10
Dilated bowel loops	36
Constriction/bands	18
Sub-acute intestinal obstruction	10
Malignancy	6
Intussusception	6
Perforation	8
Enlarged lymph nodes	6

**Table 4** Evaluation of sensitivity and specificity of CT as diagnostic tool

CT	Operative management	Conservative management	Total
Positive	52	10	62
Negative	8	30	38
Total	60	40	100

Table 4 shows that how accurate CT findings were helpful in guiding patient management (Operative/Conservative). Also, the difference between the two management lines was also found to be statistically significant (p<0.05).

**DISCUSSION**

Majority (51.0%) of study population belonged to 41-60 years age group followed by 21% patients in >60 years age group and 25% in 21-40 years age groups. In our study 62% were males whereas 38% study participants were females. Randen V *et al*, conducted a prospective trial, Between March 2005 and November 2006, 1021 patients, 55% female, mean age 47 years (range, 19-94 years), were included.<sup>11</sup> In 117 of 1021 patients. Achiek MM *et al* studied a total of 105 adult patients, 65 males and 40 females.<sup>12</sup> A mean age of 46 years and an age range 22- 75years for Juba patients and a mean age of 64 years with an age range 21- 95 years for KCH, London. The most common symptom was pain abdomen (94%) followed by constipation (76%), Minimum 14% patients had presented with obstipation. In CT imaging, maximum 36% presented with dilated bowel loops followed by constriction/bands-18%, subacute intestinal obstruction-16%, 10% as intussusception cases. In present study, 60% patients were treated by surgery. 40% patients were treated by conservative management.

Donckier V *et al*<sup>8</sup> conducted a study on 54 patients with suspected adhesive small bowel obstruction had CT at admission.<sup>13</sup> CT demonstrated signs of strangulation or volvulus in 19 patients, including three with signs of peritoneal irritation. Within this group, urgent laparotomy was performed in 17 patients and confirmed the CT diagnosis in thirty-seven patients (2/3rd of total patients) without clinical or CT signs of complications had initial conservative treatment; among them, seven of 12 with a distal obstruction determined by CT required a delayed operation for persisting obstruction, compared with two of 25 patients with a proximal obstruction (P < 0.01).

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