Causes and Management of Postoperative Gastrointestinal Fistulae

Essay

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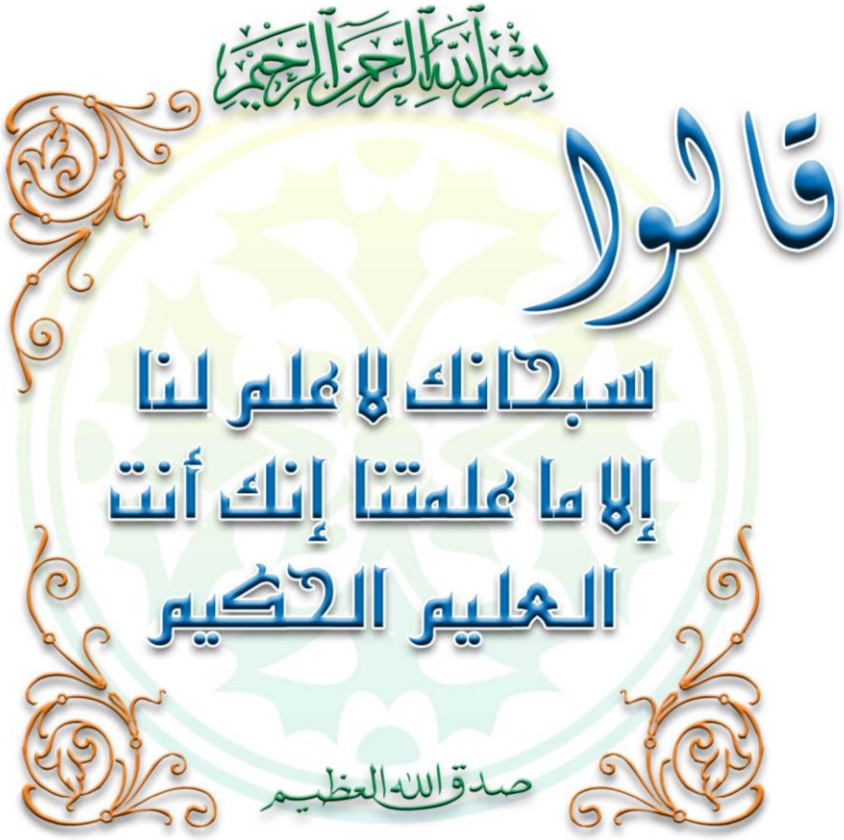

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All praises are to ***Allah*** *and all thanks. He has guided and enabled me by his mercy to fulfill this essay, which I hope to be beneficial for people.*

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Mohamed Alshaarawy

Dedication

To my Father; Mother; Wife; and daughter

Contents

List of Abbreviations

ACS	**:**	Abdominal Compartment Syndrome.
BMI	**:**	Body Mass Index.
BUN	**:**	Blood Urea Nitrogen.
CBC	**:**	Complete Blood Count.
CT	**:**	Computed Tomography.
EC	**:**	Enterocutaneous.
EN	**:**	Enteral Nutrition.
FG	**:**	Fibrin Glue.
GC	**:**	Gastrocutaneous.
GFR	**:**	Glomerular Filtration Rate.
GI	**:**	Gastrointestinal.
GIT	**:**	Gastrointestinal Tract.
IBD	**:**	Inflammatory Bowel Disease.
IV	**:**	Intravenous.
LES	**:**	Lower Esophageal Sphincter
LNs	**:**	Lymph Nodes.
MRI	**:**	Magnetic Resonance Imaging.

SBS	**:**	Short Bowel Syndrome.
ST	**:**	Somatostatin.
TB	**:**	Tuberculosis.
TE	**:**	Tracheo-esophageal.
TNF-α	**:**	Tumor Necrosis Factor – Alpha.
TPN	**:**	Total Parenteral Nutrition.
V.A.C	**:**	Vacuum-Assisted Closure.
WBCs	**:**	White Blood Cells.

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Introduction

Fistula is derived from the Latin word that means “pipe”. A fistula is defined as an abnormal communication between two epithelialized surfaces. The communication occurs between two parts of the GIT or adjacent organs in an internal fistula (e.g., entero-colonic fistula or colo-vesicular fistula). An external fistula (e.g., enterocutaneous fistula or recto-vaginal fistula) involves the skin or another external surface epithelium. It is typically associated with a triad of sepsis, fluid, and electrolyte abnormalities & malnutrition ***(Williams LJ, 2010).***

The formation of gastrointestinal fistulae can be either spontaneous or as a consequence of intra-abdominal surgery. Postoperative fistulae account for 75-85% out of all fistulae in the digestive tract and they arise from unintentional gastrostomy or enterotomy, dehiscence of an anastomosis because of tension in the suture line, a foreign body located close to the anastomosis, inadequate suture techniques, distal obstructions, hematomas, abscess formation at the site of the anastomosis, or tumors. The incidence of spontaneous fistulae is around 15-25%, these can be secondary to Crohn’s disease, malignancy, infectious disease such as tuberculosis and deep mycosis, diverticulitis, vascular failure, radiation exposure, and ischemia of the mesentery ***(Gonzalez et al., 2010).***

Gastrointestinal fistulae are classified based on their anatomy, cause, or physiology. The anatomic classification describes the segment of gut from which the fistula originates. The etiologic classification is based on the underlying disease process. The physiologic classification is based on the volume of fistula output ***(Schecter, 2011).***

Gastrointestinal fistulae are associated with considerable morbidity and mortality. Recent case series suggest a mortality rate of 6-33% with sepsis, malnutrition and fluid or electrolyte abnormalities being the most common cause of death. Increased mortality has been shown to be associated with high fistula output and the presence of infectious complications ***(Williams et al., 2010).***

Postoperative gastrocutaneous fistulae typically present within 7-10 days of surgery. Initial presentation includes: elevated white blood cells (WBCs) count, fever, erythema, and cellulitis. With 24-48 hours of this presentation, drainage begins at the site of the erythema ***(Willcutts, 2010).***

There are 3 phases of gastrointestinal fistulae management: (1) recognition and stabilization, (2) anatomic definition and decision, and (3) definitive operation ***(Schecter, 2011).***

The management of gastrointestinal fistulae requires a multidisciplinary approach, which will often necessitate aggressive medical and surgical management to try to minimize morbidity and mortality. Improvements in outcome have been shown with early control of sepsis through volume resuscitation, correction of metabolic and electrolyte abnormalities, intravenous (IV) antibiotics, and percutaneous drainage of intra-abdominal abscess. In addition, appropriate aggressive wound management and skin protection, nutritional support that often utilize both parenteral and enteral routes, control of fistula output, and appropriate surgical intervention are routinely required ***(Orangio, 2010).***

The surgical management of patient with postoperative gastrointestinal fistula is technically demanding and success depends on both proper intraoperative judgment and through preoperative optimization. Although non-operative management may allow fistula to heal spontaneously, the majority of those who fail within the first 4-6 weeks after development will require operative intervention. Proper reliance on postoperative gastrointestinal fistulae management principles including resection of the bowel containing the fistula and anastomosis of healthy normal bowel can allow for great outcomes with minimal morbidity and mortality ***(Ross, 2010).***

Aim of the wok

The study aims to discuss causes, classification, early diagnosis and different techniques of management of postoperative gastrointestinal fistulae.

Anatomy of the Esophagus

The esophagus is a muscular tube that starts as the continuation of the pharynx and ends as the cardia of the stomach. When the head is in a normal anatomic position, the transition from pharynx to esophagus occurs at the lower border of the sixth cervical vertebra. Topographically this corresponds to the cricoid cartilage anteriorly and the palpable transverse process of the sixth cervical vertebra laterally. The esophagus is firmly attached at its upper end to the cricoid cartilage and at its lower end to the diaphragm; during swallowing, the proximal points of fixation move craniad the distance of one cervical vertebral body.

The esophagus lies in the midline, with a deviation to the left in the lower portion of the neck and upper portion of the thorax, and returns to the midline in the mid portion of the thorax near the bifurcation of the trachea. In the lower portion of the thorax, the esophagus again deviates to the left and anteriorly to pass through the diaphragmatic hiatus ***(Hunter et al., 2010).***

Development of the esophagus:

The esophagus develops from the distal part of the primitive foregut. From the floor of the foregut also