

May 31, 2015

Dear Editor,

Please find enclosed the edited manuscript in Word format (file name: 18099-review.doc).

Title: The Challenges of Banding Jejunal Varices in an 8 year old child.

Author: Belsha D, Thomson M

Name of Journal: *World Journal of Gastrointestinal Endoscopy*

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The manuscript has been improved according to the suggestions of reviewers:

1 Format
Reviewer 1: Justifiably you mention the risk for jejunal wall necrosis after endoscopic band ligation. That's why one successful case cannot verify the method as "safe" especially in children. This message should be reduced. Incidentally you describe the injection of Methylene blue as Tattoo. This will not work. Methylene blue disappears within some hours and is not suitable as tattooing. For this purpose there are special medical inks in use

Answer: Thanks for the comments:

A. Re the safety of the procedure we addressed this further in our discussion:

Endoscopic band ligation (EVL) has a theoretical increased risk of complications in the small bowel because of its thin wall e.g. perforation. However, there are several reports of successfully treated duodenal varices by EVL in adults without complications. In a review of 19 cases (all adults) with duodenal EVL only 3 (15.8%) rebled after treatment with no deaths reported due to complications or rebleeding¹⁶.

B. Re the use of Methylene blue as a tattooing agent.

In our experience; Methylene blue have been used successfully as a tattooing agent to identify lesions for surgical intervention. We refer to the senior author previous paper "Urs AN, Martinelli M, Rao P, Thomson MA. Diagnostic and therapeutic utility of double-balloon enteroscopy in children. *J Pediatr Gastroenterol Nutr*. 2014 Feb;58(2):204-12." Methylene blue has been used as a tattooing agent in our centre successfully.

Reviewer 2:

Well written case, only minor changes needed: 1. please remove the exact date of admission. This may lead to recognition of the patient. 2. Please omit images 1, 3 and 5 (not needed). The other two images are enough. 3. Please add the word possibly to "subsequently occurred from possibly ilio-colonic source" at the end of discussion (third paragraph from below) to be similar to the case report

Answer: Thanks for the comments

The manuscript has been revised and the following has been added: 1. The exact date of admission has been removed. 2. Two images have been omitted. 3. The statement "subsequently occurred from possibly ilio-colonic source" has been edited.

Reviewer 3

In this case report the authors present the case of an 8 years old child treated with endoscopic band ligation for jejunal varices. This kind of pathology is rare and the therapeutic options could be challenging. Here are my comments: - Somehow the case presentation is difficult to follow (many bleeding episodes from different sources). In order to make the case clearer we believe that the authors should provide additional information: o what the secondary prophylaxis treatment was before referred to your hospital (probably it was suspected that the patient has a portal hypertension related bleeding)? o A clear description of the patency of the portal venous system in the CT scanner should be provide (maybe an image should be provided, especially the one that shows the relation between the collaterals and the jejunum; if there is a problem of space, one of the endoscopic imagines could be replaced). o After the banding of the jejunal varices other medication was added to help secondary prophylaxis (propranolol)? o What was the shunting procedure that patient had and what was the outcome after that? o The last bleeding was suspected to be from ilio-colic varice (which at first endoscopy looked without bleeding risk). What was the basis of this suspicion? It is not clear if the patient had an other endoscopic examination after this episode. Could be a bleeding from post-banding ulceration as well. As this case demonstrates and, as many reports from the literature, frequently ectopic variceal

bleeding is difficult to manage and most of the time definitive solutions (surgery, shunting) are needed. Endoscopic treatment may be a good option for control the bleeding but then definitive solution should be offer according to the underlining disease and the patency of the portal vein. In the discussion section we believe that these particularities of the management of ectopic varices should be discussed. Also the differences between glue injection and band ligation in case of ectopic varices could be an interesting discussion point (although the data is scarring; reported cases could represent a start point for this discussion).

Answer

Thank you for the constructive comments:

1. What was the secondary prophylaxis treatment before referred to your hospital (probably it was suspected that the patient has a portal hypertension related bleeding)? And After the banding of the jejunal varices other medication was added to help secondary prophylaxis (propranolol)?

The following has been added: The patient was put intermittently on octreotide infusion but wasn't given primary or secondary prophylaxis as it was felt that the varices were more confined to some areas and secondary to mesenteric venous obstruction/ abnormalities rather than strong evidence of generalised portal hypertension.

As well this has been added to the discussion: The effectiveness of beta-blockers for primary prophylaxis and octreotide treatment for acute hemorrhage of anastomotic and segmental varices is uncertain ⁵.

2. A clear description of the patency of the portal venous system in the CT scanner should be provide (maybe an image should be provided, especially the one that shows the relation between the collaterals and the jejunum; if there is a problem of space, one of the endoscopic imagines could be replaced).

The following information is now added with a CT angiography image:

He underwent CT angiography which revealed distorted adjacent vascular structures around the pancreas with the splenic vein looping over the superior edge of the pancreas.

Normal enhancement was noticed in the portal vein, its left and right branches, the splenic vein (SV) and the superior mesenteric vein (SMA). However; there is unusual prominent venous structure draining in to the right side of the confluence of the SMV and the SV. There were multiple serpiginous vessels in the left side of the bowel mesentery with in particular a clump of varices /collaterals in the small bowel mesentery (Figure 1). All connections from these apparent varices couldn't be established, however; there was at least a connection to a looping vessel which extends into the left side of the SMV. Further looping vessels were seen in the anterior aspect of the mesentery from a proximal loop of the jejunum. Theses dilated blood vessels and collaterals around the mesentery of the small bowel raised the suspicion of mesenteric varices in the upper abdomen, but no active bleeding source was recognised

3.What was the shunting procedure that patient had and what was the outcome after that?

The following sentence was added: However the patient developed recurrence of bleed two weeks later possibly from an ileo-colonic source. The patient had shunting procedure few weeks later (mesenterico-caval shunt).

4.It is not clear if the patient had an other endoscopic examination after this episode. Could be a bleeding from post-banding ulceration as well.

The following answer is now provided: Two weeks subsequently the patient was well with no further bleed and a further endoscopy revealed friable variceal beds but no active bleeding.

5. In the discussion section we believe that these particularities of the management of ectopic varices should be discussed. Also the differences between glue injection and band ligation in case of ectopic varices could be an interesting discussion point (although the data is scarring; reported cases could represent a start point for this discussion).

Thanks for the suggestion: The following has been added now:

Transjugular intrahepatic portal-systemic shunt (TIPS) or a decompressive shunting procedure is recommended in patients with overt systemic portal hypertension^{19, 20, and 21}. With the addition of coil or embolization has been reported to be particularly useful for ectopic varices, as these can continue to bleed despite successful portal pressure reduction²².

The effectiveness of beta-blockers for primary prophylaxis and octreotide treatment for acute hemorrhage of anastomotic and segmental varices is uncertain⁵.

It has been reported that endoscopic treatment including sclerosing agents can be used for treatment of actively bleeding duodenal or jejunal varices or to prevent re-bleeding from focal varices with hemorrhage. However, while hemostasis is feasible, ulceration and re-bleeding rates can be high⁵. The use of N-butyl-2-cyanoacrylate (Histoacryl®) injection has been described in several case reports, for hemostasis of actively bleeding duodenal varices^{15, 23, 24}. In one series all the varices had developed around the anastomotic sites and only two had elevated systemic portal pressure¹⁸. Another case report describes successful treatment of bleeding jejunal varices using cyanoacrylate sclerotherapy via enteroscopy in an adult patient¹⁶.

Frequently ectopic variceal bleeding is difficult to manage and traditionally surgery or shunting is required depending on the underlying disease and the patency of the portal vein.

Endoscopic treatment as a minimally invasive approach is feasible and safe in this case and represents a viable alternative.

Thank you again for publishing our manuscript in the *World Journal of Gastrointestinal Endoscopy*

Sincerely yours,
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