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ORIGINAL ARTICLE

COMPARATIVE STUDY BETWEEN TWO DIFFERENT TECHNIQUES OF PEPTIC ULCER PERFORATION CLOSURE

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ABSTRACT: INTRODUCTION: Peptic ulcer perforation is one of most serious and overwhelming catastrophic event that is affecting the human being. Inspite of better understanding of the disease, effective resuscitation and prompt surgery under modern anaesthetic techniques there is high morbidity and mortality. Hence attempt has been made to analyse the outcomes of various surgical techniques of closure of peptic perforation. **MATERIALS AND METHODS:** At Referral centre 121 patients with prepyloric perforation were studied in between the duration of April 2012 to March 2015. Two different techniques, Grahams patch omentopexy and figure of "8" stitches were performed on these patients. Demography, symptomatology, general conditions of patients, site, size, type of operations, post-operative complications and outcome of patients after the surgery were studied. **OBSERVATIONS:** Grahams patch was used in majority of patients (85) with oral feeding started on post-operative 5th day and discharged on 9th day while figure of 8 stitch was used in 36 Case of perforations sized <.5cm and oral feeding started on 4th day and discharged on 8th day. **SUMMARY:** Through the study we can conclude that figure of 8 stitch is a better technique than grahams patch for closure of prepyloric perforation when used for small sized perforation with earlier post op feeding and discharge rates.

KEYWORDS: Omental patch, peptic ulcer perforation, peritonitis.

INTRODUCTION: Peptic ulcer perforation is one of the most common and catastrophic maladies that affect the mankind. Prompt recognition of the condition is important and by early diagnosis and treatment it is possible to reduce the morbidity and mortality of this condition. When acute or chronic ulcer perforates into the peritoneal cavity three components require treatment ulcer perforation and resultant peritonitis.[1] The perforation and resultant peritonitis are the immediate threat to life and ulcer itself is not. Therapeutic priorities are hence the treatment of peritonitis and securing the closure of perforation which may be achieved through surgical procedure. Inspite of better understanding of the disease effective resuscitation techniques and prompt surgery under modern anaesthetic techniques there is high morbidity and mortality. The aim of this study is to analyse the multiple factors causing peptic ulcer and its perforation and outcome of surgical techniques of closure of peptic perforation.

MATERIALS AND METHODS: A study of 121 patients admitted with perforations at K.T.S. General Hospital Gondia were studied from April 2012 to March 2015. Detailed history of patients including demographic details symptomatology predisposing factors, were recorded among patients who presented to the casualty with symptoms and signs of perforation peritonitis.

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Inclusion Criteria:

1. Perforation due to peptic ulcer.
2. Recurrent peptic perforation.
3. Perforation of any size.
4. Including all ages and sexes.

Exclusion Criteria:

1. Perforation due to malignancy.
2. Perforation due to trauma.
3. Perforation due to iatrogenic injury.
4. Peptic perforation due to meckel's diverticulum.

After taking detailed history and thorough examination of the patient, haematological and radiological investigations were done, when x-ray erect abdomen was done and there was no gas under diaphragm non-contrast CT abdomen was done to see free extra-luminal air foci in abdomen. The patient and relatives were informed about the surgical procedure and consent was taken. Spinal anaesthesia was used in all cases. Upper Rt. Paramedian incision was taken. Abdomen was opened contaminated peritoneal fluid collected and sucked out the perforation was searched and closure done by either of the two methods. Drain was kept in every case and other viscera were checked before closure of abdomen.

Techniques used for Closure: Grahams patch (Omentopexy): was used for perforation of all sizes of perforation in which perforation was closed using atraumatic silk and then live omentum kept over it and sutured to duodenum or gastric wall and then drain kept in subhepatic space.[2] Patients who were elderly, reported late and with poor nutritional status and shock were included in this category.

Figure of eight: New method of closure of peptic perforation first described by SP Gupta in Rajasthan.[3] This method was used in our study exclusively for peptic perforation sized 0.5cm with early presentation and drain was kept in subhepatic space in every case.

Postoperatively proton pump inhibitors IV fluids and broad spectrum antibiotics were administered. Patients were studied with respect to post- operative complications such as wound complications, pleural effusion, lung consolidation or biliary leak and managed accordingly. Oral feed starting day, duration of hospital stay and outcome for each patient were recorded. Postoperatively patients were discharged on H. pylori eradication kit,[4] for 7 days and proton pump inhibitors for 3 months.[5] Patients were followed up for 3 months for recurrence of ulcer in order to know the effectiveness of the surgery.

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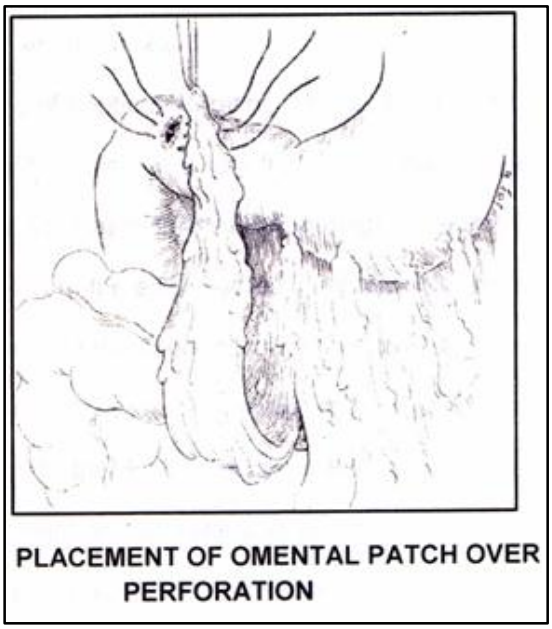
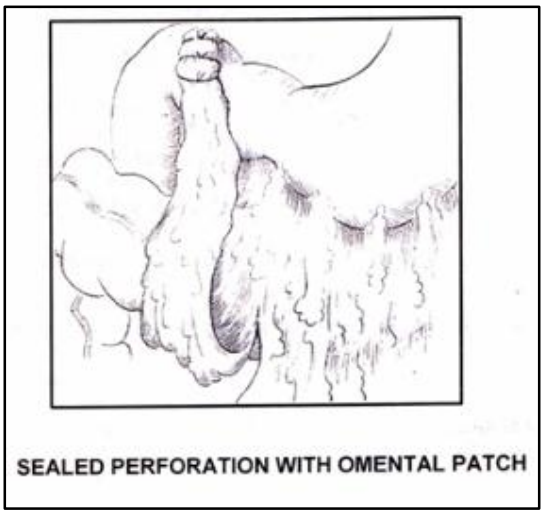


PLACEMENT OF OMENTAL PATCH OVER PERFORATION



SEALED PERFORATION WITH OMENTAL PATCH

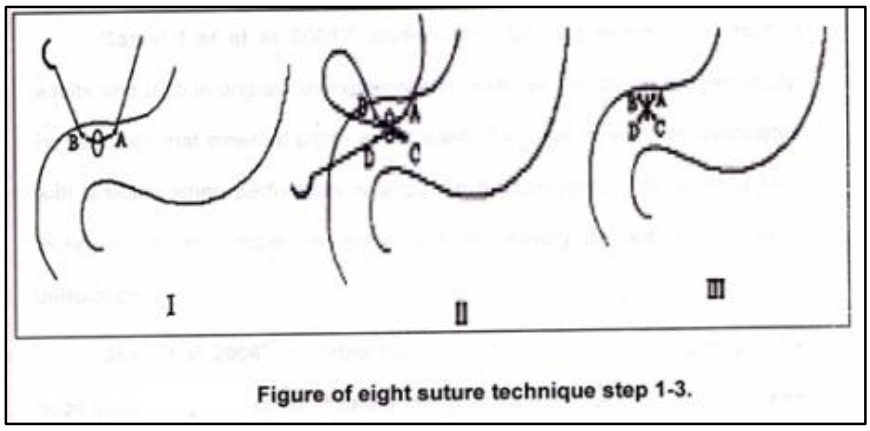


Figure of eight suture technique step 1-3.

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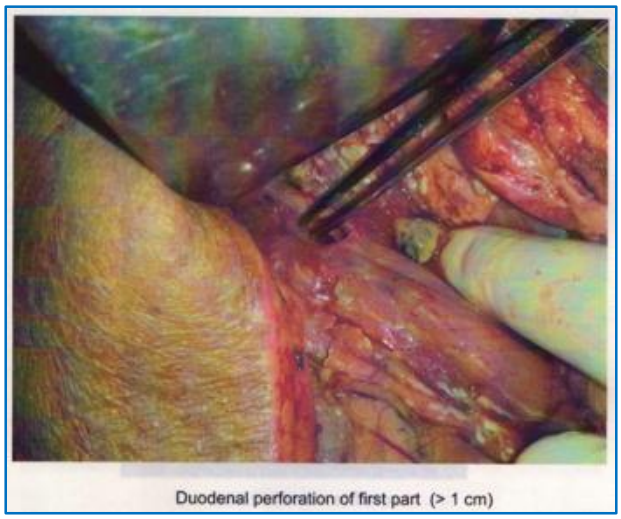
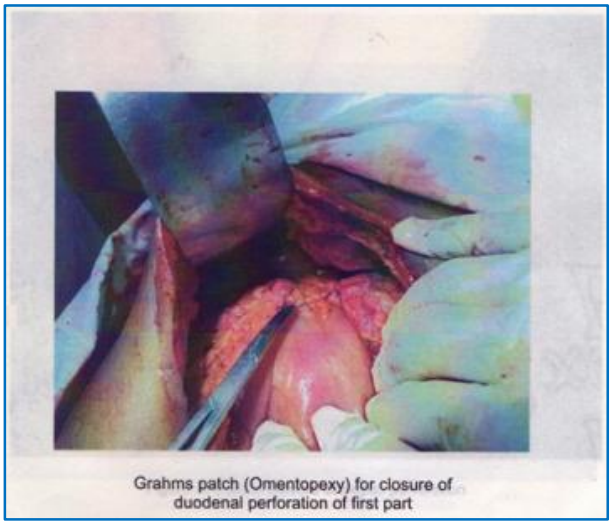


Duodenal perforation of first part (> 1 cm)



Grahms patch (Omentopexy) for closure of duodenal perforation of first part

Duodenal perforation of first part

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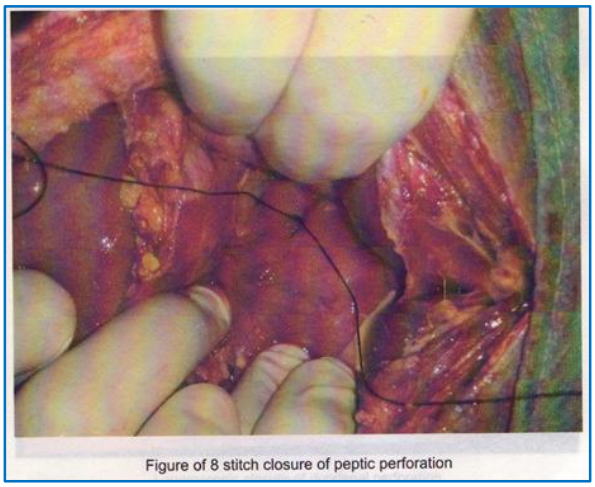

Figure of 8 stitch closure of peptic perforation

OBSERVATIONS:

AGE in years	No. of cases	Percentage of cases
11-20	7	5.78
21-30	22	18.18
31-40	26	21.48
41-50	27	22.31
51-60	19	15.70
>60	20	16.52
Total	**121**	**100**

Table 1: Age Distribution

The peak age of incidence was seen in the age group of 31-50 yrs.

Sex	No. of cases	Percentage of cases
Male	111	91.73
Female	10	8.26
Total	**121**	**100**

Table 2: Sex Distribution

The perforations were found to be more common in males with male female ratio 9:1,

Symptoms	No. of cases	Percentage
Pain	121	100
Vomiting	80	66.11
Distension	101	83.47
Fever	35	28.92

Table 3: Symptomatology

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Duration of Symptoms	No. of cases	Percentage
06-24 HRS	31	25.61
24-48HRS	62	51.23
>48 HRS	28	23.14
TOTAL	**121**	**100**

Table 4: Time of Presentation

Half of the patients came to the emergency dept. 24-48 hours of symptoms.

Predisposing Factors	No. of cases	Percentage
Smoking / Chewing Tobaco	77	63.63
Alcohol	65	53.71
Nsaids	23	19.00
H/o peptic ulcer	47	38.84

Table 5: Predisposing factors

Investigations	Findings	No. of cases
X-ray Abdomen Erect	Gas under diaphragm	119
Non-contrast CT abdomen	Pneumoperitoneum	2

Table 6: Investigation of Choice

In 2 out of 121 cases CT scan was performed to diagnose perforation.

Site of Ulceration	No. of cases	Percentage
Duodenum	109	90.08
Gastric	12	9.91

Table 7: Site of Ulceration

Ratio of duodenal to gastric ulcer is 9: 1

Size of Perforation	No. of cases	Percentage
<0.5 CM	65	53.71
0.6-1CM	47	38.84
>1CM	9	7.43

Table 8: Size of Perforation

Majority of the ulcers 53.71% were sized less than .5cm in size.

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Operative Techniques	Size of perforation			No. of cases
	<.5CM	.6-1CM	>1CM	
Grahams patch	29	47	9	85
Figure of 8 stitch	36		-	36
TOTAL	**65**	**47**	**9**	**121**

Table 9: Surgical Technique

Grahams patch was used in 85 cases with all sizes of perforations while figure of 8 stitch was used in 36 patients with size <.5cm.

Post-Operative Factors			
Operative Techniques	Mean Post-operative days		
	Oral Feeding Started day	Ryle's Tube Removal day	Hospital Stay in days
Grahams patch	5.2	4.18	9
Figure of 8 stitch	4.3	3.25	8

Table 10: Post-Operative Recovery Rate

Grahams patch technique had longer post-operative recovery than figure of 8 technique.

Operative Techniques	Complications			Death
	Wound Complications	Lung Complications	Biliary Fistula	
Grahams patch	22(25.88%)	15(17.64)	-	1(1.17%)
Figure of 8 stitch	9(25%)	2(5.55)	-	-
Total	**31**	**17**	**-**	**1**

Table 11: Complication rates in various surgical techniques

Figure of 8 technique was associated with lower incidence of post-operative complications like wound complications, respiratory complications and biliary fistula compared to Grahams patch.

CONCLUSION: It has been understood from this study that peptic perforation is most commonly seen in the age group of 40-50 yrs. Majority of the patients belong to rural areas with low socioeconomic status, with smoking (63.63%) and alcohol (53.71%) being significant risk factors in causation of peptic ulcers . X-ray abdomen erect is the investigation of choice in diagnosing the perforation of peptic ulcer while non-contrast CT scan is used only in patients where there was strong suspicion yet there was no air under diaphragm . Two surgical techniques were employed to close the perforation. The operative time was relatively less in cases with figure of 8 stitch. Patients with grahams patch technique were started on oral feeds on 5th day while those with figure of 8 stitch done were started on 4th day. Patients with Graham's patch were discharged on 9th day while those with figure of 8 stitch done were discharged on 8th day. Post operatively biliary leak was not seen in any patient of grahams

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patch or among figure of 8 stitch patients. Morbidity and mortality was less in figure of 8 stitch technique compared to Graham's patch.

In this study it can be concluded that figure of 8 stitch techniques was a better alternative than Grahams patch in terms of faster post-operative recovery and lesser rate of complications, especially in cases with smaller size perforation.

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