

# **Management of Duodenal Perforation**

**Essay**

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**By**

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## **Abstract**

Duodenal perforation is one of the most serious surgical emergency with high mortality rate but infrequently occur due to its protected anatomical site at posterior abdominal wall surrounded by many organs , so duodenal injury is rarely isolated which increase its seriousness. Duodenum may perforate due to traumatic or non-traumatic causes. Traumatic perforation may be due blunt injury e.g. civil violence, road traffic or motor car accidents, seat-belt injury , or penetrating injury like gunshot, knife, iatrogenic injury e.g. during ERCP, nephrostomy, open or laparoscopic operations. Non-traumatic (pathological) perforation may be due to perforated peptic ulcer or perforated diverticulum. The diagnosis of duodenal perforation is difficult clinically or by simple radiographs because of its retroperitoneal site. Management of duodenal perforation is controversial depending on many factors: site and size of perforation, cause, age of patient, delay of diagnosis, general condition of the patient...etc, even conservative management of duodenal perforation have been advised and done with good success rate. Laparoscopic management of many cases of duodenal perforation had been used with success.

## **Keywords**

- Duodenal perforation.
- Duodenal injury.

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## **List of Abbreviations**

Abbreviation	Meaning
ERCP	Endoscopic retrograde cholangiopancreatography
DU	Duodenal ulcer
US	Ultrasound
CT	Computed tomography
PE	Pyloric exclusion
SDI	Severe duodenal injury
PR	Primary repair
TPN	Total parenteral nutrition
NSAID	Non steroidal anti inflammatory drugs
PPI	Proton pump blocker
L	Liter
RT	Right
LT	LT
&	And

# ***Introduction***

# **Management of duodenal perforation**

## **Introduction:**

Duodenal perforation is one of the uncommon but serious surgical emergencies. Literature is controversial on the exact management of various cases of duodenal perforation which leads to high mortality rate, reaches to 60 – 70%. (*Nussbaum et al 1985*)

In the last decade, Management has shifted toward a more selective approach, even some authors advocate non-surgical management to some cases, others advocate mandatory surgical exploration but didn't elaborate distinct surgical guidelines. (*Scarlett et al 1994*)

The anatomical site of the duodenum as a retroperitoneal organ and its relation to many vital structures as inferior vena cava (IVC), Portal vein, common bile duct (CBD), Hepatic artery and the pancreas with the passage of the bile and the pancreatic juice into the duodenum consider the main obstacles for the management of duodenal perforation with the increase of its complicated death rate. (*Hermansson et al 1999*).

### **Aim of work:**

Research for distinct management guidelines for different cases of duodenal perforation in the hope to decrease the rate of morbidity and improve the outcome.

# *Review of literature*

## **Review of literature**

### **Embryology of the duodenum:**

The duodenum develops from the terminal part of foregut and the cephalic part of midgut. The junction of the two parts is directly distal to the origin of the liver bud.

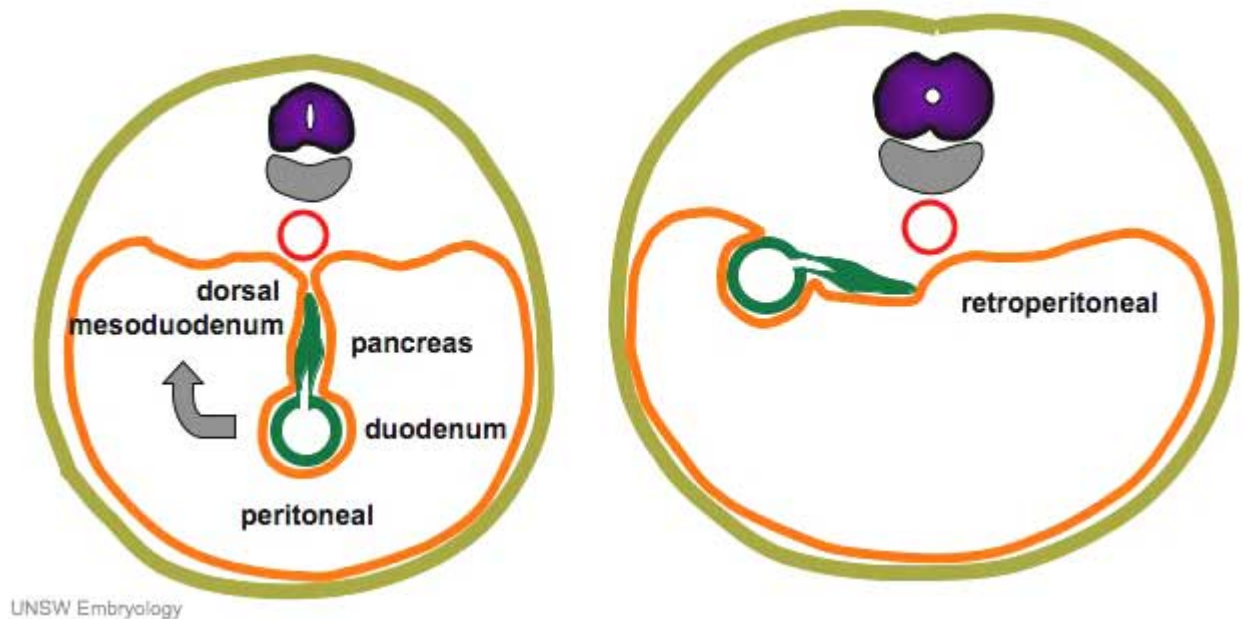
As the stomach rotates, the duodenum takes on the form of a C – shaped loop and rotates to the right. This rotation, together with rapid growth of the head of the pancreas, swings the duodenum from its initial midline position to the left side of the abdominal cavity.

The duodenum and the head of the pancreas press against the dorsal body wall, and the right surface of the dorsal mesoduodenum fuses with the adjacent peritoneum. Both layers subsequently disappear, and the duodenum and the head of the pancreas become fixed in a **retroperitoneal position**.

The dorsal mesoduodenum disappears entirely except in the region of the pylorus of the stomach, where a small portion of the duodenum retains its mesentery and remains intraperitoneal. (*sadler 2006*)

During the 2<sup>nd</sup> month, the lumen of the duodenum becomes obliterated by the cells in its walls. However, the lumen is recanalized shortly thereafter.

Since the foregut is supplied by the **cephalic artery** and the midgut is supplied by the **superior mesenteric artery**, the duodenum is supplied by branches of both arteries. (*Sadler 2006*)



**Fig (1):** *Embryology of duodenum (rotation of the duodenum)*  
([www.embryology.med.unsw.au](http://www.embryology.med.unsw.au))