

## A Comparative Study between Figure of Eight Suturing Technique and Omentopexy in Closure of Peptic Ulcer Perforation in a Rural Medical College of Karnataka

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### How to cite this article:

C.S.Hanumanthaiah. A Comparative Study between Figure of Eight Suturing Technique and Omentopexy in Closure of Peptic Ulcer Perforation in a Rural Medical College of Karnataka. New Indian J Surg. 2019;10(1):31-34.

### Abstract

**Background:** Figure of 8 techniques has been described in the literature for peptic ulcer perforation repair especially when the patient comes late, when the edges of the ulcer and the wall of duodenum are very friable. **Methods:** Sixty patients included in the study at AIMS, B G Nagar, Bellur Cross were divided into two groups after randomization. Study group, patients underwent figure of eight suturing technique and Control group, patients underwent Graham's technique of omentopexy for peptic ulcer perforation. **Results:** The mean age of the study group was 48.7+7.56 Years and 49.6+8.69 years among the control group. In the Study group nearly 29 (96.6%) male and 1 (3.3%) female. Among the Control group 27(90%) males and 3 (10%) Females were included in the study. The Mean APACHE II score in the study group was 3.8+ 1.8 and in the control group it was 3.6+ 1.3 with p value found to be statistically not significant between the groups. The mean operative time in the control group was 76.65 min in study group and 73.58 min in control group. Bile Leak was in 2 (6.6%) in study group and 1 (3.3%) in control group. Septicemia was seen in 6.6% in study group and 10% in Control group. The commencement of oral Feed was started after 5.5 days in study group and 5.13 days in control group. The Mean hospital stay was 12.6 days in both the study and control group. **Conclusions:** The present study is non-inferior than omentopexy in terms of

post-operative complications. It can be used as a safe alternative to omentopexy especially when the patient comes late.

**Keywords:** Peptic ulcer perforation; Figure of eight suturing technique; Omentopexy; APACHE.

### Introduction

One of the major common complication of Peptic ulcer disease is the Duodenal ulcer perforation [1]. Even in the recent years constant and precise use of the drugs against H pylori and various anti-ulcer agents the incidence of peptic ulcer has not come down drastically in most of the countries.

The most common causes of peptic ulcer disease are due to the infection of H Pylori organisms, usage of drugs like NSAIDs for years, intake of Alcohol for many years along with the cigarette smoking, consumption of foods which are spicy, smoky. Peptic Ulcer is also seen most commonly among the persons with Type A personality [2,3].

The peptic ulcer disease leads to one of the most common complication is perforation of the ulcer in the duodenal part. Duodenal part and lesser curvature of stomach are the most common sites of perforation seen among the patients [4].

The treatment of peptic ulcer perforation is a case of emergency, where active and proper intervention is needed to avoid the further complication of perforation.

If the perforation is not treated surgically in time, the ulcer perforates in the abdominal cavity and leading to peritonitis. All the cases of Peptic Ulcer

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**Received on** 23 | 10 | 2018, **Accepted on** 14 | 11 | 2018

Perforation need to treated surgically by closure of the perforation, treating the ulcer and even the treatment of peritonitis [5].

Omentopexy is the most common method of treatment of peptic ulcer perforation among the cases which report to the hospital at the earliest. The other modality of the treatment is the figure of 8 technique done when the patient comes to hospital after more than 24 hours of perforation and the edges of the ulcer are very friable [6].

### *Objective*

To study to compare the safety of figure of eight suturing with Omentopexy in the treatment of peptic ulcer perforation.

### **Methodology**

A Hospital based comparative study was carried out at AIMS, B G Nagar, Bellur Cross from October 2015 to June 2018. A total of Sixty Patients were included in the study. The study subjects were divided into two groups based on the randomization technique. Study Group underwent figure of eight suturing techniques for peptic ulcer perforation and control Group underwent Grahams Technique of Omentopexy for the peptic ulcer perforation.

#### *Inclusion criteria*

1. All patients of Peptic perforation between 2-60 years of age.
2. Size of perforation  $\leq$  2 cm.
3. APACHE II score 1-10.

#### *Exclusion criteria*

1. Patients with other Intra-abdominal organpathology.
2. Patient not fit enough to with stand surgery (advance cardiacdisease).

Data on patients' profile was collected which included age, sex, socio-economic status, risk factors (smoking, alcohol, tobacco chewing, use of ulcer genic drugs and history of acid peptic disease), symptoms, signs, chest X- ray findings, USG abdomen findings, day of presentation, presence of shock at presentation, chest condition, laboratory investigations (Hemoglobin concentration) and pre-operative APACHE II score.

Graham's technique of omentopexy was performed by closing the perforation by placing

interrupted full - thickness 2-0 vicry sutures along the margins of the ulcer, leaving the ends sufficiently long, so that viable omental patch can be securely placed over the perforation. The sutures were tied drawing the patch into the perforation. In the figure of '8' suturing technique, suture was applied a bit away from edges and a figure of 8 was made as follows. Needle was inserted proximal to the perforation (Point A) and brought out through the perforation, it was then reintroduced into the perforation and bought out at a point (Point B) distal to the perforation. The needle was then inserted below the first point of entry proximal to the perforation site (Point C) and brought out at Point D in the same manner. The suture was then tied making figure of '8'. Care was taken to keep the knot in the middle. The closed ulcer was covered by omentum and sutures were applied to the stomach and the duodenum wall to fix the omentum to cover the ulcer area. A tube drain was put inside the peritoneal cavity at the hepatorenal pouch through a separate stab incision in the right flank after a through abdominal lavage with warm saline in allcases [7,8].

### **Results**

Out of the total 60 cases included in our study were analyzed.

#### *Socio Demographic Profile:*

The mean age of the study group was  $48.7 \pm 7.56$  Years and  $49.6 \pm 8.69$  years among the control group. The age was found to be statistically not Significant. The gender distribution in the study group and control group was also found to be statistically not significant. In the Study group nearly 29 (96.6%) male and 1 (3.3%) female. Among the Control group 27 (90%) males and 3 (10%) Females were included in the study.

The socio economic class of the majority of the study participants in both the control and study group were from lower socioeconomic class. In the study group 28 (93.3%) were from lower socio economic class and 27 (90%) in the control group were from lower socioeconomic class. The socioeconomic class was also found to statistically not significant between the two groups.

Majority of the risk factors seen were common in both the groups. Smoking and Alcohol was the major risk factors seen among both the groups. Other than these risk factors usage of NSAIDs Drugs and the food Habbits were other risk factors.

**Clinical Features:**

Nearly 25 (83.3%) of the patients presented to the hospital within the first 24 hours of the onset of symptoms and 26 (86.6%) presented in the next 48 hours. Remaining 9 (30%) presented on the third day of onset of symptoms. The Mean day of Presentation in our study was  $2.95 \pm 0.8$  days in Study group and  $2.36 \pm 1.1$  Years in the control group. There was no statistically significant in the days of presentation between the groups.

All the study participants presented with localized Abdominal Pain in the Right Hypochondria region. In the study group 15 (50%) cases presented with distension, 5 (16.6%) with fever along with pain. In the control group 20 (66.6%) cases presented with distension and 9 (30%) with fever.

Rebound tenderness was seen among all the cases in both the study and control group. Nearly 28 (86.6%) in study group and 27 (90%) in control group presented with both Guarding and rigidity.

The mean hemoglobin Level in our study group was  $10.9 \pm 2.5$  and in the control group was  $11.2 \pm 1.6$  gms/dl and it was also found to be statistically not significant. Nearly 92.5% of the study participants was Haemoglobin between 10-13 gm/dl.

The Mean APACHE II score in the study group was  $3.8 \pm 1.8$  and in the control group it was  $3.6 \pm 1.3$  with p value found to be statistically not significant between the groups.

**Table 1:** Outcome variables in both the group

Outcomes	Study group n=30 (%)	Control group n=30 (%)
Mean operative time	76.65 min	73.58 min
Bile leak	2 (6.6%)	1 (3.3%)
Septicemia	2 (6.6%)	3 (10%)
Intra-abdominal abscess	2 (6.6%)	2 (6.6%)
Wound infections	1 (3.3%)	3 (10%)
Burst abdomen	0	0
Lung complications	0	0
Post-operative mortality	0	0
Commencement of oral feed (mean day)	5.5 days	5.133 days
Mean hospital stay	12.6 days	12.6 days

The mean operative time in the control group was 76.65 min in study group and 73.58 min in control group. Bile Leak was in 2 (6.6%) in study group and 1 (3.3%) in control group. Septicemia was seen in 6.6% in study group and 10% in Control group. Intra abdominal Abscess was seen in 2 (6.6%) in both the groups. 1 (3.3%) in study group and 3 (10%) in control group presented with wound infections. The commencement of oral Feed was started after 5.5 days in study group and 5.13 days in control group. The Mean hospital stay was 12.6 days in both the study and control group.

**Discussion**

The age group in our study which was affected by peptic ulcer was similar to the age groups seen in other studies done by Khalil A R et al. [9] and Thomas et al. [10] There was shift of age pattern in the incidence of peptic ulcer towards the older age group is seen in many parts of the world [11] due to changes in the lifestyle and other factors.

The percentage of males affected with peptic ulcer was more among males in our study than females. This variation in the gender is contributed due to various cultural practices and food habits in different parts of the world. The incidence of perforation more among male in our study was in contrast to study findings of Haleem M Taj et al. [12] and Khalil A R et al. [9]. Vinmal Bhandari et al. [11] study also showed similar results to our study in the incidence of perforation among male.

The incidence of the perforation is commonly seen in the lower socioeconomic group throughout the world, it was noted by Thomas et al. [10] that since 1959 the incidence of peptic ulcer and perforation is more frequently seen in the lower socioeconomic group.

The risk factors like smoking and alcohol consumption seen in our study was also seen in the study done by Svanes C [13].

The clinical signs and symptoms of the peptic ulcer perforation like Pain tenderness guarding and distension was seen in all the cases of the perforation in the studies done Gujar N et al. [14] and Druat M L et al. [15]. Testini [16] in his study reported that few patients presented with shock during the time of admission and mortality was high among such cases, whereas in our study the mortality was nil due to proper and timely active intervention in the management of shock and low APACHE II Score.

This study included the patients who had APACHE II score between 1 to 10 at the time of admission. The overall mean APACHE II score in our study was similar to the study findings of the Vinmal Bhandari et al. [11].

The mean operative time in both the procedure was almost same in our study and the time was also found to be statistically not significant. in the other studies done by Vinaml Bhandari et al. [11].

The post-operative complication seen in both the procedure in our study were the commonest complication seen in any surgical intervention. Vinamal B [11] and Kocher B et al. [17] also found similar complication like our study findings.

The mean days of starting oral feeding in both the groups was almost similar showing that both the procedure was acceptable by all the patients. The time of starting oral feeding in our study was little higher than the study done by Mukhopadhy M et al. [18] and Vinamal B et al. [11].

The mean duration of Hospital stay in our study in both the groups was much higher when compared to the hospital stays in the studies done by Hallem Taj M et al. [12], Vinamal B et al. [11]. Our hospital being set up in the rural areas the patients who are admitted are usually moderate to heavy workers and would assume the work soon after discharge and would end up with complications. Hence the hospital duration days was extended in our study and complete rest was given to them in the hospital only.

### Conclusion

In our study we found that both the procedures used in the treatment of the peptic ulcer perforation is equally efficient in terms of effectiveness and outcome of the treatment. The procedure can be used as a safe alternative to the omentopexy procedure. As with figure of eight suturing technique, lesser tendency to cut through because the pressure at one point is divided into two directions, and the pressure is exerted on four points instead of two points. So, the procedure can be recommended as a safer alternative to omentopexy for perforated peptic ulcer especially when the patient presents late to the hospital, where the edges of the ulcer and walls of the duodenum are very friable.

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