



**ORIGINAL RESEARCH PAPER**

**General Surgery**

**STUDY OF DIFFERENT SURGICAL OPTIONS IN CLOSURE OF GIANT DUODENAL ULCER PERFORATIONS**

**KEY WORDS:** Duodenal ulcer perforations

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**Background-**

Duodenal ulcer perforations are a common cause of peritonitis. The classic pedicled omental patch that is performed for plugging these was first described by Cellan-Jones in 1929, although it is commonly and wrongly attributed to Graham who described the use of a free graft of the omentum<sup>[1]</sup>. In this procedure, a strand of omentum is drawn over the perforation and held in place by full thickness sutures placed on either side of the perforation which has become the 'gold standard' treatment. But, occasionally we come across large perforations of duodenal ulcers in which there is the threat of post-operative leakage following closure by this simple method. Here, other surgical options like partial gastrectomy, jejunalserosal patch, gastrojejunostomy or even gastric disconnection may be necessary for a secure closure<sup>[2]</sup>.

Little data is available in literature regarding the definition, incidence and the management of large perforations of duodenal ulcers.

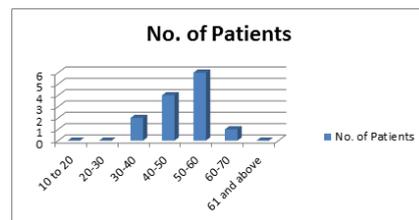
**Methods-**

A retrospective study was carried out on 13 patients diagnosed to be having giant duodenal ulcer perforations (size more than 2 cm) of all age group attending the surgery out-patient department or emergency department in Krishna Hospital between November 2017 to November 2019. All the patients were thoroughly examined, investigated and analysed for the demographic features, previous history of peptic ulcer disease or symptoms of acid peptic disease, site and size of perforation, operative procedure done as a part of treatment, post-operative stay and complications and outcome. Routine work-up for all the cases included haemoglobin, total count, differential count, random blood sugar level, RFT, lipid profile, radiograph of the chest and abdomen, culture and sensitivity of peritoneal aspirate. All the patients were resuscitated and taken up for exploratory laparotomy. Diabetic patients were managed by diet control and short and long acting insulin as per requirement. Hypertensive patients were managed by salt restriction, anti-hypertensives of different classes as per requirement. Patients developing septicaemia and ARDS were managed in ICU with the help of dedicated intensivists.

**Observations and Discussion-**

1. Distribution of cases as per the age:

Age in years	No. Of cases	Percentage
0-10	-	-
11-20	-	-
21-30	02	15.3%
31-40	04	30.7%
41-50	06	46.1%
51-60	01	7%
61 and above	-	-



Most of the cases observed between 41-50 years age group. Up to 1940 about 75% cases occurred in the third to fifth decade age group.

**2. Sex ratio:**

Males are affected more than females, to an extent of 76%.

	No. Of patients	Percentage
Male	12	92.3%
Female	1	0.76%

Only one patient among the 13 study subjects was female.

**3. Occupation:**

No predilection towards any particular occupation was observed but most of the patients belonged to the lower socio-economic group.

**4. Previous history of peptic ulceration:**

9 patients (69.2%) gave history of previous peptic ulceration. Percentage of patients giving such history in other studies was:

	Year	Percentage
P. K. Sen	1945	47
S. R. Seelay	1951	27
Glew and Harrison	1952	12

**5. Site of perforation:** All the 13 cases showed a perforation in the first part of duodenum over the anterior wall.

**6. Size of perforation:** In the present study, the size of the perforation in terms of its maximum dimension ranged from 2 cm to 3.5 cm with majority of the cases falling in the 2-2.5 cm category.

Size of Perforation	No. of Cases
2 cm – 2.5 cm	7
2.6 cm - 3 cm	5
>3 cm	1

**7. Inciting Event:** The most common inciting event was trauma, which was trivial in majority. The second biggest group was spontaneous.

Inciting Event	No. of patients	Percentage
Spontaneous	29	38.7
Trauma	42	56
Pre-existing Ulcer	3	4
Insect bite	1	1.3

8. Surgical technique employed:

Different surgical options	No. of cases
Closure of perforation with Cellan-Jone technique with feeding jejunostomy	07
Simple closure + TV + gastrojejunostomy	03
Free Omental Plug + Feeding jejunostomy	02
Rectus abdominis muscle pull-in flap + feeding jejunostomy	01

9. Post-operative stay: Poor risk patients had a prolonged and complicated post-operative course. The hospital stay ranged from minimum 9 days to maximum 35 days.

10. Post-operative complications:

Complications	Present series
Bronchopneumonia	01
Wound infection	01
Residual abscess	-
Renal failure	-
Duodenal fistula	02
Deep vein thrombosis	-
Burst abdomen	-

**CONCLUSION-**

A series of 13 cases of giant duodenal ulcer perforation were analysed during the period of November 2017 to November 2019. They were followed for a variable period of 2 months to 1 year and the observations made were as follows –

1. Peritonitis due to giant duodenal ulcer perforation occurs predominantly in males (92.3%)
2. Most of the cases occurred in the age group of 41-50 years. (46.1%).
3. Most of the patients were from rural area working as manual labourers belonging to the lower socio-economic group.
4. The incidence of giant duodenal ulcer is more in blood group 'O' patients (69.2%).
5. Giant duodenal ulcer perforation was an intra-operative finding. There is no pre-operative means of diagnosing giant duodenal ulcer perforation as a cause of peritonitis.
6. Cellan-Jones omental patch was the most commonly performed surgical technique. It is simple and can be performed in a relatively short time and remains reliable even for closure of giant duodenal ulcer perforation.
7. Feeding jejunostomy was performed in all the cases irrespective of the type of surgery. Bilateral flank drains (one in pelvis and the other in sub-hepatic space) were placed in all cases irrespective of the surgical technique used.
8. The addition of feeding jejunostomy and placement of tube drains keeps open the option of maintaining enteral nutrition of the patient as well as crating a controlled duodenal fistula in a case of a post-operative leak without significantly increasing the operative time.
9. Other methods can only be adopted if conventional methods (like Cellan-Jones omental patch) are impractical.
10. Definitive procedures in the setting of peritonitis add to morbidity and increase the operating time, and require experienced personnel round the clock.

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