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A study on aetiopathogenesis and management of rectal prolapse in tertiary care centre in Odisha, India

Dr. B Swagat Kumar Subudhi
Assistant Professor, Department of Surgery, SLN Medical College and Hospital, Koraput, Odisha, India

Dr Sunil Kumar Habada
Assistant Professor, Department of Surgery, SLN Medical College and Hospital, Koraput, Odisha, India

Dr Swayangprava Pradhan
Assistant Professor, Dept. Of Paediatrics, SLN Medical College and Hospital, Koraput, Odisha, India

Dr. Susajit Kumar Pradhan
Assistant Professor, Anaesthesiology, ECMO unit, Department of Cardio Thoracic & Vascular Surgery, SCBMCH, Cuttack, Odisha, India.
Corresponding author email: pradhansusajit3@gmail.com

***Abstract*---**Introduction: Rectal prolapse refers to a circumferential, full-thickness protrusion of the rectum through the anus and also has been called complete prolapse, or procidentia. Internal prolapse occurs when the rectal wall intussuscepts but does not protrude, and is more accurately described as internal intussusception. In adults, rectal prolapse is far more common among women. The diagnosis is obvious on inspection, except in the case of concealed rectal prolapse. At present, the fixation of the rectum to the sacral hollow is considered to be the most rational operation in the surgical management of complete rectal prolapse. The present study is undertaken at S.C.B.Medical college hospital, Cuttack to evaluate the aetio-pathological factors associated with rectal prolapse and the different surgical methods available to repair them. Methods: A hospital-based Cross-sectional study was done among the patients Presenting .with Rectal Prolapse either attending Surgery Out-Patient Department or admitted to the Department through Emergency Department and giving consent for the study. Results: In the study 91.2% were complete and 8.8% were partial prolapse. The maximum age group showing thus prolapse was from 31-50 years age group,

with males having more incidence of prolapse than females. Among the females, multi-porous were having increased incidence of prolapse. The maximum number of cases have undergone Abdominal mesh rectopexy procedure. Conclusions: Prolapse of the rectum is more prevalent in males in their 3rd through 5th decade more commonly associated with the history of chronic constipation, chronic dysentery or sometimes with difficult labour in female cases. Rectal prolapse is a multi-factorial disease that can present in a diverse group of populations with varied aetiological factors and associated risk factors .At present rectopexy procedure, either done by open method or laparoscopically may be considered the gold standard in pursuit of its high acceptability, durability and good long term results.

***Keywords*---**prolapse, sphincter, tone, parity, rectopexy.

Introduction

Rectal prolapse refers to a circumferential, full-thickness protrusion of the rectum through the anus and also has been called complete prolapse, or procidentia. Internal prolapse occurs when the rectal wall intussuscepts but does not protrude, and is more accurately described as internal intussusception. Mucosal prolapse is a partial-thickness protrusion often associated with hemorrhoidal disease and usually is treated with banding or haemorrhoidectomy. In adults rectal prolapse is far more common among women, prolapse becoming more prevalent with age in women and peaks in the seventh decade of life. In men, prevalence is unrelated to age. Symptoms include tenesmus, a sensation of tissue protruding from the anus that may or may not spontaneously reduce, and a sensation of incomplete evacuation.Mucus discharge and leakage may accompany the protrusion. Patients may also complain of myriad of functional complaints, from incontinence and diarrhea to constipation and outlet obstruction.

The condition "PROLAPSE RECTUM" was first described in 1500B.C. in Kbers Papyrus Lowry and Goldberg,(1987) [1.] Rectal prolapse is a condition where either the mucosa and submucosa of the rectum(partial) or all the layers of the rectal wall(complete) protrude outside the anus. Internal prolapse refers to an intussusception of the mid or upper rectum which does not reach the anal orifice. Mann (1969)[2] described it as a protrusion of one more layer of the rectum through anus. There are three types of prolapse. Type 1 is a partial or mucous or false prolapse, and type II as intussusception of all layers of the rectum, through the rectum and anal canal. Type HI which is true complete prolapse associated with a sliding hernia.

The most accepted mechanism of the aetiology is the occurrence of intussusception at the recto-sigmoid junction or at the point of peritoneal reflection of the rectum causing the prolapse of the rectum, during straining at the stool and leading to repeated intussusceptions with each act of defecation. The classical abnormalities found in patients with complete rectal prolapse are wide deep pelvic peritoneal pouch, unsupported rectum with long mesocolon, weak pelvic floor, and anal sphincters but the above abnormalities are thought to

be the effect, rather than cause of the prolapse. It is also suggested that rectal prolapse is usually due to straining at defecation, against a closed levator ani and anal sphincter mechanism. Such straining may be obsessive on the part of patients with psychological problems and reduced awareness that the rectum is empty or it may be due to attempted defecation with a full rectum in patients with reduced rectal sensation, failure of the afferent arc of the ano-rectal reflex and consequent absence of levator ani, anal sphincter relaxation. Pelvic floor weakness may explain a few cases, since old age, multi-parity, and uterine prolapse are found only in a minority. The lack of support for the rectum is best evidenced by the fact that the operation which is designed only to fix the rectum to the sacral hollow are most successful and often cures.

the incontinence. But it is equally likely that such operations work by preventing intussusception, now regarded as the likely mechanism of complete rectal prolapse. In this part of our country, it is more common in middle-aged males and the common cause is habitual constipation or chronic dysentery in childhood [3].The diagnosis is obvious on inspection, except in the case of concealed rectal prolapse. Various operative procedures have been proposed for the control of rectal prolapses which are based on the following principles either in single or in combination. They are (i) Resection of the prolapsing and redundant bowel (ii) Reduction of the size of the anus (iii) Reinforcement of the peritoneal floor (iv) Abdominal suspension (v)Fixation of the prolapsed bowel with or without synthetic mesh, and (vi) obliteration of the cul-de-sac or repair of the sliding hernia.

At present, the fixation of the rectum to the sacral hollow is considered to be the most rational operation in the surgical management of complete rectal prolapse. Many techniques have been used to fix the rectum to the sacrum, ranging from abdominal rectopexy with simple sutures of non-absorbable material to prosthetic materials such as proline mesh. The thorough mobilization and posterior fixation by subsequent fibrosis is the factor which prevents further prolapse. The results of the operation are acceptable as they cause minimum mortality and recurrence but the disappointment still remains in some cases, because even with the most meticulous surgery the rectum of normal continence is not achieved. The present study is undertaken at S.C.B.Medical college hospital, Cuttack to evaluate the aetio-pathological factors associated with rectal prolapse and the different surgical methods available to repair them.

Aims and Objectives

- To study the various aetiological factors, risk factors or illness, those are associated with rectal prolapse and its pathogenesis.
- Diagnosis and various modalities of management of rectal prolapse practised at the present time in our centre and their effectiveness in terms of acceptability, effectiveness, long term outcomes.

Materials and Method

Study design

A hospital based Cross-sectional study.

Place of study

Department of Surgery , SCB Medical College & Hospital, Cuttack

Study Period

From October 2009 to September 2012.

Study Population

Ready to participant to the study after consent form .

Sample Size Calculation and Sampling Technique
50

Inclusion Criteria

Patients Presenting .with Rectal Prolapse either attending Surgery Out Patient Department or admitted to the Department through Emergency Department and give consent for the study.

Exclusion Criteria

Those who refused consent for the study.

Statistical analysis

Statistical analysis will be conducted by using MS Excel and SPSS(version- 20).

Ethical Clearance: Ethical clearance was obtained from the Institutional Ethics Committee of SCB Medical College, Cuttack.

Results

Table 1.0 Types of Prolapse

Type of Prolapse	No. Of Patients	Percentage
Complete	46	91.2
Partial	4	8.8
Total	50	100

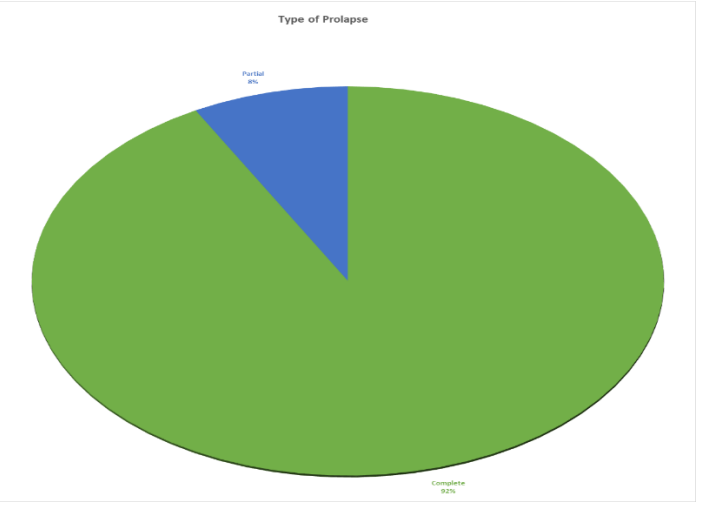


Fig 1.0 types of prolapse

From the above table 1.0 and fig 1.0 gives the number of study cases 50 were taken for study out of total 12000 cases admitted in the surgery department, SCB Medical College, Cuttack from July 2009 to Dec. 2011. The incidence came out to be 0.42%. Both complete & partial prolapse were studied. Out of these 46 cases (91.2%) were complete and 4 (8.8%) were partial prolapse.

Table 2.0 Distribution of age

Age group in yrs.	No. Of Patients	Percentage
0-10	0	0
11_20	0	0
21-30	2	4
31-40	14	28
41-50	16	32
51-60	6	12
61-70	12	24
Total	50	100

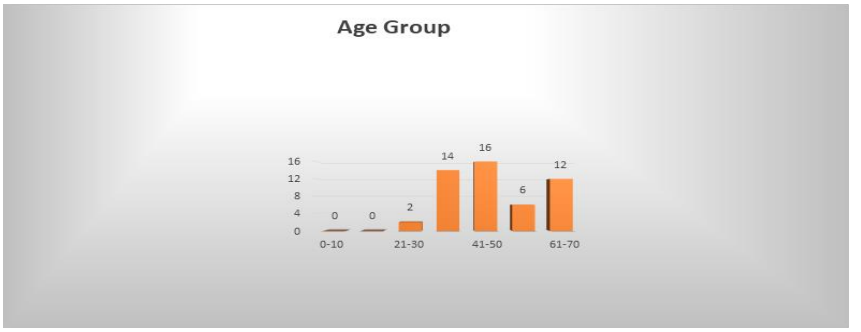
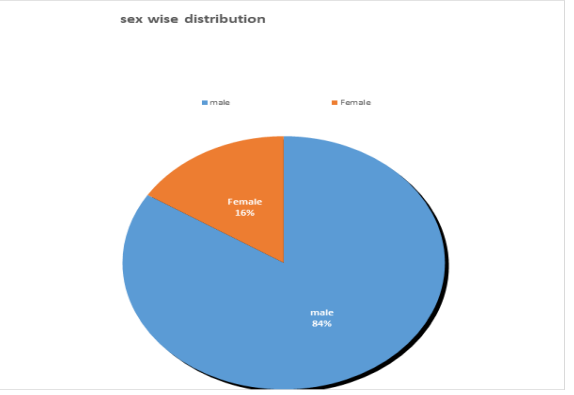


Fig 2.0 Age wise distribution

The above table 2.0 and fig 2.0 gives the incidence of age, which varies from 21-70 years. The maximum incidence is seen in the age group 31-50 years i.e. 30(60%) the minimum number of cases from age group 21-30, 2(4%). No case was recorded below 20 years.

Table 3.0 Sex wise distribution

Sex	No. of Cases	Percentage
male	42	84
Female	8	16
Total	50	100

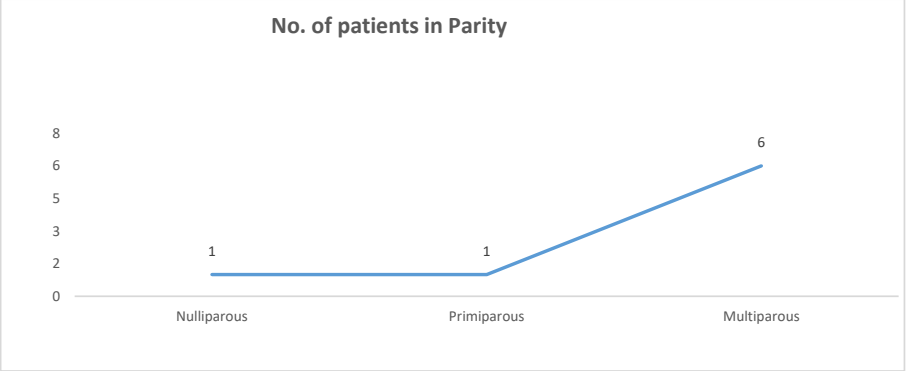


From the above table 3.0 and fig 3.0 gives the incidence of sex in the present series shows that the condition is common in male. Out of 50 cases of rectal prolapse 42 were males (84%) and 8 were females (16%).

Parity	No. of patients	Percentage
Nulliparous	1	12.5
Primiparous	1	12.5

Multiparous	6	75
Total	8	100

Table 4.0 Distribution of Parity



From the above table 4.0 and fig 4.0 gives, 8 patients in this series were female and all were above 50 years. Out of all these cases one was nulliparous, one was primi and rest were multiparous. In 3 cases there was history of difficult labour and perineal tear.

Table 5.0 Socio- economic Status

Socio-economic status	No. Of patients	Percentage
Poor	20	40
Average	25	50
Rich	5	10
total	50	100

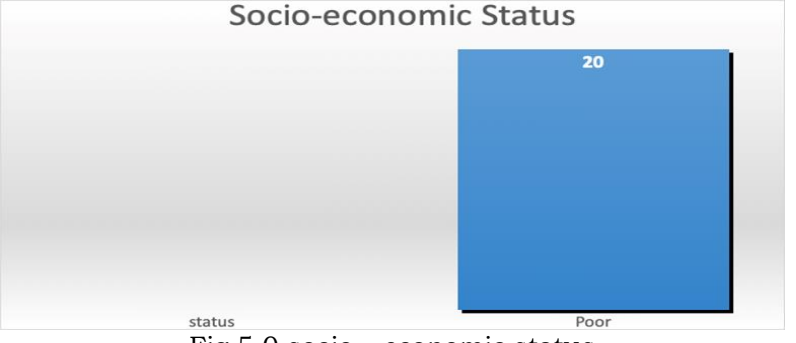
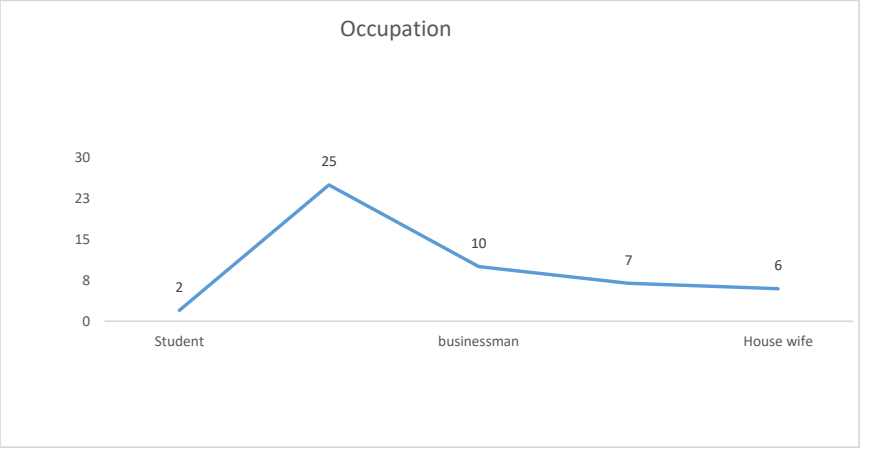


Fig 5.0 socio – economic status

In this series 40% cases belonged to low socioeconomic status, 50% cases were from average and 10 % from high socioeconomic status.

Table 6.0 Occupation status of study subjects

Occupation	No of patients	Percentage
Student	2	4
Farmer /labourer	25	50
businessman	10	20
Service holder	7	14
House wife	6	12
Total	50	100



From the above table 6.0 and fig 6.0 gives out of 50 cases, 25 patients belonged to farmer/ labourer class, 2 were students, 6 were house wive and others were either businessmen or service holders.

Dietetic history

The dietetic history of the patients followed up in the series showed that 74% were taking non-vegetarian diet and rest 26% were vegetarian. FAMILY HISTORY: One patient in this series had family history of rectal prolapse.

Table 7.0 distribution of Illness

Illness	No. of Patients	Percentage
Chronic dysentery or diarrhoea	7	14

measles	1	2
Chronic constipation	11	22
Difficult labour	3	6
None	28	56
Total	50	100

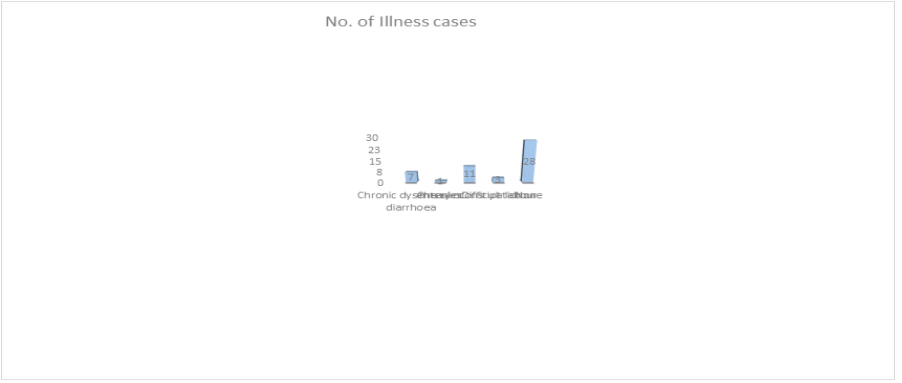


Fig 7.0 Illness

From the above table 7.0 and fig 7.0 gives In this mode of onset defined as the onset of prolapse following any intercurrent illness. 7 patients (14%) presented with prolapse following an attack of dysentery or had chronic attacks in the past. One patient had attack measles prior to the onset of prolapse, 11 patients had history of constipation and 3 had difficult labour.

Table8.0 Distribution of Duration prolapse

Duration	No. of Patients	Percentage
0-5 years	5	10
5-10 years	30	60
>10 years	15	30
Total	50	100

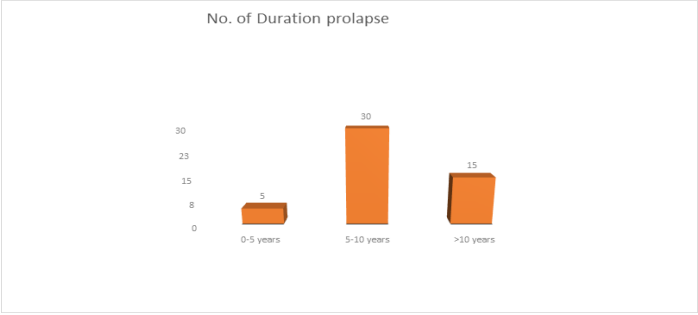


Fig 8.0 duration of prolapse

From the above table 8.0 and fig 8.0 gives Duration of prolapse in this series was taken as the interval between the onset prolapse and the actual presentation for treatment. It varies from 2 months to 15 years with average duration 8.5 years. 90% patients used to have their prolapse only during straining at defecation. 5 patients used to have their prolapse with slight increased abdominal pressure. Among all these patients 42 cases gave history of spontaneous reduction and in remaining cases prolapse had to be reduced manually.

Table 9.0 Symptoms

Symptoms	No. of Patients	Percentage
Bleeding per rectum	15	30
Mucous discharge	50	100
Pain/pruritus	5	5
Constipation	15	30
Incontinence	8	16
Tenesmus	5	10

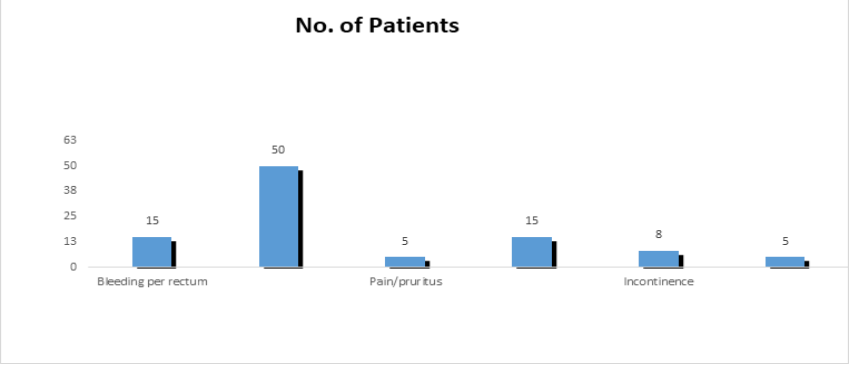


Fig 9.0 symptoms

From the above table 9.0 and Fig 9.0 gives 15 cases were associated with bleeding per rectum and mucous discharge and 35 cases were associated with only mucous discharge. The incidence of incontinence is shown in table-ix. Only 8 patients (16%) had incontinence. Out of these patients 6 were above 60 years. The incidence of constipation in this series is 30% (15 cases). 10% patients (5 cases) had history of tenesmus.

Table 10.0 Tone of sphincter

Tone of sphincter	No of patients	Percentage
Tone of levator ani decreased	16	32
Tone of anal sphincter decreased	38	76
Decreased tone of both	16	32

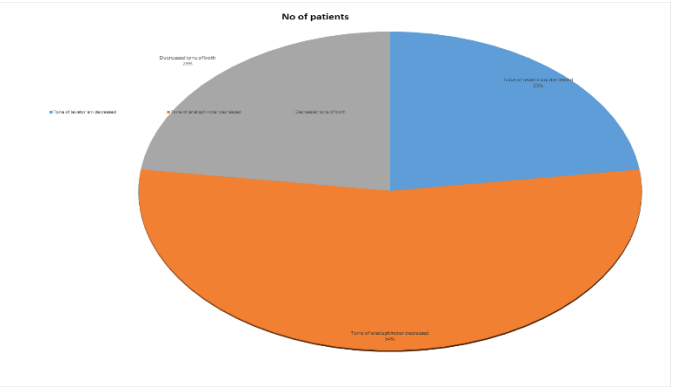


Fig 10.0 Tone of sphincter

From the above table, 10.0 and Fig 10.0 gives the clinical examination after the patients are examined in the examination room, they were subjected to examination in the lavatory in a squatting position to know the length of the projection of rectal prolapse. The condition of the anal verge was patulous in 36 cases and normal in rest cases. On straining 4 cases had a descent of perineum.
None of the patients had marked discomfort during the digital examination. In 20 patients four fingers could be introduced into the anus without causing pain and discomfort. The tone of levator ani as known by palpation of the puborectalis sling was seen to be normal in 34 patients. In other cases tone was decreased or lost. The tone of anal sphincter was seen to be decreased in 38 patients (76%) and in the remaining cases tone was normal. Concomitant uterine prolapse was found in 3 cases.

Table 11.0 Size of projection in cm

Size of project^ in cm)	No of patient	Percentage
1-4	4	8
4-10	44	88
>10	2	4
total	50	100

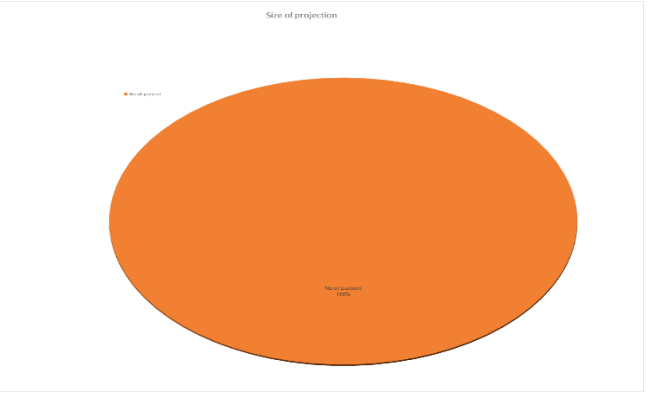


Fig11.0 projection

From the above table 11.0 and Fig 11.0 gives maximum no of cases from 4-10 cm, 44(88%) The projection of the prolapsed part from the anal verge was measured in all cases and are shown in table-XI. The projection varies from 1 to 7 cms. The average length in case of partial prolapse was 2.25 cm and in case of complete prolapse it was 5 cm.

Table 12.0
Findings

Findings	No of patients	Percentage
Haemorrhoid	4	8
Increased mucous secretion	40	80
Erythema in wall of rectum	10	20
Ulcer	2	4

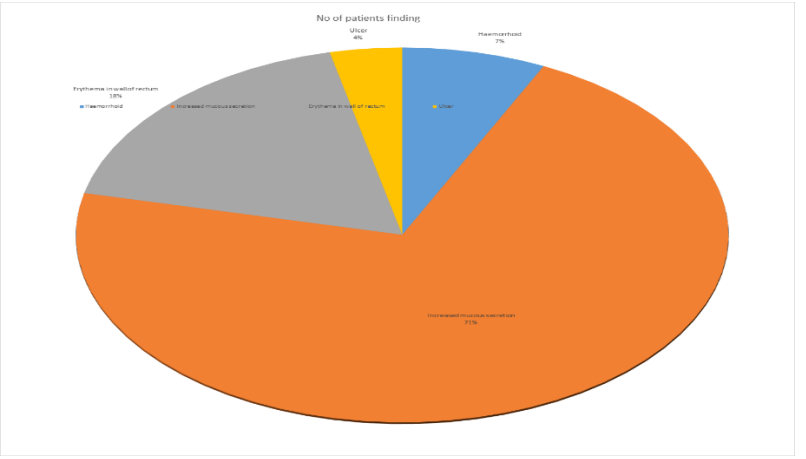


Fig 12.0 findings

Proctoscopy was done in all cases. Increased mucous secretion was found in 40 cases, haemorrhoid in 4 cases at 3, 7, and 11 o clock positions, erythema and ulceration were found in 10 and 2 cases respectively.

Table 13.0 Operation procedures

Procedure	No of patients	Percentage
Abdominal mesh rectopexy	25	50
Abdominal suture rectopexy	9	18
Laparoscopic suture rectopexy	5	10
Laparoscopic mesh rectopexy	7	14
Thiersch's	4	8

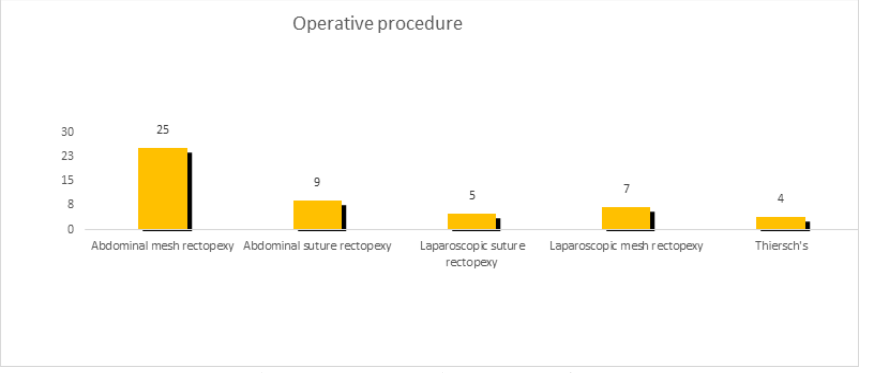


Fig 13.0 operation procedure

Discussion

Rectal prolapse is a condition where the rectum descends into the anus and protrudes outside the anus. The aetiopathogenesis is multi-factorial and it can present in a wide range of population groups. Although most patients present with complete full-thickness rectal prolapse, a partial mucosal prolapse may be more difficult to diagnose. Hospital incidence of rectal prolapse was found to be 0.4%. The peak age incidence of the rectal prolapse was highest in the third decade, Aboul Enemim (1979) [4] which is similar to our findingsHighest incidence was found in males, as compared to the studies by Goligher (1964)[5] and Therekauf et al (1980)[6] , where most of the cases were females. This might be due to more males availing of the hospital services. Young and Middle-aged individuals were found to be having Rectal Prolapse in this study which corroborates the findings of Hughes et al (1957) [7] and Porter (1992)[8]. In females, it is more common in post-menopausal ladies with a history of multiple or difficult childbirths. This is similar to the findings obtained by Goligher et al (1955) [9].In the study undertaken by Corasco (1934) [10] and Gabriel (1948) [11], both found out that the complete prolapse was common in women. In males, it can present in any age group starting from childhood period through middle age to old age. It can present in any socioeconomic group starting from poor patients to rich, in any type of occupation like farmer or labourer to service holders.

In this study, 15 to 20% of patients had a history of chronic diarrhoea/measles in the past. Chronic constipation/repeated straining at stool was found to be a very important factor leading to internal intussusceptions and then to partial prolapse, ultimately leading to complete rectal prolapse. Commonly associated symptoms that patients complain in case of rectal prolapse are mucous discharge, bleeding per anus, pain, constipation and incontinence. Proctoscopic examination may find mucus, haemorrhoids may also be visible. Differentiation of rectal prolapse from prolapsed haemorrhoids can be done clinically. Circular mucosal folds are characteristic of rectal prolapse whereas radial folds are a feature of prolapsed haemorrhoids. Porter (1992) [9] in his study found out 15 % of the cases to be related to Neurological Diseases

It was once thought that weakness of the pelvic floor muscle was the main cause of rectal prolapse. However, electromyography shows overactive pelvic floor muscle in some patients and weakness in others. Faecal incontinence in rectal prolapse is the result of neuropathy of the pudendal nerve due to prolonged stretching, and not from mechanical stretching of the external sphincter by the prolapse. In infants direct downward course of the rectum, due to the as yet undeveloped sacral curve, predisposes to prolapse, as does the reduced resting anal tone, which offers diminished support to the mucosal lining of the anal canal. The procedures for the management of rectal prolapse include rectopexy, low anterior resection, perineal proctectomy and anal encirclement procedures. These procedures rely on the correction of the hypermobility of the rectosigmoid by refixation of the colon into the curve of the sacrum and removal of redundant sigmoid colon and rectum.

Conclusion

Prolapse of the rectum is more prevalent in males in their 3rd through 5th decade more commonly associated with the history of chronic constipation, chronic dysentery or sometimes with difficult labour in female cases. However, in many cases of rectal prolapse, it may not always be associated with a past history of a specific illness. Prolapse usually starts as intussusception of the rectal wall which gradually extends through the anal canal to come outside the anal verge in due course of time. Many cases of rectal prolapse are associated with decreased tone of levator ani muscle and decreased anal sphincter tone. Prolapse is said to be partial when it is lined by mucosa and submucosa and is usually 1 to 4cm in length. It is said to be complete when it contains all the layers of the rectal wall.

In patients having a long redundant segment of recto-sigmoid, prolapse is usually associated with a history of constipation. On the other hand, a patient with chronic constipation leading to repeated episodes of internal intussusception ultimately develops complete prolapse of the rectum in due course of time. Incontinence is a feature found in many cases of rectal prolapse.

Abdominal rectopexy is a procedure in which the rectum is fixed to the sacral hollow after proper mobilization from surrounding peritoneal attachments either with the help of plane prolene sutures or using a prolene mesh. Both methods have similar results in terms of operative mortality, long term cure of prolapse, incontinence and incidence of recurrence of symptoms. Rectopexy was done laparoscopically using either prolene mesh or only prolene suture also give excellent results in terms of cure of prolapse, duration of hospital stay, wound infection and incidence of recurrence of symptoms.

Thiersch's procedure is ideal in old age patients who are unfit for major surgery and have irreducible rectal prolapse. This procedure is also combined with abdominal rectopexy procedures where the anal sphincter is lax. At the end of this study, here at this point of time, finally, it may be concluded that rectal prolapse is a multi-factorial disease that can present in a diverse group of populations with varied aetiological factors and associated risk factors but in the majority of cases, it is idiopathic in nature as no cause could be found. The pathogenesis can be described as, what initially is a rectal wall intussusception ultimately progresses to a well established complete rectal prolapse in due course of time. Though recto-sigmoid resection procedures are practised in many parts of the world, this seems more radical a procedure for such a benign condition as rectal prolapse. At present rectopexy procedure, either done by open method or laparoscopically may be considered the gold standard in pursuit of its high acceptability, durability and good long term results.

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