Portal hypertensive jejunitis: a case control study

Nutan Desai, Devendra Desai, Vijayashree Petho,*
K P Deodhar,* Prabha Sawant, Suchita Nanivadekar

Departments of Gastroenterology and *Pathology, Lokmanya Tilak Municipal Medical College and Municipal General Hospital, Mumbai 400 022

Background: Small bowel mucosa is a recognized potential source of bleeding in portal hypertension. However, the frequency of its involvement is not known. Aims: To document the nature, severity and frequency of endoscopic and histologic changes in the jejenum in patients with portal hypertension. Methods: Forty consecutive patients with portal hypertension and 43 patients with non-ulcer dyspepsia (controls) underwent push enteroscopy and jejunal, duodenal and gastric biopsies. Biopsies were randomized and examined by a blinded pathologist for inflammation and vascular dilatation, which was quantified by morphometry. Results: Endoscopic jejunitis was observed in 6 patients and none of the control subjects. All patients with jejunitis had portal hypertensive gastropathy (PHG) and 5 had duodenopathies. Vascular dilatation was observed in 15 patients and 25 control subjects (p=ns). The degree of vascular dilatation was similar in both groups. Inflammatory changes were observed in 24 patients and 25 control subjects (p=0.05). Conclusions: Endoscopic jejunitis was present in 15% of patients with portal hypertension. These changes were mild in 83% of them. All patients with jejunitis also had PHG. Histologic changes were similar in patients and control subjects. [Indian J Gastroenterol 2004;23:99-101]

Key words: Portal hypertensive enteropathy

This study was designed to prospectively evaluate patients with portal hypertension to document the nature, severity and frequency of endoscopic and histologic changes in the jejunum in patients with portal hypertension.

Methods

Forty consecutive patients with portal hypertension and esophageal varices (mean age 38.6 [12.1] years, range 15-70), 28 men, liver cirrhosis 33, extrahepatic portal vein obstruction (EHPVO) 6 and non-cirrhotic portal fibrosis 1 and 43 control subjects (mean age 37.5 [11.9] years, range 15-70; 50 men) without portal hypertension formed the study population. The control subjects had non-ulcer dyspepsia with normal upper GI endoscopy. All control subjects had normal blood counts, liver function tests and renal function tests. All patients were tested for blood counts, liver biochemistry, prothrombin time, viral markers, abdominal ultrasonography, and 99m-technetium scan of liver and spleen. Those suffering from systemic hypertension, renal failure, heart disease, cardiac failure, duodenal ulcer, and those on treatment with vasoactive drugs or NSAIDs were excluded from the study. The study was approved by the ethics committee of our hospital.

Push enteroscopy with jejunal biopsies was performed in all patients and control subjects using pediatric fiberoptic colonoscope (PCF 20; Olympus, Tokyo, Japan) after obtaining written informed consent. On endoscopy, the presence and grade of esophageal varices and gastric varices, and evidence of portal hypertensive gastropathy, duodenopathies and jejunitis were noted. Esophageal varices were graded according to Coll's grading. Endoscopic changes in the duodenum and jejunum were classified as mild or severe on similar lines as PHG. The severity of liver dysfunction was graded according to the Child-Pugh score.

Histology

Two biopsies each were obtained from the jejunum and duodenum, and from the antrum and fundus of the stomach. All tissues were fixed in Bouin's solution, stained with hematoxylin and eosin, and studied histologically by a pathologist (who was unaware of clinical details) for type and severity of inflammatory infiltrate, and size and number of vessels, in the mucosa and submucosa.
Morphometry was performed on all tissues. The size and number of vessels was measured in at least 5 consecutive villi in the duodenum and jejunum using an optical grid in the eyepiece of a standard microscope.

Statistical analysis
Results were analyzed by using $\chi^2$ test with Yates' correction where required, and Student's $t$ test for unpaired data.

Results
Endoscopic changes
Endoscopic evidence of jejunopathy was found in 6 patients, of whom 5 patients had mild changes (diffuse erythema only) and one had severe changes (cherry red spots). Endoscopic changes were not seen in control subjects. All patients with endoscopic jejunopathy also had evidence of PHG (mild 3, severe 3) and 5 patients had evidence of mild duodenopathy (erythema). Three of these patients were in Child class A and one in Child B; of the 6 patients, two had EHPOD and none had previously received sclerotherapy. Two patients had grade 2 varices and four had grade 3 varices. Duodenal changes on endoscopy were seen in 17 patients, 15 of whom also had PHG.

Histology
Adequate jejunal biopsies were obtained in 36 patients and 38 control subjects. Vascular dilatation was seen in 15 patients and 25 control subjects ($p=0.05$). The mean number of dilated vessels per villus was similar in the two groups (patients 12, controls 14). The mean vascular diameter was 380.3 (139.4) micrometer in patients and 338.1 (107.6) micrometer in control subjects ($p=ns$). Inflammatory infiltrate was seen in 24 patients and 28 control subjects ($p=ns$).

Vascular dilatation on histology was seen in 11/31 (35.5%) patients with normal jejunal mucosa on endoscopy and 4/5 patients with jejunopathy ($p=ns$). As mentioned above, 25 of 38 (65.8%) control subjects also showed vascular dilatation.

Discussion
There is little information on small bowel mucosal changes in patients with portal hypertension. In 1989, Thiruvengadam and Gostout reported three cirrhotic patients with acute and chronic GI blood loss; all had extensive gastric, duodenal and jejunal mucosal changes on endoscopy, consisting of multiple friable punctate areas of erythema. There has been no systematic study of endoscopic changes in the jejunum in patients with portal hypertension.

The features of our study include endoscopic visualization of proximal jejunal mucosa, inclusion of an age- and sex-matched control group, and morphometric documentation of the degree of vascular dilatation. We observed endoscopic jejunal changes in 6 of 40 (15%) patients with portal hypertension, including one who had severe changes. All these patients also had changes in the stomach and duodenum, indicating that small bowel changes usually occur in association with gastric and duodenal changes. Duodenal changes on endoscopy were seen in 17 (42.5%) patients in this study, as compared to the reported incidence of 15% to 25%, 6, 7, 8

Early studies of gastric and intestinal biopsies from patients with portal hypertension laid emphasis on dilatation of mucosal and submucosal vessels in the presence of minimal inflammation. 1, 9 The significance of these findings was however questioned as later case-control studies reported similar findings in the control population without portal hypertension. 10 Our data show that histologic changes were not specific for portal hypertension. On morphometry, the degree of vascular dilatation was similar in the two groups.

Two other studies 11, 12 have previously reported histologic findings in jejunal biopsies in portal hypertension. One study examined 26 patients with portal hypertension (15 had cirrhosis). 11 Jejunopathy, defined as presence of abnormally dilated vessels on histology, was reported in 84% of patients; there was no significant difference between patients and control subjects in the other parameters studied, like inflammatory infiltrate, glandular atrophy, and edema of lamina propria. This study used Watson capsule biopsies. Endoscopic features were not studied.

In the other study, 12 which used endoscopic pinch biopsies, dilated mucosal vessels with thickened walls were observed in 71% of patients as compared to 2% of control subjects. However, the difference between patient and control biopsies was significant only for dilated vessels with thick walls and not for dilated congested vessels. Endoscopic findings in the jejunum were not described. We did not study capillary wall thickness. In our study, we found no difference in histology in patients and control subjects and no relation between endoscopic and histological changes. Thus the significance of histological changes in patients with portal hypertension remains unclear.

A recent study of intestinal appearances on capsule endoscopy reported lesions of unexplained significance in 22.6% of normal subjects. 13 There are no controlled studies of findings on capsule endoscopy in normal population as compared to those with portal hypertension and obscure GI bleeding. Although most of the studies report superior diagnostic yield of capsule endoscopy as compared to push enteroscopy in obscure GI bleeding, one study showed equal yield with both techniques. 14
In summary, endoscopic jejunitis occurs in 15% of patients with portal hypertension; however, histological changes observed in the jejunum of these patients are nonspecific and have no relation with endoscopic changes.

References

Correspondence to: Dr Nutan Desai, B-3 Nav-Dadar CHS, Plot No 71, Off Lt Dilip Gupte Marg, Mahim (W), Mumbai 400 016. E-mail: mchopda@yahoo.com

Received October 1, 2003. Received in final revised form February 9, 2004. Accepted April 17, 2004

**Online Submission**

Articles for consideration for publication in the Indian Journal of Gastroenterology can be submitted electronically to editors@indianjgastro.com. The manuscript attachment should be in Rich Text Format (.rtf) and Figures as .jpeg files. Printed copies need not be submitted. Details are available in the Instructions to Contributors in every issue of the Journal, as well as at the website at www.indianjgastro.com.

**Submission of Images**

The Journal invites contributors to submit high-quality images of current interest pertaining to Gastroenterology. These should be accompanied by a 2-paragraph text (including case details and discussion), not exceeding 250 words, along with 1-2 references if necessary. These may be submitted as hard copy or online as .bmp file.