Prevalence of peptic ulcer in 82 Kelantanese Malaysians with non-alcoholic cirrhosis

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Summary

A review of 82 (68 male) Kelantanese patients with non-alcoholic cirrhosis who underwent gastro-duodenal endoscopy revealed duodenal and gastric ulcers in 4.9% and 7.3% of patients respectively. Comparing with prevalence rates of peptic ulcer disease reported in the literature, there was no evidence to suggest that duodenal ulcers occur more frequently in patients with non-alcoholic cirrhosis. There is a suggestion, albeit a tenuous one, that non-alcoholic cirrhosis may be associated with gastric ulceration.

Key-words:Non-alcoholic cirrhosis, duodenal ulcer, gastric ulcer, Malaysian.

Introduction

It is often stated in standard gastroenterology textbooks that there is an association between peptic ulcer disease and cirrhosis of the liver.[1] Evidence for this has been derived from an autopsy study, and uncontrolled radiographic and endoscopic survey on samples with a high proportion of alcoholic cirrhotics.[2-6] There is less data on non-alcoholic cirrhotics[7-9] and much less so on Asian patients. The aim of this study was to investigate a possible association between non-alcoholic cirrhosis and peptic ulcer disease in a Malaysian population. The approach taken was to retrospectively determine the frequency of peptic ulcers in a series of patients with non-alcoholic cirrhosis and make a comparison with the published prevalence rates of peptic ulcer disease.

Methods and Materials

A review was undertaken of the hospital records of all patients above the age of twenty years with non-alcoholic cirrhosis who underwent upper gastrointestinal endoscopy between the first of February 1985 and the thirty-first of November 1990 at the Universiti Sains Malaysia Hospital in Kubang Kerian, Kelantan. The diagnosis of cirrhosis was made on clinical grounds (including stigmata of chronic liver disease) and the demonstration of diffuse abnormality of liver texture on ultrasound. Taken with the clinical data, ultrasonography has been shown to have a positive predictive value of 95% in detecting cirrhosis.[10] The prevalence rates of varices, gastric ulcer and duodenal ulcer were determined. Patients were excluded if the stomach and/or the duodenal bulb were not adequately visualized. In patients endoscoped more than once, only the findings of the first adequate examination were taken into consideration. The prevalence of gastritis or congestive gastropathy[11] was not studied due to unacceptably wide inter-observer variation in the description of these lesions.

Results

Eighty-seven patients with non-alcoholic cirrhosis of the liver had undergone endoscopy. Five patients were excluded because adequate visualisation was not obtained at any time. Of the remaining eighty-

two patients sixty-eight were male. Seventy-two patients were ethnically Malay, nine were Chinese and one was Thai. Median age of the group was 45 years (range 22-86 years). Seven patients had evidence of coexisting hepatocellular carcinoma. The ratio of smokers to non-smokers among men was 3:2, whereas only one of the fourteen women gave a history of smoking. Data as regards drug history was incomplete. Acute gastrointestinal bleeding was the indication for endoscopy in sixty-six patients. In sixteen patients endoscopy was done to look for varices in patients with ascites and/or anaemia. In only one patient was endoscopy performed primarily to investigate the cause of epigastric pain. The prevalence of duodenal ulcer and gastric ulcer were 4.9% and 7.3% respectively. All ulcers were more than 0.5cm in diameter. The six gastric ulcers were all pre-pyloric. Histology of the gastric ulcers were reported as showing superficial and/or chronic gastritis. None showed evidence of malignancy. Follow-up data on the grastric ulcers were not available as two patients died of liver failure and bleeding varices respectively during the index admission and the other four did not attend for repeat endoscopy. All but one of the patients had oesophageal and/or gastric varices. Table I shows the frequencies of these lesions among male and female patients. No patient had both gastric and duodenal ulcers.

Table I
Endoscopic findings in males and females

	Males (n = 68)	Females (n = 14)
Duodenal ulcer	3 (4.4%)	1 (7.1%()
Gastric ulcer	4 (5.8%)	2 (14.3%)
Varices	68 (100%)	12 (92.8%)

Serum Hepatitis B surface antigen [HBsAg] was positive in forty-seven patients, negative in fifteen patients and undocumented in twenty patients. No significant difference in ulcer prevalence between HBsAg positive and HBsAg negative patients was detected. [Table II]

Table II
Peptic ulcer in relation to Hepatitis B surface antigen (HBsAg) status

	Frequency of ulcers	
	Duodenal ulcer	Gastric ulcer
HBsAg positive (n = 47)	2	3
HBsAg negative (n = 16)	1	1
HBsAg unknown (n = 20)	1	2

Discussion

Peptic ulcers were found in 12% of patients in this study. The obstacle towards establishing if this represents an increased frequency of peptic ulcer disease among non-alcoholic cirrhotics is lack of information on the true prevalence of peptic ulcer in our local population which would clearly have been the ideal control population. Although a number of hospital series on peptic ulcer disease in

Malaysia have been published, there is no data on peptic ulcer prevalence rates in the Malaysian population.[12-14] This limitation can be partially mitigated by examining the ulcer prevalence data in a variety of geographical locations as reported in the world literature. Necropsy studies have revealed peptic ulcer rates ranging from 5% in Nigeria[15] to 20% among European males.[16-17] Two recent community based surveys in Kashmir, India[18] and Sorreisa, Norway[19] which sampled large numbers, arguably give the truest reflection thus far of peptic ulcer prevalence in the general population. The Kashmir[18] and Sorreisa[19] studies reported duodenal ulcer prevalence rates among males of 5.6% and 5.2% respectively. An earlier Japanese study on 322 male factory workers revealed a duodenal ulcer prevalence rate of 6.8%.[20] While acknowledging that the results of this study are not strictly comparable due to methodological and geographical variations, the fact that only 4.4% of the males in the current study had duodenal ulcer disease does tend to argue against an association between non-alcoholic cirrhosis and duodenal ulcer disease. The sample in this study represents a selected group simply by virtue of the fact that they required endoscopy. However the selection bias is more likely to have overestimated rather than underestimated the prevalence of ulcer disese.

The gastric ulcer prevalence of 5.8% among males in this study is noticeably higher than the reported rates of 0.8% (n = 1192), 1.7% (n = 1035) and 2.5% (n = 322) in the Kashmir, Sorreisa and Japanese studies respectively.[18-20] While this does suggest that there may be an excess of gastric ulcers among non-alcoholic cirrhotics, it cannot be regarded as conclusive.

In a recent study which included 435 non-alcoholic cirrhotics the duodenal ulcer and gastric ulcer prevalence rates were 4.1% and 2.2% respectively.[8] Another study of eighty-one non-alcoholic cirrhotics revealed duodenal and gastric ulcer frequencies of 14% and 7%.[9] Recent endoscopic surveys from Europe and the United States have reported duodenal ulcer prevalence rates of 2.0–10.9% and gastric ulcer rates of 5.6–7.6% in series consisting mainly of alcoholic cirrhotics.[21-24] It is notable that the ratio of gastric to duodenal ulcers in these studies were higher than would have been expected in a Western population.

Needless to say there are limitations inherent in a restrospective study such as this, not least the absence of a local control population. Although several endoscopists were involved, it would generally be accepted that the presence or absence of an ulcer is not subject to much inter-observer variation. The policy in the unit to reendoscope bleeding patients in whom adequate visualisation was not obtained as soon as is practicable, makes it unlikely that many lesions were missed. Notwithstanding, the results of this study are reconcilable with that of other animal and human studies done on subjects with portal hypertension. Gastric acid secretion has been shown to be either low or normal in cirrhotics[25-28] which is in accordance with the failure to find a high prevalence of duodenal ulcer. On the other hand the gastric mucosa of portal hypertensive rats have been shown to be susceptible to a number of noxious stimuli such as bile, alcohol, aspirin and haemorrhagic shock.[29,30] Gastric mucosal Prostaglandin (PGE2) levels have been found to be low in cirrhotics patients.[31] It is not unreasonable to postulate that these factors predispose the gastric mucosa to erosions and ulcers.

In summary, despite the limitation of not having ulcer prevalence data in the local population, the results of this study tend to suggest that it is unlikely that non-alcoholic cirrhosis predisposes to duodenal ulcer disease. There may be an association between gastric ulcers and non-alcoholic cirrhosis but the data in this respect cannot be regarded as conclusive.

REFERENCES

1. MJS Langman: Aetiology of peptic ulcer. In: Diseases of the gut and pancreas. Misiewicz JJ, Pounder RE, Venables (eds). London, Blackwell scientific, 1987 pp 268–81.

2. Lippp WF, Lipsitz MH: The clinical significance of the coexistence of peptic ulcer and portal cirrhosis with special reference to the problem of massive haemorrhage. Gastroenterology 1952; 22 : 181–91.

3. Palmer ED, Brick IB: Sources of upper gastrointestinal haemorrhage in cirrhotic patients with oesophageal varices. New Engl J Med; 1953; 248 : 1057–8.

4. Swiser WP, Baker LA, Bennet HD: Peptic ulcer in Laennec's cirrhosis. Am J Dig Dis 1955; 22 : 291–4.

5. McCray RS, martin F, Amir Ahmad H, Sheahan DG, Zamcheck N: Erroneous diagnosis of haemorrhage from oesophageal varices, Am J Dig Dis 1969; 14 : 755–60.

6. Waldron R, Davis M, Nunnerley H, Williams R: Emergency endoscopy after gastronintestinal haemorrhage in 50 patients with portal hypertension. Br Med J 1974; 4 : 94–6.

7. Kirk AP, Dooley JS, Hunt RH: Peptic ulceration in patients with chronic liver disease: Dig Dis Sci 1980 25: 756–60.

8. Rabinowitz M, Yoo Y K, Schade RR, Dindzans VS, Van Thiel DH, Gavaler JS: Prevalence of endoscopic findings in 510 consecutive individuals with cirrhosis evaluated prospectively. Dig Dis Sci 1990; 35 : 705–10.

9. De Weert TM, Gostont CJ, Wiesner RH: Congestive gastropathy and other upper endoscopic findings in 81 consecutive patients undergoing orthotopic liver transplantation. Am J Gastroenterol 1990: 85 : 573–6.

10. Celle G, S Avarino V, Picciotto A et al: Is hepatic ultrasonography a valid alternative tool to liver biopsy? Dig Dis Sci 1988; 33 : 467–71.

11. McCormack TT, Sime J, Eyne-Brook et al: Gastric lesions in portal hypertension: inflammatory or congestive gastropathy? Gut 1955; 26 : 1226–32.

12. Ross IN, Nair S, Jayakumar CR. The incidence of upper gastrointestinal disease in a Malaysian community. Sing Med J 1985; 26 : 271–78.

13. Kudva MV, Thein Htut. Profile of peptic ulcer disease in Malaysia. Sing Med J 1988; 29 : 544–7.

14. Mahendran Raj S. Peptic ulcer disease in Kelantan: an underdiagnosed condition· Med J Malaysia 1991; 46 : 183–6.

15. Olubuyide IO: An autopsy survey of peptic ulcer disease at Ibadan: Cent Afr J Med 1989; 35 : 501–4.

16. Watkinson G: The incidence of chronic peptic ulcer found at necropsy. Gut 1960; 14–31.

17. Lindstrom CG: Gastric and duodenal peptic ulcer disease in a well-defined population. Scand J Gastroenterol 1978; 13 : 139–43.

18. Khuroo MS, Mahajan R, Zargan SA, Javid G, Munshi S: Prevalence of peptic ulcer in India: an endoscopic and epidemiological study in urban Kashmir. Gut 1989; 30 : 930–34.

19. Bernersen B, Johnson R, Straume B, Burhol PG, Jenssen TG, Stakkevold PA: Towards a true prevalence of peptic ulcer: the Sorreisa gastrointestinal study. Gut 1990; 31 : 989–92.

20. Araki S, Goto Y: Peptic ulcer in male factory workers: A survey of prevalence incidence and aetiological factors. J Epidemiol Community Hlth 1985; 39 : 82–5.

21. Dave P, Romeu J, Messer J: Upper gastrointestinal bleeding in patients with portal hypertension, a reappraisal. J Clin Gastroenterol 1983; 5 : 113–5.

22. Andriulli A, Arrigoni A, Gindro F, Verme G: Prevalence of peptic ulcer in patients with various hepatopathies: Minerva Med 1986; 77 : 1801–5.

23. Sutton FM: Upper gastrointestinal bleeding in patients with oesophageal varices. What is the most common source? Am J Med 1987; 83 : 273–5.

24. Fleig WE, Stange EF, Winkler K: Is there a hepatogenic ulcer? Prospective study of the incidence of peptic ulcer in portal hypertension. Z. Gastroenterol 1987; 25 : 47–51.

25. Ostrow JD, Timmerman RJ, Gray SJ: Gastric secretion in human hepatic cirrhosis. Gastroenterology 1960; 38 : 303–13.

26. Lam SK: Hypergastrinaemia in cirrhosis of the liver. Gut 1986; 17 : 700–8.

27. Albillos A, Abress L, Alvarez-Mon M et al: Study of the secretion of Pepsinogen 1 in cirrhotic humans with and without portacaval shunt. Am J Gastroenterol 1988; 83 : 37–41.

28. Quintero E, Pique JM, Bombi JA et al: Gastric mucosal vascular ectasias causing bleeding un cirrhosis. A distinct entity associated with hypergastrinaemia and low serum levels of Pepsinogen 1. Gastroenterology 1987; 93 : 1054–61.

29. Sarfeh IJ: Gastric mucosal vasculopathy in portal hypertension (editorial) Gastroenterology 1987; 93 : 1129–31.

30. Stemmer PF, Rosario L, Kim S, Tarnawski a, Sarfeh IJ: Portal hypertension predisposes to haemmorhagic shock/reperfusion injury. J Surg Res 1990; 48 : 313–8.

31. Weiler H, Weiler C, Gerok W: Gastric mocosal Prostaglandin E2 levels in cirrhosis and portal hypertension: J Hepatol 1990; 11 : 58–64.