شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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Abstract

Background:

Acute gastrointestinal bleeding (GIB) can lead to significant morbidity and mortality without appropriate treatment . The diagnostic and therapeutic approach of GIB depends on its location, severity, and etiology. The role of interventional radiology via trans-catheter embolization becomes vital in patients whose GIB remains resistant to medical and endoscopic treatment.

Our study aim is to assess the clinical and technical efficacy of Transcatheter Arterial Embolization in management of Acute GIB . This study was conducted for patients presented with active upper or Lower GI bleeding. Sixteen patients underwent selective trans-arterial embolization. Patients were followed up clinically for any complications or episodes of recurrent bleeding .

Results:

Our study was held on 16 patients (10 male patients and 6 female patients) , ranging from 50 to 72 years with mean age of 61 years old . Our Technical Success was 100% , with Clinical success within the 1st 30 days post procedure reaching (75%). No Major intra or post-procedural complication was appreciated . The median post-procedural follow-up duration was 90 days. 4 cases

showed reccured bleeding with only one case only from them was managed with re embolization .The 30-day mortality rate was 6.2 %, while the overall mortality rate throughout the whole follow up period 90 days was 18.7%.

-Conclusion: Endovascular Transcatheter Selective Arterial Embolization is an effective way in Management of Acute Gastrointestinal Bleeding which is refractory to traditional medial and endoscopic management with our study showing acceptable improvement of the clinical and laboratory data with decrease in the morbidity and mortality rate among the treated patients

Keywords: Gastrointestinal bleeding, Embolization, Interventional procedure , Endovascular .

Role of Endovascular Transcatheter Selective Arterial Embolization In Management of Acute Gastrointestinal Bleeding

Submitted for PARTIAL FULILMENT OF M.D. DEGREE IN RADIOLOGY

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Introduction

Gastrointestinal bleeding is a common medical emergency associated with significant morbidity and mortality especially if not managed properly (**Pyeong HK et al . , 2017).**

GIB is usually categorized according to the anatomical location of the bleeding source. A GIB source proximal to the ligament of Treitz , which occurs more frequently, is classified as upper gastrointestinal bleeding , and a source distal to the this ligament is classified to be part of lower gastrointestinal bleeding .(**Hreinsson JP et al. , 2013**).

Aetiology of GIT bleeding is highly variable. Regarding Upper GI bleeding, The most common cause of Non variceal bleeding is a complication of peptic ulcer

disease; however, gastroduodenal erosions , Mallory-Weiss tears , vascular malformations and tumours are also frequent causes **(Boonpongmanee S et al. , 2004).** Lower GI bleeding is most commonly due to diverticulosis (40%), vascular ectasia (30%), various colitis (20%), colonic neoplasia (14%), and anorectal causes (10%) (**Audrius Š et al. , 2017**).

Initial evaluation of patients with GIB begins with a history, physical examination and laboratory data which can help to determine whether GIB is of upper or lower GI source and guide subsequent workup. Nasogastric tube lavage is sometimes performed to confirm an upper GI source of bleeding, but a negative result does not necessarily rule it out. Endoscopy is the first diagnostic and therapeutic intervention of choice for both upper and lower GIB and thus a consultation with a gastroenterologist should not be delayed when a patient presents with GIB. **(Ramaswamy RS et al , 2014**)

Radiology can aid significantly in diagnosis of GI bleeding especially in non-diagnostic endoscopic results. It includes CT Angiography which can detect flow rates as low as 0.3 mL/min , Nuclear Scintigraphy which can detect flow rates as low as 0.1 mL/min but no practical in emergency cases .Angiography which

can be both diagnostic and therapeutic , it can detect flow rate ranging from 0.5 to1 mL/min . (**Rondonotti E et al. ,2013**).

Cases of acute GIB may resolve spontaneously especially that from the lower GIT source. Most of them respond to medical treatment and endoscopic treatment which is consider the main line of management , Yet GIB refractory to such treatment are at higher risk for severe adverse outcome up to death . Transcatheter arterial embolization is effective for controlling such cases. The goal is super-selective catheterization and embolization of the bleeding vessels via different embolizing agents to reduce arterial perfusion pressure while at the same time maintaining adequate collateral blood flow to minimize the risk of bowel infarction . **(Mirsadraee S et al. , 2011) .**

Aim of the Work

Our aim of this study is to evaluate the role of interventional radiology through transcatheter superselective arterial embolization In Management of Acute Gastrointestinal Bleeding .

Anatomy

Overview:

The gastrointestinal tract starts at the mouth, which leads to the esophagus , stomach , small intestine , colon , and finally the rectum up to the anus . The GI tract is a long , muscular, hollow tubular structures through which food passes , nutrients are absorbed, and wastes are eliminated. ***(Fundamentals of Anatomy & Physiology. , Prentice Hall. 2001***).

The Gastrointestinal tract can be furtherly divided into upper and Lower gastrointestinal tract , with the exact line of demarcation between both is the Ligament of Treitz (which is also known as the suspensory ligament of the duodenum) . This delineates the embryonic point of transition between the foregut and midgut . This becomes clinically relevant when discussing gastrointestinal problems such as gastrointestinal bleeding. Bleeding within the gastrointestinal tract that occurs above the level of the ligament of Treitz is called upper gastrointestinal bleeding . However, if bleeding occurs below the level of this ligament, then it is referred to as lower gastrointestinal bleeding. The upper gastrointestinal tract includes the

esophagus, stomach, and duodenum. While the lower gastrointestinal tract includes jejunum and ileum and all of the large intestine. ***(Kapoor et al. , 2011).***

Embryology:

The tract can also be divided from the embryological point of view into foregut , midgut and hindgut .The primitive gut is mainly derived from the endodermal germ layer as it undergoes tubal formation . Then the caudal and cranial portions fold to form the hindgut & foregut respectively , At the same time the in between segment (midgut) remains open to the yolk sac , creating the yolk stalk . These three distinct components of the primitive gut have critical linked implications for mesenteric vascular supply . Ultimately, as the dorsal aorta fuse, so do specific paired ventral vessels , namely, the 10th, 13th, and 21st. They fuse in the midline with gut closure and narrowing of the dorsal mesentery to form the celiac artery , superior mesenteric artery (SMA), and inferior mesenteric artery (IMA) respectively. These three vessels go on to provide the main blood supply for each segment of the developing gut .

The foregut will form the lower esophagus to the lower duodenum and be supplied by the celiac artery. The midgut will form the lower duodenum to the right 2/3 of the transverse colon and be supplied by the SMA. Finally, the hindgut will form the distal 1/3 of the transverse colon to the superior rectum and be supplied by the IMA . (***Carlson BM. Human embryology and developmental biology. 5th ed. Philadelphia:Elsevier/Saunders. , 2013).***

Gross Anatomy :

Abdominal Aorta

The abdominal aorta begins at the level of the T12 vertebrae as continuation of the thoracic aorta and ends at the level of the L4 vertebra by bifurcating into the right and left common iliac arteries, each of which divided furtherly into internal and external iliac arteries .

Branches : (Figure 1)

Unpaired arteries

-Celiac artery: A large unpaired visceral artery arising from the front of the abdominal aorta corresponding to T12 vertebral level , it furtherly divided into three branches which supplies the liver , spleen , stomach , lower oesophagus, the superior duodenum and the superior pancreas .

-Superior mesenteric artery: The second large unpaired visceral artery arising from the front of the abdominal aorta , just below the celiac artery