Management of Duodenal Perforation

Essay

Submitted for partial fulfillment of M.Sc. degree in general surgery

By

Mohamed Ahmed Abdelhady
M.B.B.Ch.
Faculty of medicine, Cairo University

Supervisors

Prof.Dr. Fahim Basiony
Professor of general surgery
Faculty of Medicine, Cairo University

Prof.Dr. Hesham Amer
Professor of general surgery
Faculty of Medicine, Cairo University

Prof.Dr. Mohamed Abbas
Assis. Professor of general surgery
Theodor Bilharz Institute

FACULTY OF MEDICINE
Cairo University
2008

بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا الا ما علمتنا انك أنت العليم الحكيم

صدق الله العظيم

سورة البقرة ايه ٣٢

Acknowledgements

First, I always like to thank **ALLAH**, the great and the merciful, who helps us to know and learn.

I would like to express my profound gratitude and appreciation to *Prof. Dr.* **Fahim Bassiouny**, professor of general surgery, faculty of medicine, Cairo University, for his kind supervision and continuous support that helped too much to accomplish his work.

I am very grateful to *Prof Dr.* **Hesham Amer**, professor of general surgery, faculty of medicine, Cairo University, for his continuous support and significant supervision that helped too much in finishing this work and bringing it to light.

My sincere thanks and appreciation truly go to *Ass. Prof Dr*. **Mohamed Abbas**, assistant professor of general surgery, Theodor Bilharz Research Institute, Ministry of higher Education and Scientific Research, who provided me his time effort and Knowledge to build up this work.

I would like to present my complete thoughtfulness and appreciation to *Prof. Dr.* **Ahmed H. I. Helmy**, the head of general surgery department, Theodor Bilharz Research Institute, for his support on the scientific, work and personal levels.

Lastly and not the least, I would like to thank my **family and friends**, who had suffered during accomplishing this essay, and everybody encouraged it.

Mohamed Ahmed Mahmoud Hassan

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.

Contents

List of Table

List of Figures

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 parentral 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 manadatory 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 2nd 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)***

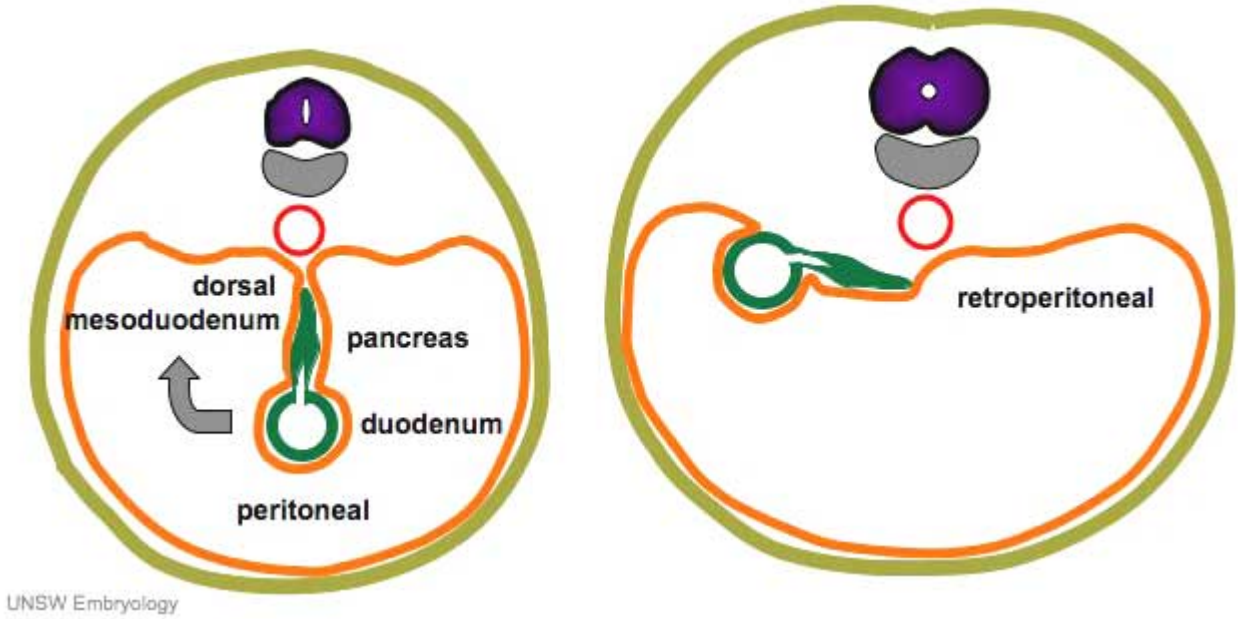

Fig (1): *Embryology of duodenum (rotation of the duodenum)* ***(www.embryology.med.unsw.au)***