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Use of Transcatheter Arterial Embolization in High Risk Patients with Upper Gastrointestinal Bleeding

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Introduction- Upper gastro intestinal bleeding is a common presentation to the Emergency Department; a proportion of these bleeds are secondary to duodenal ulcers. The management of these in young, fit patients who can tolerate a second bleed physiologically is well established. However in the elderly frail patient a second bleed may be terminal.

Options for treatment for these bleeding duodenal ulcers (apart from resuscitation, including transfusion if needed and medical management with intravenous Proton Pump Inhibitors), include endoscopic control, laparotomy with under running of the bleeding artery and endovascular approaches. 98 percent of patients can be successfully managed with endoscopy and epinephrine injection, coagulation and / or clipping of the bleeder. The dilemma exists in those patients whom are high risk for surgical intervention (laparotomy) should a re-bleed occur. In these patients transcatheter arterial embolization has become a favourable treatment modality and especially in high risk patients, selective transcatheter embolisation has been established as a safe approach (1,2,3,5,9).

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USE OF TRANSCATHETER ARTERIAL EMBOLIZATION IN HIGH RISK PATIENTS WITH UPPER GASTROINTESTINAL BLEEDING

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Asiriarachchi ^α & Servaise De Kock ^σ

I. INTRODUCTION

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Options for treatment for these bleeding duodenal ulcers (apart from resuscitation, including transfusion if need be and medical management with intra venous Proton Pump Inhibitors), include endoscopic control, laparotomy with under running of the bleeding artery and endovascular approaches. 98 percent of patients can be successfully managed with endoscopy and epinephrine injection, coagulation and / or clipping of the bleeder. The dilemma exists in those patients whom are high risk for surgical intervention (laparotomy) should a re-bleed occur. In these patients transcatheter arterial embolization has become a favourable treatment modality and especially in high risk patients, selective transcatheter embolisation has been established as a safe approach (1,2,3,5,9).

In this case report we discuss the management of a 98 year old male with a duodenal ulcer with stigmata of recent bleed who presented to our department in a rural setting in Victoria, Australia.

II. CASE STUDY

Mr A, a 98 year old male (with a background history of hypertension, a newly inserted pacemaker and not on any anti-coagulation), presented to our Emergency Department with epigastric pain, melena and a Haemoglobin of 68. He was cardiovascularly unstable and following resuscitation (including transfusion) was taken for endoscopy which demonstrated a large duodenal ulcer with a fresh clot and a visible artery. This was managed with peri ulcer injection of (adrenaline). Attempts to place a clip on the artery was unsuccessful due to the position.

He was closely observed clinically and his haemoglobin was followed daily. His haemoglobin dropped again on day three and he was again transfused and taken for endoscopy which now demonstrated a healed ulcer with no stigmata of re-bleed (photo 2). He was again managed conservatively and on day eight again dropped his haemoglobin.

Re-scope at this stage demonstrated the healed ulcer again, but the gastro-duodenal artery with a bright spot was noted, with no blood noted in the lumen. At this stage he was referred for angiography and embolisation of the gastro duodenal artery, (image 3), with good outcome.

III. DISCUSSION AND LITERATURE REVIEW

Our patient was undoubtedly not fit for a laparotomy and in these patients with multiple medical comorbidities embolization therapy is a safe, effective treatment modality and has a good prognosis.

Since its introduction in 1972 embolotherapy has become a possible modality in treatment of patients with upper gastrointestinal bleeding. Angiography involves either a brachial or femoral approach. Identification of the appropriate anatomy is important; particularly the coeliac axis, the common hepatic and delineating the anatomy involving the gastro duodenal artery, splenic, short gastric, left gastric. In general dynamic angiography via use of selective catheters can denote extravasation of contrast and thus ability to use either coils or particles to catheterize bleeding points as was the case with our patients (image 4 and 5). This illustrates a dynamic angiogram demonstrating the coeliac axis, regional anatomy and post embolization images as described in the literature. (3,6,10).

There have been repeated discussions with importance of placing clips via initial endoscopy at the vicinity of the ulcer to aid the radiologist to identify the location of the bleeding vessel. This is an important pre adjuvant to formal transcatheter embolization and even though the artery may not be assessable to clipping itself in our case, would have been helpful if placed close to the ulcer and in future we would attempt to do this in selective cases.

There is extensive literature denoting the success with clinical documented rates of close to 100

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percent, with very minimal procedure related complications. Procedure complications relate to type of device used for transcatheter embolization. Main complications (1 to 8%) relate to in advent coiling of other vessels which can result in either re bleeding or secondary duodenal stenosis due to embolisation of muscular branches. (8,11,12).

Our patient had coiling of the gastro duodenal artery, but particles and sponges are also adjuvant options which interventional radiologists do use.

Retrospectively it was thought that the gastro-duodenal artery was not noted on the second endoscopy because it was hiding behind the ridge of the ulcer. Therefore it is recommended to attempt to inspect the whole ulcer bed. If this was noted at this time we would have referred the patient earlier for embolization.

IV. CONCLUSION

Within a rural hospital setting with no onsite access to endovascular embolization early recognition of the unwell, high risk patient that needs embolization is pertinent. Endoscopy still plays a major role in the management of these patients. It is important to inspect the whole ulcer bed for a visible vessel and be aware that it may be hiding behind the ridge of the ulcer. Placement of a clip near the ulcer can be helpful to the interventional radiologist to identify the gastro-duodenal artery.

Advances in arterial embolization procedures have improved the outcome of these high risk patients and access to transport measures in a rural setting is of utmost importance.

Early recognition of the high risk bleeding ulcer in the high risk patient is important to enable timely referral for selective angiography and embolization.

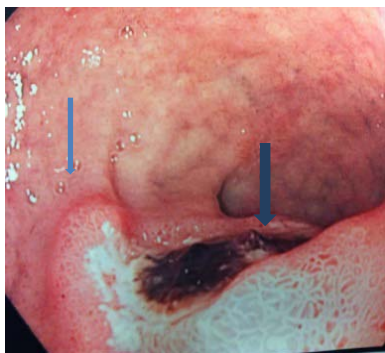


Image 1 : Large Duodenal Ulcer with Fresh Clot and Visible Vessel



Image 2 : Healed Ulcer on Day 4 - Gastro-Duodenal Artery not Noted Behind Ulcer Ridge

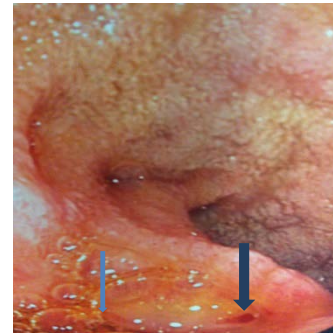


Image 3 : Healed Ulcer with Visible Gastro-Duodenal Artery



Image 4 : Angiography Pre Embolisation



Image 5 : Successful Coiling of Gastro-Duodenal Artery

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