International Journal of Current Advanced Research
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: SJIF: 5.995
Available Online at www.journalijcar.org
Volume 7; Issue 1(I); January 2018; Page No. 9327-9332
DOI: http://dx.doi.org/10.24327/ijcar.2018.9332.1538

Research Article

STUDY OF CLINICO-RADIOLOGICAL PROFILE AND MANAGEMENT NON-NEOPLASTIC STRICTURE OF SMALL BOWEL

Mushir Reyaz*., Abhishek Sharma., Vinod Kumar., Jitendra Singh., Muniba Najeeb and Aishwarya Thakur

Room no- 305, pg-1, Hostel, AIIMS, Phulwarisarif, Patna, Bihar, India

A R T I C L E I N F O

Article History:
Received 9th October, 2017
Received in revised form 10th November, 2017
Accepted 26th December, 2017
Published online 28th January, 2018

Key words:
Small bowel, Stricture, Non-neoplastic

A B S T R A C T

Small bowel strictures can be neoplastic or non-neoplastic. Tuberculosis and Crohns disease are major cause non neoplastic stricture of small bowel. Other causes of strictures are radiation injury to bowel, blunt abdominal trauma, drug induced, ischemia and anastomotic stricture and are classified as non-specific stricture. Stricture of small bowel presents great diagnostic challenge so far its etiology is concerned. It should be endeavor of all of us to diagnose this disease in early stages since an early diagnosis and timely surgery will most likely save the life of patients. It is against this background of changing spectrum of small bowel pathology that detailed study was undertaken with sole aim of obtaining full knowledge of the disease causing "non-neoplastic stricture of small bowel".

INTRODUCTION

Stricture of small bowel is a fibro constrictive lesion occurring as a result of contraction of circumferentially organized scar tissue in the wall. Stricture of small bowel may be neoplastic and non-neoplastic in nature. The non-neoplastic stricture of small bowel are usually an aftermath of tuberculous ulceration and Crohn's disease.[6] Other causes of strictures are radiation injury to bowel, blunt abdominal trauma, drug induced, ischemia and anastomotic stricture. These are classified as non-specific stricture.[7] These non-specific group of stricture, irrespective of their etiology; shows an uniformity in their microscopic characteristic, quite distinct from either tuberculosis or Crohn's disease, although macroscopically they are indistinguishable from tuberculous or Crohn's stricture of small bowel. Benign fibrous strictures can also be rarely present in cases of ulcerative colitis and occurs only in 6% cases. In long standing cases of ulcerative colitis stricture must be presumed to be malignant unless until proved otherwise. Even then the etiology of some cases remain unexplained and are termed as idiopathic stricture.

It is here the importance of a careful history and pre-operative examination of all the patients acquired a great importance, if one has to know the etiology of stricture of small bowel.Stricture of small bowel presents great diagnostic challenge so far its etiology is concerned. It should be endeavors of all of us to diagnose this disease in early stages since an early diagnosis and timely surgery will most likely save the life of patients but unfortunately, most of the patients are brought before a surgeon when complication such as intestinal obstruction and perforation set in therefore pre-operative diagnosis of stricture is difficult at this stage and mortality rate rises considerably. In chronic cases, Barium meal follow through or Barium enema may be helpful. Recently small bowel enema (Enteroclysis) has been advocated for early diagnosis of stricture but in day to day practice diagnosis with certainty rests upon exploratory laparotomy and histopathological examination.Though surgery is the mainstay of the treatment for various types of stricture mentioned above but post-operative treatment and follow up is quite different and it is in this respect that etiology of stricture assume great importance.

It is against this background of changing spectrum of small bowel pathology that detailed study was undertaken with sole aim of obtaining full knowledge of the disease causing "non-neoplastic stricture of small bowel".

MATERIALS AND METHODS

The studies on “Non-neoplastic stricture of small bowel” were carried out at the Department of General Surgery, Katihar Medical College and Hospital. Hundred patients admitted from Surgical Out-door and Emergency sections of this hospital with acute or subacute or chronic abdomen were studied for non-neoplastic stricture of small bowel.

Corresponding author:* **Mushir Reyaz
Room no- 305, pg-1, hostel, aiims, phulwarisarif, Patna, Bihar, India

Observations

Table 1 Showing the age incidence of Non-Neoplastic stricture of small bowel in present series.

S.No.	Age group (in years)	No. of cases	Percentage (%)
1	1-10	04	04.0
2.	11-20	06	06.0
3.	21-30	50	50.0
4.	31-40	28	28.0
5.	41-50	08	08.0
6	50 onwards	04	04.0

Table 2 Showing the sex incidence of Non-Neoplastic stricture of small bowel in present series

S.No.	Sex	No. of cases	Percentage (%)
1	Male	48	48.0
2	Female	52	52.0

Table 3 Showing the sex incidence of Non-Neoplastic stricture of small bowel in different age groups

S.No.	Age Group (in years)	Male	Percentage (%)	Female	Percentage (%)
1	1-10	04	04.0	–	–
2.	11-20	06	06.0	–	–
3.	21-30	16	16.0	34	34.0
4.	31-40	16	16.0	12	12.0
5.	41-50	02	02.0	06	06.0
6	51 onwards	04	04.0	–	–

Table 4 Showing incidence of Non-Neoplastic stricture of small bowel in different socio-economic status.

S.No.	Socio-economic status	No. of Cases	Percentage (%)
1	Low	74	74.0
2	Middle	22	22.0
3	High	04	04.0

Table 5 Showing the incidence of stricture of small bowel in different occupational group.

S.No.	Occupation	No. of Cases	Percentage (%)
1	House Wives	50	50.0
2	Farmers	32	32.0
3.	Manual Workers	18	18.0

Table 6 Showing incidence of stricture of small bowel in different religions.

S.No.	Religious Group	No. of Cases	Percentage (%)
1	Hindu	84	84.0
2.	Muslim	16	16.0

Table 7 Showing incidence of causes of Non-Neoplastic stricture of small bowel (Based on histopathological reports)

S.No.	Causes	No. of Cases	Percentage (%)
1	Tuberculosis	82	82.0
2.	Non-specific	18	18.0

Table 8 Showing incidence of tuberculous stricture of small bowel in different age and sex groups.

S.No.	Age group (in years)	Male	Percentage (%)	Female	Percentage (%)
1	1-10	04	04.8	-	-
2	11-20	06	07.3	-	-
3.	21-30	12	14.5	34	41.5
4	31-40	10	12.1	12	14.5
5	41-50	02	2.4	02	02.4
6.	51 & above	-	-	-	-

Table 9 Showing incidence of various clinical symptoms in cases of non-neoplastic stricture of small bowel

S.No.	Clinical Symptoms	No. of Cases	Percentage (%)
1	Pain abdomen	96	96.0
2.	Vomiting	56	56.0
3.	Stoppage of flatus and feces	44	44.0
4.	Loss of Weight	50	50.0
5.	Loss of appetite	62	62.0
6.	Constipation	26	26.0
7.	Loud borborygmi	26	26.0
8.	Biogola	18	18.0
9.	Low grade fever	26	26.0
10.	Amenorrhea	32	32.0
11.	Diarrhea	04	04.0
12.	Constipation alternate with diarrhea	04	04.0

Table 10 Showing incidence of various signs in cases of Non-Neoplastic stricture of small bowel.

S.No.	Clinical Sign	No. of Cases	Percentage (%)
1	Abdomen tenderness	32	32.0
2.	Abdominal distention	56	56.0
3.	Increased bowel sound	56	56.0
4.	Visible peristalsis	32	32.0
5.	Lump in RIF	38	38.0
6.	Obliteration of liver dullness	06	06.0

Table 11 Showing incidence of Hb% in cases of Non-Neoplastic stricture of small bowel.

S.No.	Hb %(14.6=100%)	No. of Cases	Percentage (%)
1	40-50	12	12.0
2	51-60	34	34.0
3	61-70	32	32.0
4	71-80	18	18.0
5	81-90	04	04.0

Table 12 Showing result of ESR in cases on Non-Neoplastic stricture of small bowel.

S.No.	ESR in mm/hour in 1st hour (Westergren method)	No. of Cases	Percentage (%)
1	1-10	12	12.0
2	11-20	22	22.0
3	21-30	10	10.0
4	31-40	26	26.0
5	41-50	12	12.0
6	51-60	06	06.0
7.	61-70	04	04.0
8.	71-80	06	06.0
9	81 on wards	02	02.0

Table 13 Showing the level of Blood Urea level in cases of Non-Neoplastic stricture of small bowel.

S.No.	Blood Urea Level (range in mg/100ml)	No. of Cases	Percentage (%)
1	10-20	50	50.0
2	21-40	38	38.0
3	41-60	12	12.0

Table 14 Showing the level of serum electrolyte (Na^+, K^+) in cases of Non-Neoplastic stricture of small bowel.

S.No.	Range of Na^+ in mEq/L	Range of K^+ in mEq/L	No of Cases	Percentage (%)
1	120-130	4.5-5.0	34	34.0
2.	120-130	3.5-4.5	48	48.0
3.	120-130	3.0-3.5	10	10.0
4.	130-150	4.5-5.0	04	04.0
5.	140-150	3.0-3.5	04	04.0

Table 15 Showing incidence of different findings in plain x-ray abdomen in present series

S.No.	Finding	No. of Cases	Percentage (%)
1	Multiple Fluid and gas level	44	44.0
2.	Gaseous distention	26	26.0
3.	Gas under right dome of diaphragm	06	06.0
4.	Normal Finding	24	24.0

Table 16 Showing incidence of positive finding in Barium meal follow through and Barium enema x-ray in cases of Non-Neoplastic stricture of small bowel.

S.No.	Type of investigation	No. of Cases	Positive findings	Percentage (%)
1	Barium meal follow through	54	36	66.6
2.	Barium enema	32	04	12.5

Table 17 Showing incidence of chest lesion in cases of non-neoplastic stricture of small bowel.(Based on clinical and radiological findings.)

S.No.	Findings	No. of Cases	Percentage (%)
1.	Active lesion	06	06.0
2.	Healed lesion	12	12.0
3.	Normal Findings	82	82.0

Table 18 Showing incidence of site of stricture in relation to cause of non-neoplastic stricture of small bowel.

S.No	Site of lesion	Tuberculous	Non specific	Total	Percentage (%)
1.	Ileal	36	12	48	48.0
2.	Ileal + Jejunal	02	-	02	2.0
3.	Ileocaecal	34	04	38	38.0
4.	Ileal + Ileocaecal	10	02	12	12.0

Table 9 Showing various types of operation performed in cases of non-neoplastic stricture of small bowel.

S.No.	Type of operation	No. of Cases	Percentage (%)
1.	Stricturoplasty	40	40.0
2.	Resection and Anastomosis	34	34.0
3.	Ileotransverse	20	20.0
4.	Right hemicolectomy	06	06.0

Table 20 Showing incidence of various post-operative complication observed in present series

S.No.	Type of Complication	No of Cases	Percentage (%)
1.	Post-operative chest	04	04.0
2.	Wound infection	18	18.0
3.	Abdomen distention	14	14.0
4.	Fecal fistula	02	02.0

DISCUSSION

Age Incidence

In the present series the commonest age group affected by non-neoplastic stricture of small bowel were in between 21 to 30 years (50.0%) followed 31 to 40 years (28.0%). Tuberculous stricture was also most common in age group 21 to 30 years (56.0%) and again second common age group affected by the tuberculous stricture was between 31 to 40 years (26.6%). Prakash (1973) in his study of 281 cases of benign ulceroconstrictive lesion of small bowel noted that 20 to 40 years of age was the commonest age group affected by the tuberculous stricture of small bowel.[9]

Sex Incidence

In the present series 52% female and 48% males were affected by non-neoplastic stricture of small bowel. In cases of tuberculous stricture Female to male ratio was 1.4:1. Bhansali *et al* (1978) observed an incidence of about 52.0% female cases in their study of 310 patients of tuberculous origin.[1,3,4] Vakil *et al* (1985) observed in their series that 65% incidence in female was due to tuberculous stricture of small bowel. Thus above discussion showed that females are more susceptible to develop such type of lesion.

Socio-Economic Status

Thus the most commonly affected group was from low socio-economic group (74%) and the least common affected group was from high socio-economic status.

Occupation

In present series of study, housewives were most commonly affected by the non-neoplastic stricture of small bowl, housewives were affected in 50% cases. The next common group affected were Farmers (32%) and Manual workers (18%). Repeated pregnancy and chronic malnutrition as they are the main burnt of economic status were the main important factor for non-neoplastic stricture of small bowel in housewives. As the non-neoplastic stricture of small bowel were mainly due to intestinal tuberculosis in present series which was said to be common in poor manual workers and farmers due to lack of hygiene, poor health care and lack of education.

Religion

In present series of study of 100 cases, Hindus were more commonly affected than Muslims, Hindus were affected in 84% cases (84 cases) whereas Muslims were affected only in 16% (16 cases). This showed in conformity with the distribution of two community in this area.

Clinical Symptomatology

Pain Abdomen

In the present series of study of 100 cases, pain abdomen was present in 96 cases (96%). Prakash *et al* (1976) in their series of 281 cases, found the incidence of pain abdomen in more than 90% cases whereas Bhargava *et al* (1985) found the incidence of pain abdomen in almost 100% cases.[2,9]

Vomiting

In present series, vomiting was present in 56% cases. In most of the patients with chronic abdomen, vomiting was only occasional. In patients presenting with acute abdomen (26 cases) vomiting was moderate in amount with many bouts of vomiting. Atm Prakash (1977) found the incidence of vomiting in 71.4% cases, Vakil and Desai (1985) in their series found the incidence of vomiting in 60% cases.

Obstipation

In present series, it was found in 44 cases (44%) of intestinal obstruction. Bhargava *et al* (1985) had 40% incidence in their series in patients presenting with acute intestinal obstruction in cases of tuberculous stricture of small bowel.[2]

Loss of Weight and Appetite

In present series, loss of weight and loss of appetite were present in 50 cases (50%) and 62 cases (62%) respectively. Many Indian workers had the same type of observation. Bhargava *et al* (1985) in their series observed the same symptoms in 75% of cases.[2]

Loud Borborygmi

In present series, loud borborygmi was present in 26% cases (26 cases). It may be due to progressive narrowing of the small

bowel lumen. It was most often present in chronic cases having duration of illness of more than 6 months. Bhansali (1978) observed an incidence of more than 35% in his series which was near the observation in present series whereas Vakil and Desai (1985) found the incidence of 82% in.[1, 3, and 4]

Biogola

It was present in 18 cases (18%). The patients used to complain that he or she felt moving gas in lower abdomen or he or she had Gola formation in abdomen. Similar observation which had been made by many Indian workers, Bhargava *et al* (1985) had an incidence of about 40%. They described that Gola formation may be more pronounced after taking meal.[2]

Low Grave Fever

The lowgrade fever was present in only 26 cases (26%). Many workers had different incidence of low grade fever in their series. Hoon *et al* (1950) observed an incidence of 38%, Prakash (1976) had 67% and Bhargava (1985) had 30% incidence.[2, 9] Thus the incidence in present series is slightly low in comparison to other workers. Many patients in the present series were receiving antimicrobial therapy for their disease before coming to his institution. That may be the cause of low incidence of low grade fever.

Constipation and Diarrhoea

In present series, constipation was present in 26 cases (26%). The number of patients presenting with diarrhea was only 4 (4%). Constipation alternating with diarrhea was present in 4 cases (4%). Incidence of constipation was 35% in the series of Atm Prakash (1976). Bhargava (1985) had an incidence of 40% in his series.[2] Thus incidence is slightly low in present series.

Amenorrhea

In the present series, amenorrhea was present in 32 cases in premenopausal women. Whereas Bhargava (1985) had an incidence of amenorrhea in 40% cases due to chronic malnutrition and debilitating condition of patient. Thus this observation has similar to the observation done by Bhargava.[2]

Clinical Signs

Abdominal Tenderness

In the present series, it was present in 32 cases (32%). It was most often localized to the right iliac fossa. In few cases with feature of peritonitis (6 cases) tenderness was present all over abdomen. Prakash (1976) observed abdominal tenderness in 162 cases (57% out of total 281 cases.[9] In all of the cases it was localized to right iliac fossa. Bhargava *et al* (1985) and Vakil and Desai (1985) in their series had an equal incidence of 60% in their series respectively.[2]

Abdominal Distension

Abdominal distension was found in 56 cases (56%) in present series of study. It was mostly due to intestinal obstruction or peritonitis.The incidence of abdominal distension observed by different workers are as follows :-

Prakash[9]	1976	48%
Bhansali[1,3,4]	1978	36.3%
Vakil et al	1985	40%

Abdominal Lump

The lump in right iliac fossa was found in 38 cases (38%). It was firm in consistency and mobile. Lump in right iliac fossa was observed by many Indian workers. Prakash (1976) in his study of 281 cases of benign ulceroconstrictive lesion of small bowel found lump in right iliac fossa in about 42.8%.[9] In cases of tuberculous stricture of ileocaecal region the lump in right iliac fossa was found in 98 cases out of 212 cases (48%). Other workers like Joshi (1978), Bhansali (1978) and Vakil *et al* (1985) in their respective series of intestinal tuberculosis found incidence of 53%, 32% and 35% respectively.[1,3]

Visible Peristalsis

In present series, it was observed in 32 cases (32%) It was noted in both acute or sub-acute intestinal obstruction and patient presenting with chronic abdomen.Incidence of visible peristalsis was noted workers. Prakash (1976) noted an incidence of 23% were as Vakil and Desai (1985) had an incidence of just over 6% in their series.[9]

Bowel Sound

In the present series, increased bowel sound was heard in 56 cases (56%) whereas it was absent in 6 cases (6%). It was heard both in patients presenting with acute obstruction and in chronic cases. Many Indian workers has this important observation in cases of stricture or ulceroconstrictive disorder of small bowel. It is such an important clinical finding in case of stricture that Bhargava (1985) and Dutta Gupta *et al* (1958) had made increased bowel sound as the most important clinical criteria for the diagnosis of small bowel stricture in their series and observed in 4 cases of acute groups (20%) and 8 cases (40%) of chronic group out of total 30 cases of tuberculous stricture of small bowel.[2,5]

Features of Intestinal Obstruction

It was present in about 60% cases. Features of intestinal obstruction observed by different workers showed wide variations. Bhargava (1985) had observed features of intestinal obstruction in 70% cases, observation made by Vakil *et al* (1985) showed an incidence of about 40% in their series.[2]

Feature of Peritonitis

In present series, it was present in only 6 cases (6%). In these 3 cases there were marked distension of abdomen and tenderness. Liver dullness was obliterated and bowel sound was absent. In these cases perforation was present in ileum and there was multiple strictures distal to the perforation.The incidence of tuberculous perforation was rare and varied from 1 to 10% as observed by Ahmed (1962), Ohri and Agrawal (1964), Joshi (1978), Bhansali (1978) and Vakil and Desai (1958).

Haematological Report

Hemoglobin Percentage

The present series, the hemoglobin percentage was 40-50% in 12 cases (12%), between 50-70 percent in 66 cases (66%), 70-90 percent in 22 cases (22%). Prakash (1976) observed moderate degree of anemia in 50% cases and Vakil and Desai (1985) note hemoglobin percentage below 70% in 50% cases due to malabsorption.[9]

Erythrocyte Sedimentation Rate (Esr)

In present series, 32 cases (32%) had ESR 10-30mm in first hours, 48 case (48%) had ESR ranging between 31 to 60 mm in first hour and 8 patients (8%) had ESR above 60 mm in first hour. Thus ESR was moderately raised in about 50 percent cases.Bhargava (1985) in his series noted ESR varying between 15-100 mm in first hour in all cases.[2]

Blood Urea

In the present series of study more than 88% of patient (88 cases) had blood area below 40 mg/dl.12 patients had blood urea ranging between 40-60 mg/dl. A rise in blood urea noted in these patients might due to dehydration and oliguria..

Serum Electrolyte (Serum Sodium and Serum Potassium)

A low serum sodium level was noted in patients presenting with acute or subacute intestinal obstruction with features of dehydration. Serum potassium level was within normal ranges in almost all cases

Radiological Examination

Plain X-Rays Abdomen

In present series of study, plain x-rays abdomen was done in both sitting and erect posture. The most common finding was multiple fluid and gas level and found in 44 cases (44%). Gas under right dome was found in 26 cases (26%). No abnormal finding was found in 24 cases (24%). Vakil *et al* (1985) in plain x-rays abdomen noted multiple fluid and gas level in 36%, gas distended loop of small bowel in 8% cases and gas under right dome of diaphragm in 2% cases. Thus x-rays abdomen was only helpful in detecting obstruction or perforation, it does not give any idea regarding site of lesions.

Barium Meal Follow Through

In the present series, it was done in 54 cases but positive finding was detected only in 36 cases (66.6%). Barium meal follow throught study was not possible in rest of the cases either due to obstruction or perforation of gut. It was most helpful in cases and positive finding consistent with the lesion in small bowel or ileocaecal junction was detected in 85% cases.

The characteristic radiological findings on Barium meal follow through were as follows.

1. Narrowed terminal ileum with contracted and pulled up caecum and proximal dilated ileum.
2. Absence of barium meal retention in terminal ileum and caecum (Sterlein's sign).
3. Marked narrowing at terminal ileum and stasis.

Vakil and Desai (1985) observed in their series stricture of small bowel with dilated loop in 22 percent cases, ileocaecal tuberculosis with pulled caecum in 25% cases, stricture of terminal ileum in 4% cases.Thus, the present series of study suggested that the barium mean follow through is most helpful in the diagnosis of non-neoplastic stricture of small bowel.

Barium Enema

It was done in 32 cases but positive finding was present in only 4cases (12.5%) i.e. narrowing and distortion and irregularity of ileocaecal region.Thus barium meal follow through is more valuable investigation than barium enema in the diagnosis of non-neoplastic stricture of small bowel.

Chest X–Ray

Chest x-ray P.A. view was done to detect pulmonary lesion in association with intestinal tuberculous stricture. In present series majority of patient (82 cases) had no clinical or radiological evidences of pulmonary lesion. Only 6 cases (6%) had active lesion in the chest. Another 12 cases (12%) had evidence of healed lesion in the chest.Intestinal tuberculosis without any lesion in the chest had been reported to be very common. Anand *et al* (1956) in their study could not find a single case of intestinal tuberculosis associated with pulmonary lesion. Bhansali *et al* (1978) recorded only 10% incidence of active pulmonary lesion in association with intestinal lesion.

Site and Number of Lesion

Stricture of ileum single or multiple was the most common finding (48%) Ileocaecal stricture alone was the next common finding (38%). ileocaecal stricture along with stricture elsewhere in small intestine was found in additional 12 cases (12%). The least common finding was stricture of ileum and jejunum both in two case (2%).

Site	Presentseries (2013)	Tondon et al (1996)	Bhansali el al (1968)	Prakash et al (1976)	Vakil et al (1985)	Bhargava et al (1985)
Ileum	48%	26%	27.5%	21.5%	35.3%	40%
Ileocaecal	38%	38%	22.2%	32%	35.3%	40%
Ileal+Ileocae.	12%	8%	8.8%	17%	-	20%
Ileal+Jejunal	2%	-	3.7%	8.5%	-	-

In present series 44 (44%) cases had single stricture, 18 cases had double stricture and rest 38 had multiple stricture.

Treatment

In present series of study Stricturoplasty was done in 40 cases (40%), resection and end to end anastomosis was performed in 34 cases (34%). In stricture of terminal ileum or ileocaecal region the treatment of choice was right hemicolectomy but performed only in 6 cases (6%) because stricture at this site was usually associated with hyperemia and multiple enlarged lymph node which were considered to be an active lesion which were again associated with general toxic features, so extensive operation like right hemicolectomy and resection anastomosis were contraindicated. So, to save the life of patients short circuiting operation like Ileotransverse anastomosis was done in 20 cases (20.0%) due to general low condition of patients in many cases. Ileotransverse anastomosis was also done in high level of the Ileal stricture.

Stricturoplasty was done in case of single stricture of ileum in many cases and some cases of multiple stricture and was performed in 40 cases. In cases of multiple strictures of ileum where ileocaecal region was not involved than resection of diseased segment and end to end anastomosis was the ideal procedure and performed in 34 cases (34.0%). Munagakar *et al* (1977) suggested stricturoplasty, Parikha *et al* (1978) treated 26 cases of intestinal stricture by strictuoplasty.[8]They stated that as may as 9 strictures in single case was treated by stricturoplasty. Puzari *et al* (1979) also suggested stricturoplasty for ileal stricture.[10] Bhargava *et al* (1985) performed stricturoplasty in 20 cases, some cases had multiple stricture of ileum.[2]

Biopsy materials and Histopathological report

In the present series either the intestinal tissue of diseased segment or mesenteric lymphnode from close to lesions were obtained at the time of operation and sent for histopathological examination.

The incidence of tuberculous stricture in present series was 82.0% and non-specific stricture was found in rest 18.0%. No cases of Crohin's disease was found in present series. Following table shows the incidence of various type of lesion observed in present series in comparison to different Indian workers.

Type of Stricture	Present series (2013)	Tandon et al (1966)	Wig et. al (1975)	Atm Prakash (1978)
Tuberculous	82.0%	70.0%	48.5%	75.0%
Non-Specific	18.0%	24.0%	27.0%	20.0%
Crohn's disease	Nil	6.0%	24.5%	5.0%

Postoperative Complication

In present series, two most common complications were wound infection (18.0%) and abdominal distension (14.0%). Post-operative chest infection was present in 4 cases (4.0%). Faecal fistula developed in 2 case (2.0%). All the above patients except two case with faecal fistula were managed successfully. The patient developed faecal fistula died after 3 weeks in-spite of vigorous treatment given to him.

Mortality

In present series there was only two case of mortality. Thus percentage of mortality was only 2.0%.

The mortality rate recorded by different workers were as follows

Prakash (1978) –3.5%
Vakil *et al* (1985) – 3.0% in their series.

CONCLUSION

In present series " An observation on non-neoplastic stricture of small bowel " 100 cases admitted in Upgraded Department of Surgery, Katihar Medical College and Hospital. Katihar, Bihar, were studied. On the basis of this study following

Conclusion were drawn

1. The non-neoplastic stricture of small bowel were mostly of tuberculous origin. The tuberculous stricture were found in 82 cases (82%) and non-specific stricture in 18 cases (18%) only. Crohn's disease was not found in any cases.
2. In non-specific group, no definite causative type (drug induced, blunt abdominal trauma, radiotherapy induced, ischaemia and anastomotic stricture) were detected. Thus all non-specific stricture were of idiopathic type.
3. The disease was most common between the age of 21 to 30 years. The next common age group for occurrence of such non-neoplastic stricture of small bowel was found to be between 31 to 40 years.
4. 4. The disease was more prevalent in females (52%) than males (48%). In cases of tuberculous stricture of small bowel females were affected (58%) more than males (42%).
5. The disease was most prevalent in patient coming from low socio-economics status (74%). It was less common in patients from middle socio-economic status (22%) and very uncommon in patients from high socio-economic status (4%).
6. The disease was most common among housewives between the age of 20-40 years.
7. The disease was more common in Hindus (84%) than Muslims (16%) because of lower population of Muslims in this geographical area in comparison to Hindus.
8. The commonest presenting complain was pain abdomen (96%). The common presenting complaints were loss of apetite, loss of weight, vomiting and abdominal distention. Other symptoms like loud borborygmi, biogola, constipation and low grade fever were common in chronic cases.

References

1. Bhansali, S. K. and Desai, A. N. (1968) : *Ind. J. Surg.* 30:218.
2. Bhargava, V.S. Kala, P.C.; Gupta, K. L.; Jain, S. K. ; Bhandari, N.S. (1985) : *Ind.J.Surg*. May, 212-216.
3. Bhansali SK The Challenge og abdominal tuberculosis in 310 cases. *Ind J Surg* 1978; 40:65-77
4. Bhansali SK abdominal tuberculosis: Experience with 300 cases *Am. J Gastroenterol* 1977; 67:324-37.
5. Dutta Gupta. A. K. (1958) : *Ind. J. Surg*. 20.396.
6. Marshall JB. Tuberculosis of the gastrointestinal tract and peritoneum. *Am J Gastroenterol* 1993;88(7):989-99.
7. Marks CG, Nolan DJ, Piris J, Webster CU. Small bowel strictures after blunt abdominal trauma. *Br J Surg.* 1979;66:663-4.
8. Parikh A. J. (1976) : *Ind. J. surg*. 48.85.
9. Prakash A &Tondon *et al* (1970) : *Ind. J. Surg*. 32 :1.
10. Puzari B.D. (1979) : *Brit. J. Surg*. 66:180

How to cite this article:

Mushir Reyaz *et al* (2018) 'Study of Clinico-Radiological Profile and Management Non-Neoplastic Stricture of Small Bowel ', *International Journal of Current Advanced Research,* 07(1), pp. 9327-9332.
DOI: http://dx.doi.org/10.24327/ijcar.2018.9332.1538

****