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Study on "Comparision of Primary Resection Anastomosis with Hartmanns Procedure in the Management of Acute Sigmoid Volvulus"

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ABSTRACT
BACKGROUND/INTRODUCTION:
Sigmoid volvulus is an abdominal surgical emergency in regions of the world the volvulus belt-- South America, Africa, the Middle East, India, and Russia. It causes morbidity and mortality. when sigmoid colon twists about its mesentery it results in volvulus. Majority of colonic obstruction involves sigmoid colon in 90% of cases. It can present as acute type or sub-acute type or chronic form. Surgery is the treatment in acute sigmoid volvulus. Many methods are used in the surgical management. The purpose is to STUDY the "COMPARISION OF PRIMARY RESECTION ANASTOMOSIS WITH HARTMANNS PROCEDURE IN THE MANAGEMENTACUTE SIGMOID VOLVULUS "
METHODS:
This prospective study was conducted in 60 patients, admitted in govt. Rajaji Hospital ward, Madurai Medical College,Madurai under the department of general surgery, with acute sigmoid volvulus. Then laparotomy done in 60 patients, primary resection & anastomosis were done in half-30 patients and the Hartmann's procedure in half-30patients .All patients diagnosed as sigmoid volvulus with features of intestinal obstruction are taken after excluding Patients with gangrenous bowel and Previous major abdominal surgeries Outcome of these two procedures evaluated in our hospital by using comparision of mortality, wound infection, gaping, duration of surgery, colostomy complications, and hospital stay.
RESULTS:
Primary resection and anastomosis is a single stage operation and was most suitable in all cases with uncomplicated viable bowel . It is superior to other procedures and safer with satisfactory results. Mean age at presentation is 52.9 years. Male :female ratio is 2:1 Our result showed that there is significant difference between two groups in terms of lesser hospital stay, wound infection, duration of surgery in Resection anastamosis group with significant P value < 0.05,compared to the Hartmann's procedure group. P value are as follows duration of surgery-0.03,hospital stay 0.007 and wound infection -0.04.There was no difference in wound gaping, pelvic abscess and re-surgery. So primary resection and anastomosis holds good in uncomplicated acute volvulus.

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I. Introduction

Volvulus - Defined as twisting or axial rotation of a part of bowel about its mesentery. The rotation can cause obstruction to the lumen if it is >180° torsion and also cause vascular occlusion in the mesentery if it is >360° torsion. The commonest spontaneous type in adults is sigmoid volvolus constituting two thirds of the cases of colonic volvulus. Due to lengthy mesentery with a narrow attachment, allowing the two ends of the mobile segment to come close together leading to twist around the narrow mesenteric basThe word sigmoid volvulus implies that it is torsion of sigmoid colon occurring around its mesenteric axis and is usually anticlockwiseUntreated volvolus of sigmoid at time leads to complication as follows viz gangrene and bowel perforation.Sigmoid volvulus was described by a **German, carl von Rokitansky**.

It is a important cause of closed loopintestinal obstruction obstruction in the volvolus belt.

Occurs in old age and males It occurs countries like India due to high fibre diet. In western world, it is also common in Turkey, Peru and Bolivia due to high altitude .Also seen in eastern europe and africaAetiology is multifactorial like

--Adhesions/Peridiverticulitis

--Overloaded redundant pelvic colon

--Narrow attachment of sigmoid mesocolon
--long sigmoid loop with a narrow mesentery
-- high fibre diet and chronic constipation

PRESENTATION
Acute or subacute intestinal obstruction
Abdominal distension with tympanitic abdomen
Pain abdomen
No bowel movement
Vomiting,Obstipation

The management for sigmoid volvulus till now remains controversialIt depends on the general status of the patient, viability of the gut, presence of perforation or peritonitis and the surgeon's skill. Non-resective procedures like passing flatus tube /sigmoidoscope in theatre in patients with a viable colon is done --,ie transrectal intubation as described by Brudsgaard .It has got high recurrence rates But if gangreneous volvolus, resection is necessary. The Hartmann's procedure can be done , has high stoma complications and second surgery for closure of colostomy is needed. Hence primary resection and anastomosis is a better and safe alternative for treatment of sigmoid volvulus especially nongangrenous Other treatment options include mesosigmoidopexy and endoscopic sigmoidopexy.we do not have adequate comparative information regarding morbidity, mortality and hospital stay of those patient operated for " Hartmann's procedure" with colostomy and primary resection anastamosis.In this prospective study from our institution, we aim to study only similar uncomplicated cases that underwent either resection and anastomosis or hartmann'soperation as the treatment .

AIMS AND OBJECTIVES
1.To study the surgical procedure in acute non complicated sigmoid volvolus
2.To compare primary resection anastomosis with hartmanns procedure in the management Treatment of acute sigmoid volvulus.

II. Methodology

SOURCE OF DATA: This is a prospective study comprising 60 patients of sigmoid volvolus over a period in 2019 .
In this present study, the clinical material consists of patients admitted with sigmoid volvolus in the Department of General Surgery, at Government Rajaji Hospital, Madurai.

METHOD OF COLLECTION OF DATA:
Sample size: The size of sample work is 60 cases including both elective and emergency cases.
Consents were received from Patients for inclusion in the study according to the proforma design

INCLUSION CRITERIA
- All patients diagnosed as sigmoid volvulus with features of intestinal obstruction

EXCLUSION CRITERIA
- Patients with gangrenous bowel
- Previous major abdominal surgeries

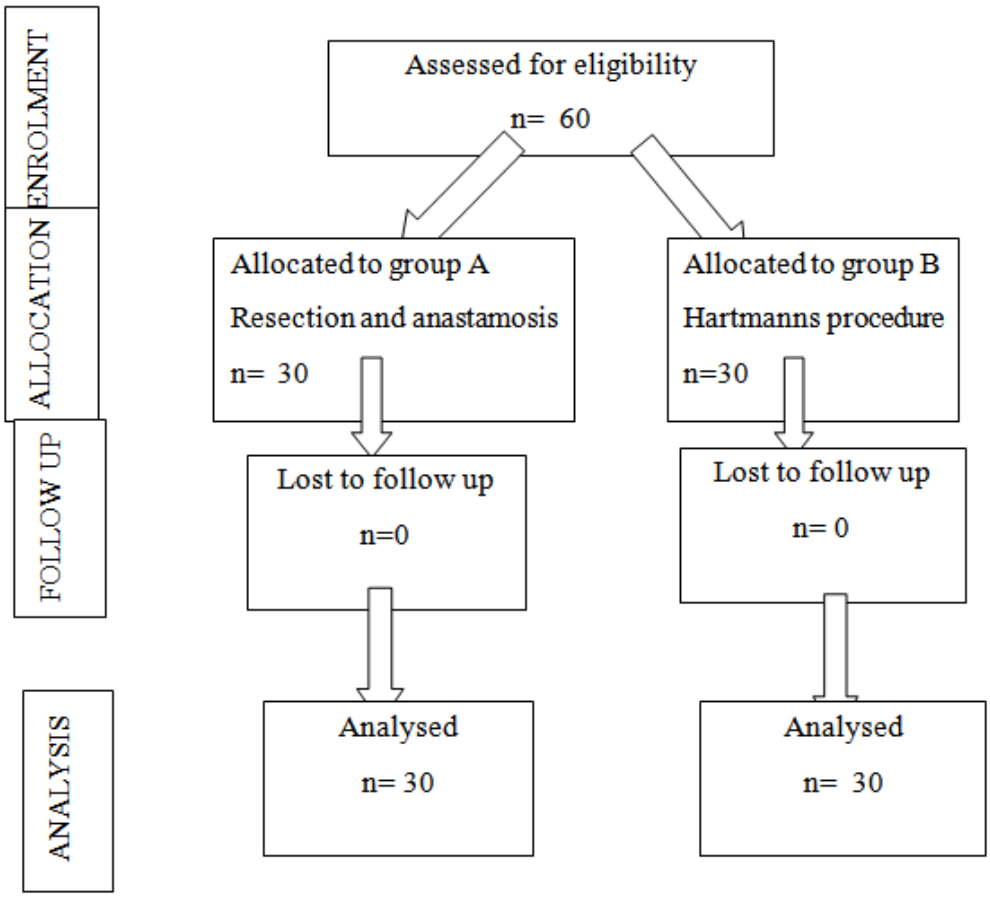
The data collected in PROFORMA that is prescribed contained particulars of the patient, his clinical history, clinical examination and diagnosis made, relevant investigations, and surgery details.

In this series thirty patient underwent resection anastamosis and thirty underwent hartmanns procedure. The patients were followed for two weeks in post-operative period, wound complication like infection, gaping, abscess, hospital stay were all recorded and compared

Ethical clearance obtained in front of ethical committee of Govt. Rajaji Hospital, Madurai medical college- Madurai, prior to conducting the study.

Statistical analysis: In this study, the results of the two groups were compared and analyzed by using Chi-square test and paired T test.

CONSORT DIAGRAM



III. Results And Observation

In this "Prospective study on comparision of resection anastamosis with haartmanns procedure in management of acute sigmoidvolvolus " conducted in Department of General Surgery at Government Rajaji Hospital, Madurai in 2019, a total of 60 patients of sigmoid volvolus who underwent laprotomy were included in this prospective study, and in two groups. 30 patients with underwent resection anastamosis (Group A) and 30patients with hartmanns procedure (Group B) were considered for the study.

PATIENTS DEMOGRAPHY

Table – 1. Age at Presentation

AGE(YEARS)	NO OF PATIENTS	PERCENTAGE	GR –A (RA) N=30	GR-B(HP) N=30
21-30	6	10.0	3(10)	3(10)
31-40	8	13.3	5(16.7)	3(10)
41-50	9	15.0	7(23.3)	2(30)
51-60	19	31.7	10(33.3)	9(30)
61-70	11	18.3	9(30)	2(6.7)
71-80	7	11.7	6(20)	1(3.3)

Mean age at presentation is 52.9 years.

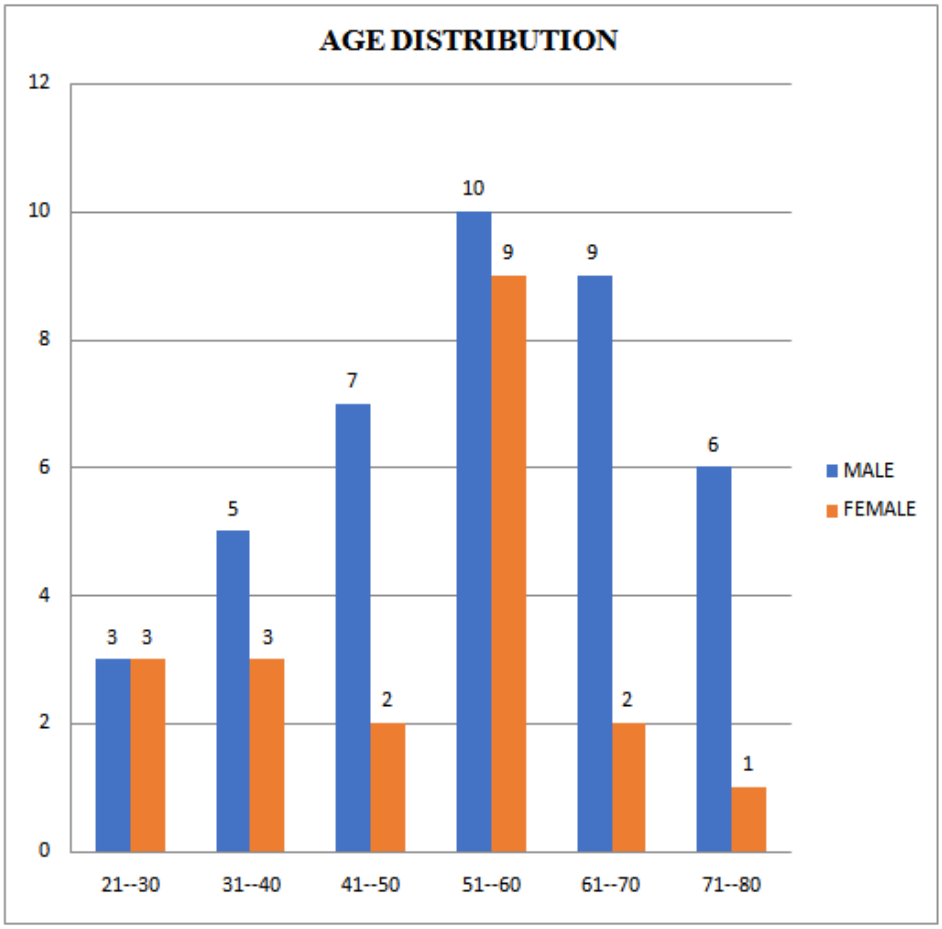
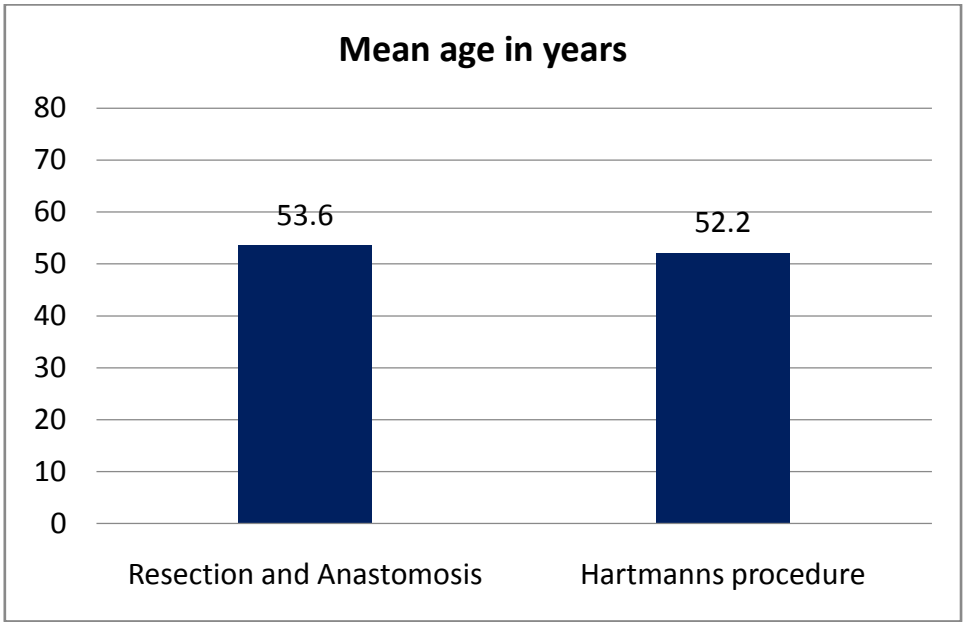


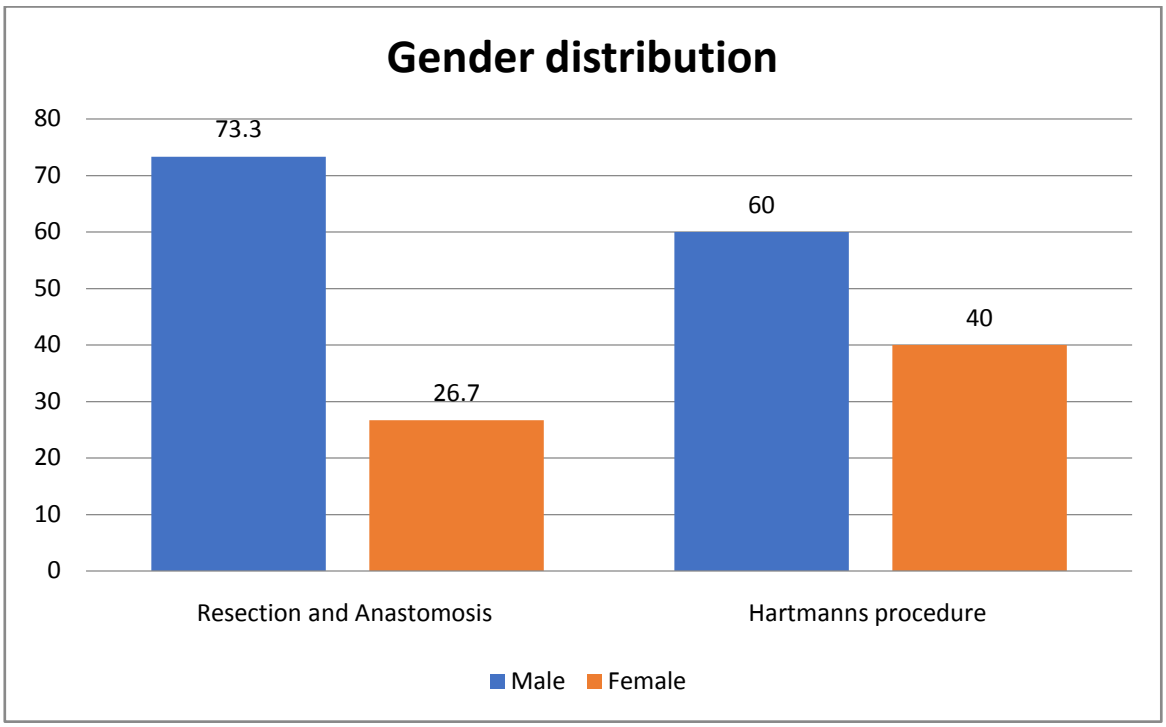
TABLE-1. AGE DISTRIBUTION

Group	Mean	SD	P value
Resection and Anastomosis	53.6	16.3	
Hartmanns procedure	52.2	12.6	**0.698**
Independent t test: P value not significant			



2. SEX DISTRIBUTION

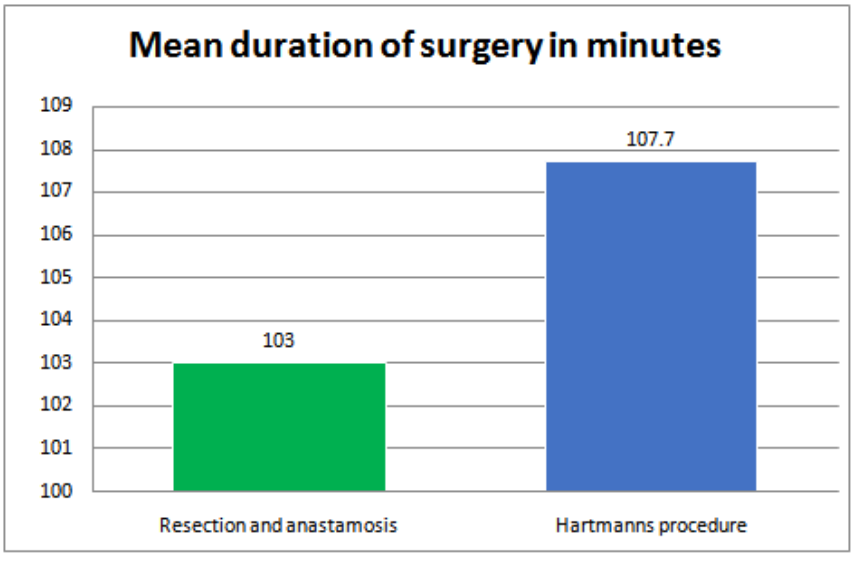
Group	Resection and Anastomosis n (%)	Hartmanns procedure n (%)	Total
Male	22 (73.3)	18 (60.0)	40
Female	8 (26.7)	12 (40.0)	20
Total	30	30	60
Chi square value=1.2 P value=0.273 (Not significant)			



Males constituted to 66.7% and females to 33.3%. Male :female ratio is 2:1

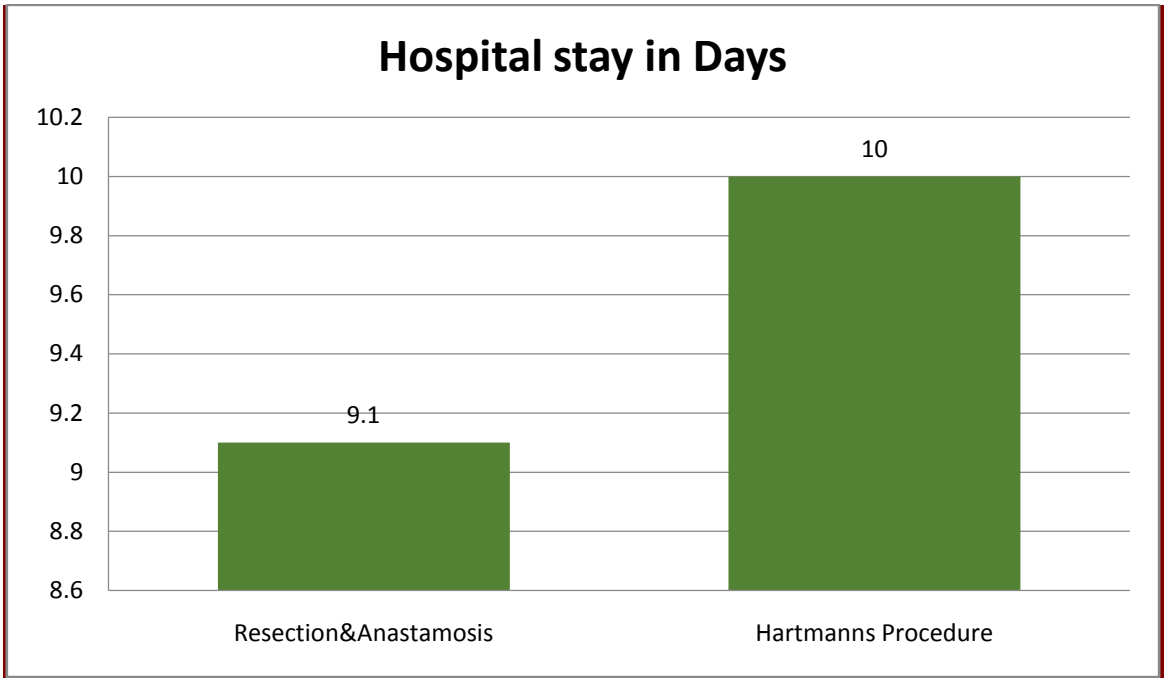
3. DURATION OF SURGERY

Group	Mean	SD	P value
Resection and Anastomosis	103.0	7.5	
Hartmanns procedure	107.7	9.0	**0.03**
Independent t test: P value 0.03- significant			



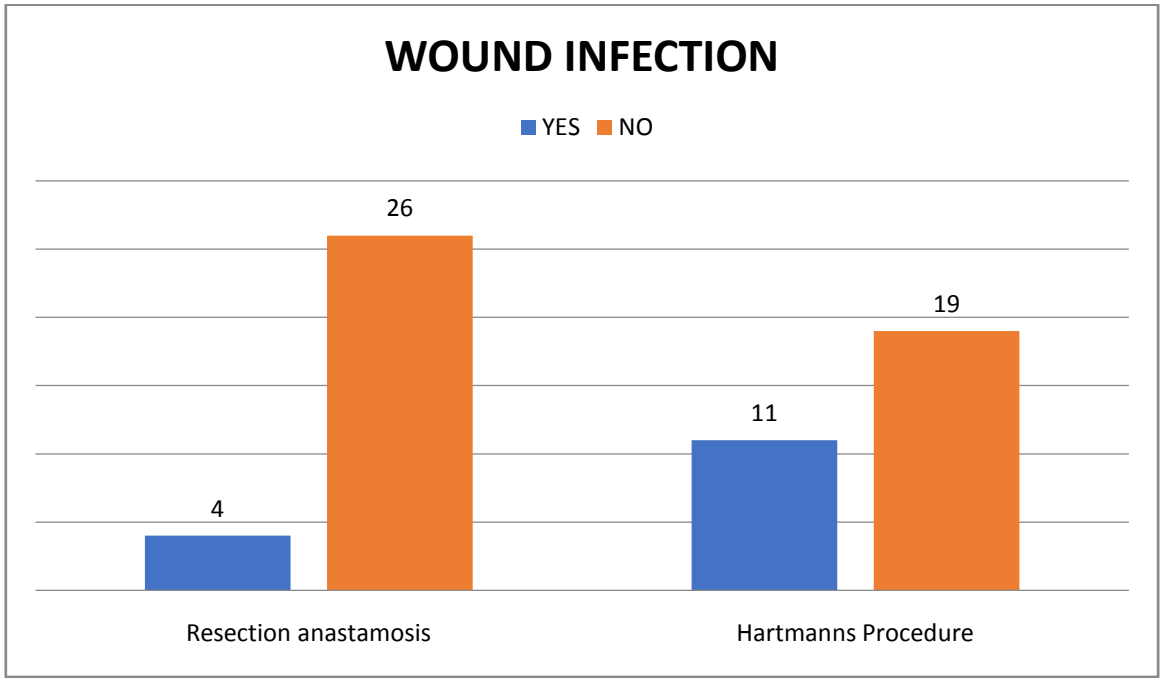
4. HOSPITAL STAY

Group	Mean	SD	P value
Resection and Anastomosis	9.1	1.1	
Hartmanns procedure	10	1.3	**0.007***
Independent t test: P value-0.007 significant			



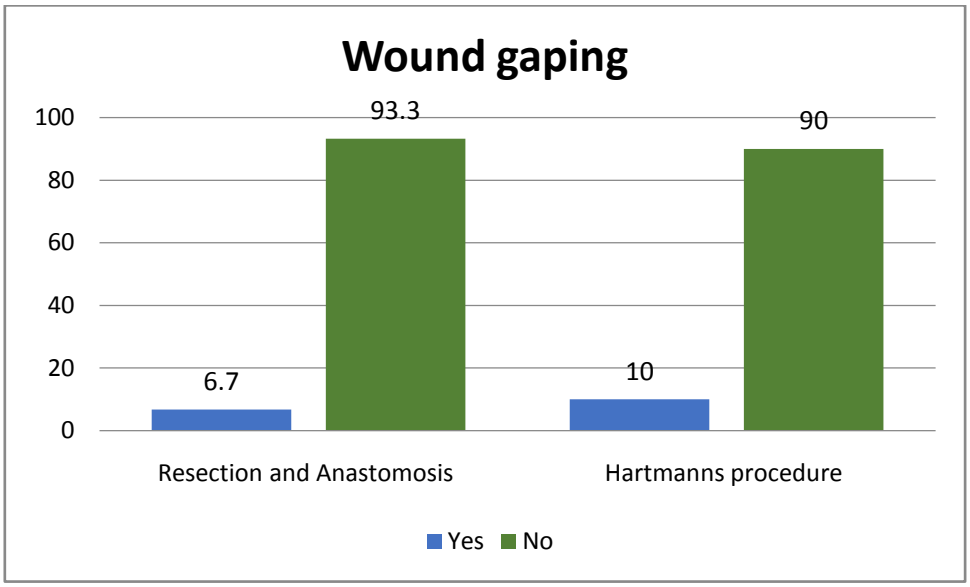
5. WOUND INFECTION

Group	Resection and Anastomosis **n (%)**	Hartmanns procedure **n (%)**	**Total**
Yes	4(13.3)	11 (36.7)	15
No	26 (86.7)	19 (63.3)	45
Total	30	30	60
Chi square value=4.4 P value=0.04 (Significant)			



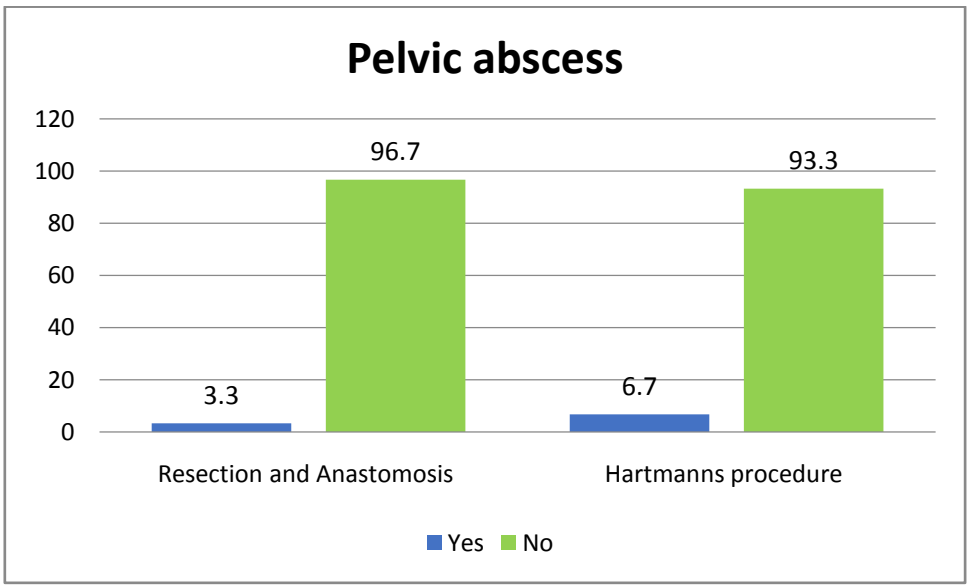
6. WOUND GAPING

Group	Resection and Anastomosis **n (%)**	Hartmanns procedure **n (%)**	**Total**
Yes	2 (6.7)	3 (10)	5
No	28 (93.3)	27 (90)	55
Total	30	30	60
Chi square value=0.22 P value=0.6 (Not significant)			



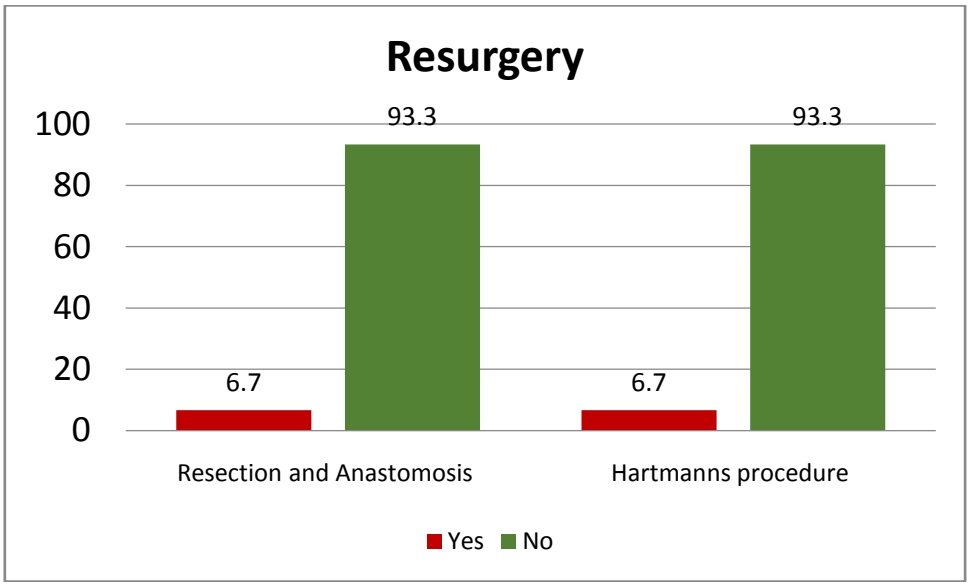
7. PELVIC ABSCESS

Group	Resection and Anastomosis **n (%)**	Hartmanns procedure **n (%)**	**Total**
Yes	1 (3.3)	2 (6.7)	3
No	29 (96.7)	28 (93.3)	57
Total	30	30	60
Chi square value=0.35 P value=0.554 (Not significant)			



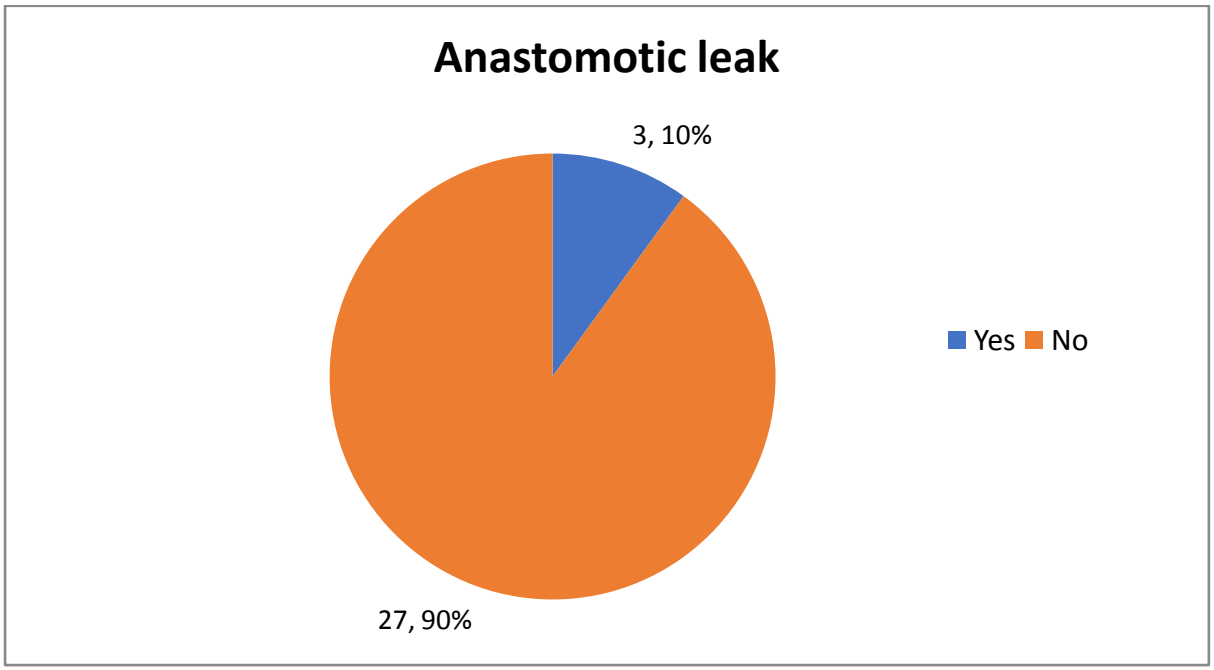
8. RESURGERY

Group	Resection and Anastomosis **n (%)**	Hartmanns procedure **n (%)**	**Total**
Yes	2 (6.7)	2 (6.7)	4
No	28 (93.3)	28 (93.3)	56
Total	30	30	60
Chi square value=0.0 P value=1.0 (Not significant)			



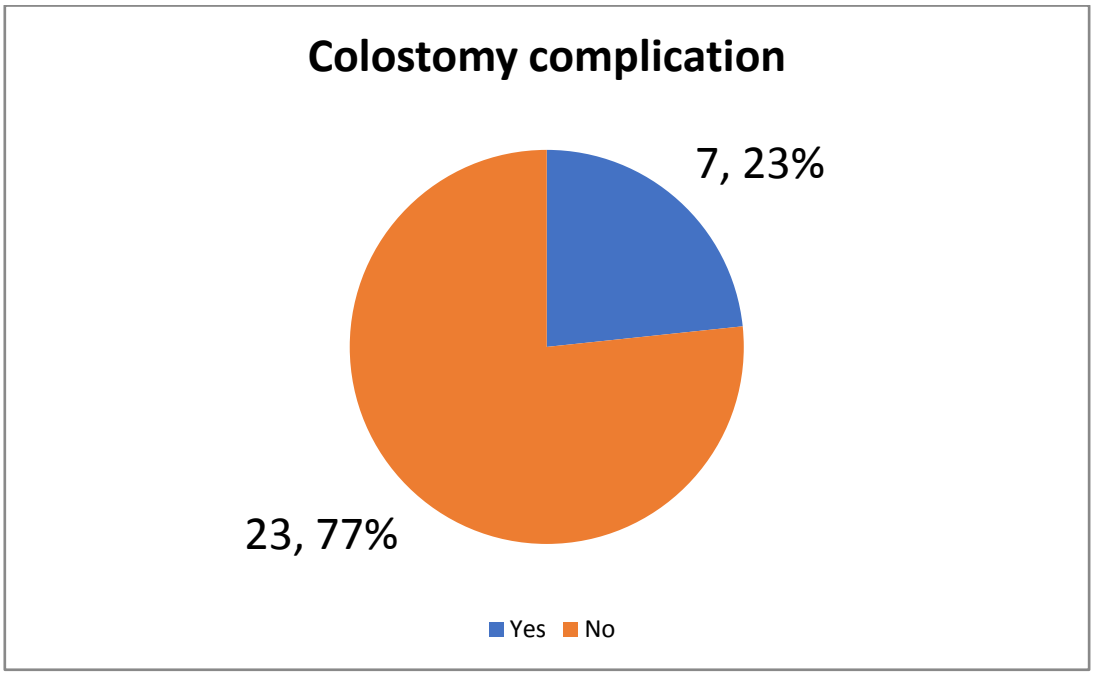
9. ANASTOMOTIC LEAK

Anastomotic leak	**Number**	**Percentage**
Yes	3	10
No	27	90



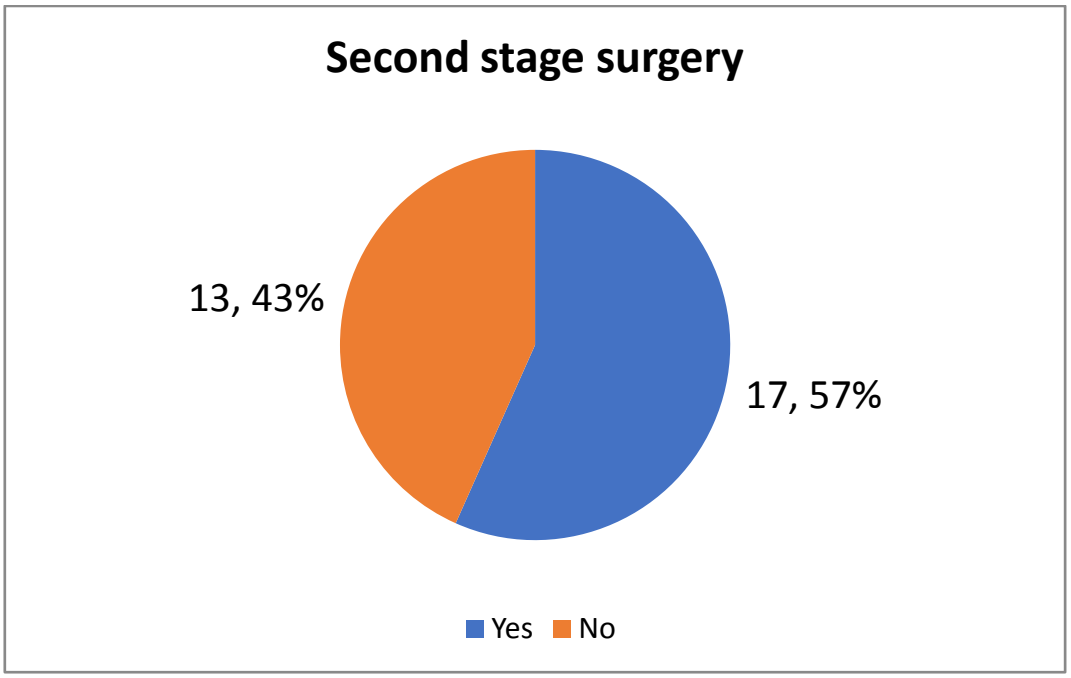
10. COLOSTOMY COMPLICATION

Complication	Number	Percentage
Yes	7	23.3
No	23	76.7



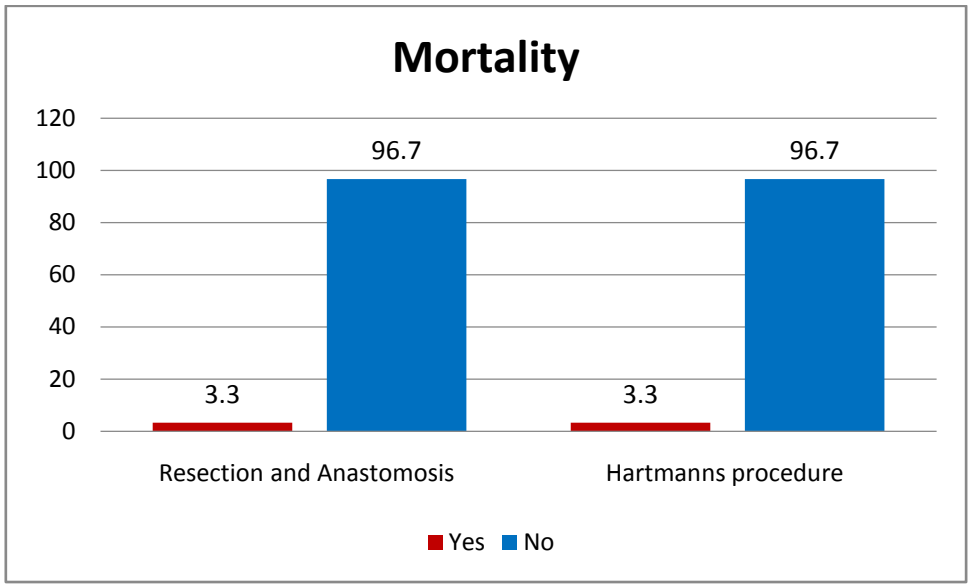
11. SECOND STAGE SURGERY

Second stage surgery	Number	Percentage
Yes	17	56.7
No	13	43.3



12. MORTALITY

Group	Resection and Anastomosis **n (%)**	Hartmanns procedure **n (%)**	**Total**
Yes	1 (3.3)	1 (3.3)	2(3.3%)
No	29 (96.7)	29 (96.7)	58.3(96.7%)
Total	30	30	60
Chi square value=0.0 P value=1.0 (Not significant)			



IV. Discussion

Acute sigmoid volvulus ranks for the third common cause in colonic obstruction . In my study conducted common age of presentation were 51-60 years. The mean age of presentation is of volvolus in our study is 52.9 years. Male to Female ratio was 2:1 in this study, Males commonly affected.

Patients presented commonly with pain abdomen, abdominal distension, vomiting, constipation, obstipation, decreased urine output initially. X-ray abdomen detected maximum cases with the findings of bent inner tube or omega sign.

Few cases underwent CT Scan for confirmation.

The aim of operation in colonic volvolus esp sigmoid is to relieve the obstruction and prevent future and further complications.

The hospital stay was less in resection anastamosis compared to hartmanns viz 9.1 and 10 days respectively

The duration of surgery in our study in resection and anastamosis is less compared to hartmanns viz 103 and 107.7 min respectively.

Resection of the sigmoid colon, with or without anastomosis can be done.

The advantages of the primary resection and anastomosis are

1.single stage surgery

2. stoma care is not needed and colostomy complications avoided

3. easy acceptablity by patients.

Disadvantages are

-proximal colon loaded with faeces

- chance of contamination

-Anastomotic leak due to poor surgical technique, infection, low anastomoses, inadequate patient nutrition, and concomitant pulmonary or cardiovascular disease

Colostomy complications

- colostomy mucosal prolapse
- colostomy retraction
- colostomy necrosis
- stenosis
- parastomal hernia
- bleeding
- skin excoriation
- psychological disturbance

- enteritis and diarrhoea

Non resection surgeries

sigmoidopexies and the other one sigmoidoplasties---high recurrence rate seen in these procedures.
Hartmann's operation —preferably done for gangrenous, or perforated bowel loops.
We performed 30 cases (50%) by opting primary resection and anastomosis in viable bowel and Hartmann's procedure is opted in (50%)30 cases.
Many studies have supported in favour of primary resection anastomosis as treatment of choice, if there are no risk of complications.
Okello et al conducted a study which showed that in risky complicated cases like gangrenous, perforated bowel cases, treatment of choice is colostomy which later on needs second stage reversal anastomosis. In uncomplicated ,nonrisky clear sigmoid volvulus primary resection and anastomosis done.
Wound gaping,pelvic abscess, resurgery were similar
In case with failure following decompression or gangrene or perforation Hartmann's procedure may be done to reduce the mortality, But all patient need to undergo a second stage anastamosis at a later date
We found that the complication like Hospital stay,Duration of surgery was low compared to other study.wound infection is common with hartmanns compared to resection and anastamosis
Anastomotic leak is a important dangerouslife threatening complication in case of primary resection and anastomosis .we found10 % in our study.
Study by De et al found it to be1.01% anastomatic leak .
Raveendhiran in his study with primary resection anastamosis it was 10%
There is no difference of outcome in study conducted by Okello et al and Akcan et al as per stastistics .
Funding: No funds
Conflict of interest: None/nil
Ethical approval: The study approval was obtained from the ethical committee ,Rajaji hospital -Madurai Medical college, madurai.

V. Summary

STUDY ON "COMPARISIONOF PRIMARY RESECTION AND ANASTOMOSIS WITH HARTMANNS PROCEDURE IN THE MANAGEMENT ACUTE SIGMOID VOLVULUS " Conducted in department of general surgery at government rajaji hospital,Madurai medical college Madurai from march 2019 to august 2019.

Data collected in a prescribed proforma, analyzed and evaluated in terms of hospital stay ,duration of surgery,wound infection,gaping pelvic abscess,and the need for staged surgery. Sample size was 60 in two groups, group A - 30 (Resection anastamosis) and group B – 30 (Hartmanns procedure). All 60 completed study . Mean age 52.9 years years .Males 2/3rd and females 1/3rd.

There was statistically significant difference in terms of hospital stay,duration of surgery,wound infection-lesser in resection anastamosis than hartmanns,with p value <0.05.

PARAMETER	GROUP A-(RA)	GROUP B-(HP)	P VALUE
HOSPITAL STAY	9.1	10.0	0.005
DURATION OF SURGERY	103	107.7	0.03
WOUND INFECTION	4(13.3%)	11(36.7%)	0.04
WOUND GAPING	2(6.7%)	3(10%)	0.6
PELVIC ABSCESS	1(3.3%)	2(6.7%)	0.554
COLOSTOMY COMPLICATIONS	NA	7(23.3%)	NA
RESURGERY	2(6.7%)	2(6.7%)	1.0
ANASTAMOTIC LEAK	3(10%)	NA	NA

wound gaping,pelvic abscess, resurgery percentage were equal in both the groups. Second stage surgery was need for almost of patients who undergone hartmanns procedure.

VI. Conclusion

- The mean age of presentation was 51-60 years
- Male cases common than female cases -ratio of 2:1.
- Diagnosis was confirmed based on clinical features and also by X-Ray of abdomen.
- Primary resection and anastomosis is a single stage operation and was most suitable in all cases with uncomplicated viable bowel . It is superior to other procedures and safer with satisfactory results.
- Our result showed that there is significant difference between two groups in terms of lesser hospital stay,Duration of surgery,wound infection in primary resection anastamosis group compared to the Hartmann's procedure group.

- So primary resection anastomosis is good ,safe in non gangrenous,non perforated uncomplicated acute volvulus.
- In complicated volvulus where there is gangrene, perforation, peritonitis and with poor general conditions or unstable vitals Hartmann's procedure may be opted and done . But all patient need to undergo a second stage anastamosis at a later date

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