

Post-bulbar and coexisting ulceration: unique features of peptic ulcer in Hyderabad

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Abstract

Post-bulbar ulceration is uncommon, but a pilot study in Hyderabad showed a high incidence. We therefore carried out a prospective endoscopic study of the distribution of peptic ulceration and its relation to symptoms and demography. Of the 360 consecutive patients referred for endoscopy, 113 (92 men, 21 women) had peptic ulceration. Median age 35 years, median duration one year. Five patients (4%) had gastric ulcer, 77 (68%) had duodenal ulcer, and 31 (28%) had coexisting gastric and duodenal ulcer. The duodenal ulcer was found in the pyloric canal in 14% of patients, in the bulb in 80%, and the post-bulbar region in 56% of patients. Sixty seven per cent of duodenal ulcers were located at more than one site. The incidence of post-bulbar *v* bulbar ulcer was 1:1.5. Deformed bulb was seen in 50% of duodenal ulcer patients, but haemorrhage and stenosis were uncommon. Except for nocturnal pain, there were no differences in symptoms between the groups. Forty two per cent of patients smoked, 15% chewed tobacco, and 18% drank alcohol; almost all were men. Sixty four per cent drank tea. The staple diet (85%) was rice, and 70% used tamarind and spices daily. Duodenal ulcer was three times more common than gastric ulcer with a high incidence of post-bulbar and coexisting ulcer. It affected a younger and predominantly male population, and was not associated with a higher rate of complication.

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Post-bulbar ulceration is reported to be uncommon, but it is associated with a higher incidence of complications, such as bleeding, perforation, and stenosis.¹⁻⁶ During routine endoscopy, we found a high incidence of ulceration in this province, and a pilot study showed that 14/30 patients had ulceration in the second part of the duodenum. This has not been seen before, although a higher prevalence of duodenal ulceration has been described in south India.⁷⁻¹¹ In most of these studies, the diagnosis of peptic ulcer was based on symptoms and single contrast barium studies. Hence, it is possible that post-bulbar ulceration may have been missed. The reasons for the high incidence are not known,¹² but environmental factors and diet have been suggested.^{8,9,13-15}

We undertook a prospective endoscopic study to record the site, size, and distribution of peptic ulceration and to relate these findings with symptom patterns and demographic features.

Patients and methods

Between July 1989 and April 1990, 360 patients

were referred to our department for endoscopy. These were inpatients and outpatients from a charitable teaching institute (DDH) and a private hospital (PNH). A lignocaine solution was used to spray the pharynx and they then had an oesophagogastroduodenoscopy using an Olympus gastroscope (OES, GIF, Q10), with minimal or no sedation. Patients with a clear breach of mucosa (ulcer or erosion) in the stomach or duodenum, or both were included in the study. This consisted of 119 patients, six of whom were excluded because they were found to have a carcinoma in the lesser curve (1), greater curve (1), antrum (2), antroduodenum (2). Thus, data from 113 patients were included in the study. The endoscopy was normal in 104 patients. The remaining 137 patients were found to have other abnormalities including a hiatus hernia, oesophageal problems, gastritis, and duodenitis, and these were excluded from the study.

The endoscopy was performed by a single observer (SSCR). The lesions in the stomach or duodenum were classified as ulcers or erosions and their number, size, and location were recorded. The site of ulceration was categorised as those occurring on the lesser curve, greater curve, fundus, antrum, pyloric canal, bulb (anterior, posterior or inferior wall), and the post-bulbar region. Associated features, if any, such as stigmata of recent haemorrhage, stenosis, deformity of bulb, previous surgery, and stomas were noted.

After the operation, patients with peptic ulceration were interviewed by an independent observer (KVRM), who was unaware of the endoscopy findings. Using a standard questionnaire, the following information was collected; age, sex, occupation, rural/urban dwelling, history of smoking, alcohol consumption, tea and coffee consumption, and tobacco chewing. In this province, tobacco is commonly chewed as 'zarda pan.' This consists of tobacco paste and powder, which is flavoured and wrapped inside a beetle leaf. In addition a history of non-steroidal anti-inflammatory drugs (NSAID) and other drugs, family history, characteristics of the pain and its relation to food, and other associated

TABLE I. Prevalence of peptic ulceration in relation to occupation

Occupation	No	(%)	Gastric ulcer	Coexisting ulcer	Duodenal ulcer
Professional	21	(19)	1	5	15
Agriculture worker	19	(17)	2	9	8
Housewife	18	(16)	1	3	14
Skilled	16	(14)	0	4	12
Business	16	(14)	0	4	12
Unskilled	15	(13)	1	4	10
Others	8	(7)	0	2	6
Total	113		5	31	77

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TABLE II Anatomical distribution of gastric and duodenal ulcer. The Table shows the number of patients with ulceration at each site

	Stomach				Duodenum			
	Fundus	Greater curve	Lesser curve	Antrum	Pyloric canal	Bulb	Post-bulbar	Bulb and post-bulbar
Gastric ulcer (5/113)	1	3	3	2	–	–	–	–
Coexisting ulcer (31/113)	1	2	8	25	12	17	8	11
Duodenal ulcer (77/113)	–	–	–	–	3	31	10	31
	2	5	11	27	15	48	18	42

Note: 67% of duodenal ulcer and 28% of gastric ulcer patients had ulcers at more than one site, and patients have been counted more than once.

TABLE III Endoscopic features of gastric, bulbar, and post-bulbar ulcers

	Gastric ulcer	Bulbar ulcer	Post-bulbar	p
No	36	90	60	–
Erosions	51%	37%	34%	NS
Ulcer <1 cm	41%	39%	33%	NS
Ulcer 1–2 cm	5%	21%	27%	<0.05
Ulcer >2 cm	0	3%	6%	<0.05
Ulcer(s) at single site	72%	33%	40%	<0.05
Ulcer(s) at multiple sites	28%	67%	60%	<0.05
Bleeding (SRH)	5%	4%	3.3%	NS
Stenosis	0	4%	7%	<0.05
Deformity	0	50%	30%	<0.001

p=significantly different from gastric ulcer; no differences were seen between bulbar and post bulbar ulcer. No=total number of patients with ulceration at each site. Some patients are included in more than one group but the ulcers have been counted only once. SRH=stigmata of recent haemorrhage.

gastrointestinal symptoms (experienced at least twice a week) were noted. A detailed dietary history with particular reference to the consumption of rice, wheat, lentils, chillies, and tamarind was also obtained. Tamarind (botanical name=tamarindus indica) beans are dried or roasted, or both and are used to make a soup which is popularly called mulagatawny soup or rasam. Traditionally it is believed that the soup has digestive and carminative effects. The soup is acidic and 0.5 ml is capable of neutralising 0.05 ml of N/10 NaOH.¹⁶

Statistics – the patients were divided into three groups, based upon the site of ulceration, into those with gastric ulcer, coexisting gastric and duodenal ulcer, and duodenal ulcer. Because the data were non-parametric, statistical differences between the groups were calculated using Wilcoxon's rank sums tests.

Results

PATIENT CHARACTERISTICS

The study group consisted of 113 consecutive patients with peptic ulceration, of whom 92 were

TABLE IV Relation between habits and prevalence of peptic ulceration

Beverage	No of patients	M/F	Gastric ulcer (n=5)	Coexisting ulcer (n=31)	Duodenal ulcer (n=77)
Tea	73	62/11	1	23	49
Coffee	15	11/4	2	5	8
Tea and coffee	15	12/3	1	3	11
Abstainers	10	7/3	1	0	9
Smoking	47	47/0	0	14	33
Tobacco chewing	16	15/1	1	4	11
Alcohol	42	42/0	1	12	29

men and 21 were women (ratio was 4.4:1). The median age was 35 years (range 14–79 years). The median duration of symptoms was one year (range 14 days–20 years). The age distribution and the length of history were similar between the three groups, but male/female prevalence was 4/1 (gastric ulcer), 28/3 (coexisting gastric and duodenal ulcer), 60/17 (duodenal ulcer). Fifty four patients (48%) were living in rural communities, 49 (44%) were living in the city, and 10 patients (8%) had migrated to the city within the last two years. Twenty one patients (19%) had a family history of peptic ulceration. Eleven (10%) patients were taking NSAIDs. Table I shows the prevalence of ulceration in relation to occupation, which also displays the heterogenous nature of the study population.

DISTRIBUTION OF ULCERATION

Gastric ulcer – 36 patients (32%) had a gastric ulcer. Five (4.1%) patients had ulcers confined to the stomach and 31 (28%) had coexisting ulceration. Table II shows the distribution of gastric ulcer, and summarises the other features noted.

Duodenal ulcer – 108 (95%) patients had a duodenal ulcer, of whom 77 (68%) had ulceration confined to the duodenum. Duodenal ulcer:gastric ulcer ratio was 3:1. Table II shows the distribution of ulceration. In 48 patients (44%) the duodenal ulcer was confined to the bulb, in 18 patients (17%) the post-bulbar area, and in 42 patients (39%) the ulcers were seen in both the regions. Thus 60/108 patients (56%) had post-bulbar ulceration. In 15 patients (14%) the duodenal ulcer was located in the pyloric canal, in 77 patients (71%) the anterior wall, in 45 patients (41%) the posterior wall, and in 34 patients (31%) in the inferior wall. Table III shows the endoscopic features and their differences from gastric ulcer. Stigmata of recent haemorrhage and stenosis was seen in three patients each with bulbar ulcers and in two and four patients with post-bulbar ulcers.

DEMOGRAPHIC FEATURES

The staple diet was rice in 97 patients (85%), and the remainder ate a mixed diet of rice, wheat, and other cereals. Seventy nine patients (70%) used tamarind daily, either in the form of a soup or a pickle. There was no correlation between beverage consumption and site of ulceration (Table IV). Almost all of the patients addicted to smoking, chewing tobacco, and alcohol were men (Table IV).

SYMPTOM PATTERNS

The proportion of patients reporting a symptom in each group was remarkably similar and except for nocturnal pain, there was no significant difference between the three groups. Hence the pooled data are presented. The most common site of pain was the epigastrium (63%), then the right hypochondrium (27%), the umbilical area (26%), the right lower quadrant (14%), and the left hypochondrium (8%). Forty per cent experienced pain at more than one site and 6% were painless. The pain was aggravated by food in

50% of patients, food containing chillies in 44%, fried and fatty food in 25%, stress in 21%, and hunger in 11%. The pain was relieved by food in 25% of patients, and by antacids in 11%, but in 57% there was no relieving factor. The pain was burning (43%), stabbing (25%), dull ache (20%), colicky (11%), and gripping (8%), and radiated to the back in 20% of patients. Only 10/45 patients with a posterior wall ulcer had symptoms radiating to the back, showing a poor correlation between site of ulcer and radiation of pain. Nocturnal pain was reported by 72% of patients with duodenal ulcer, 20% of patients with gastric ulcer, and 52% of patients with coexisting ulceration, and there was a significant difference between patients with duodenal ulcer and gastric ulcer ($p < 0.02$).

ASSOCIATED FEATURES

The following additional symptoms were reported (parenthesis represents proportion of patients); nausea (42%), vomiting (27%), heartburn (50%), excessive burping (38%), hiccups (24%), flatulence (29%), constipation (27%), and diarrhoea (5%).

Discussion

Since the advent of fiberoptic endoscopy, there have been limited studies on the distribution of peptic ulceration¹⁷⁻²⁰; post-bulbar ulceration is rarely mentioned. In a meticulous study of 200 duodenoscopies in the United Kingdom, post-bulbar ulceration was not seen.¹⁷ Our prospective study shows that 56% of patients in this province had post-bulbar ulceration, and 17% had ulceration exclusively in this segment. This contrasts with the reported incidence of less than 5% from data derived from postmortem studies and retrospective radiological analysis.²⁻⁶ These studies may not reflect the true incidence, because stress ulceration may occur before death, and may be an incidental finding at necropsy,² and radiography under optimal conditions has a sensitivity of 54% for detecting gastroduodenal lesions.¹⁸ Clinical experience in the West, however, also suggests that post-bulbar ulceration is uncommon.¹ Thus, our findings represent, either a unique feature or a changing pattern of duodenal ulceration, in this geographical area. Our study did not include a control group from the same population, none the less, we saw certain demographic features, which may contribute to the high incidence and more extensive ulcer disease. Unlike the West, where coffee is preferred,²¹ two thirds of patients drank moderately excessive amounts of tea. Tea is a potent stimulant of acid secretion.²² The staple diet was rice (85%), which was usually consumed twice a day, mixed with spiced lentils, tamarind soup, and a peppered pickle. A higher incidence of duodenal ulcer and a sixfold greater relapse rate has been reported among rice eaters compared with wheat eaters.^{15 16 23} In addition, spices and peppers are acidic, stimulate gastric secretion,^{16 24-26} and cause reddening and desquamation of mucosa.²⁴⁻²⁸ Although, the role of diet and spices in the pathogenesis of peptic ulceration is controversial,^{13 14 29} our findings suggest that these factors

may play a part by hindering the healing process. Another important factor could be the high prevalence of infection with *Helicobacter pylori*.³⁰ A recent study has reported that 80% of the patient population in Hyderabad has IgG specific antibodies against *H pylori*, with a high occurrence at a younger age, compared with only 20-30% in the West.³⁰

The incidence of duodenal ulceration was three times higher than gastric ulceration. The bulbar lesions were commonly seen on the anterior wall, as seen previously,¹ and 50% of patients had a deformed bulb suggesting chronicity. Two thirds of duodenal ulcers were multiple, and were situated at more than one site, whereas more than two thirds of gastric ulcers were solitary. Interestingly, 27% of patients had coexisting gastric and duodenal ulceration. This incidence was also higher than the 3-12% figure quoted in published works,^{3 31 32} and was not associated with a higher incidence of complication. The pattern of gastric ulceration was also unique, as 65% were situated in the antrum and 86% were associated with duodenal ulceration, by contrast with a previous radiological report of 43% and 42% respectively.³³ Thus, peptic ulceration in south India is predominantly a disease affecting the antrum, bulb, and post-bulbar region – that is, areas exposed to the ravages of acid and pepsin.

The symptom patterns did not show any differences from those reported from the West,^{20 34-36} and also between the three ulcer groups, confirming recent views³⁷ that except for nocturnal pain, dyspeptic symptoms alone cannot differentiate gastric and duodenal ulceration. Patients with post-bulbar ulceration also exhibited similar symptoms. Peptic ulcer was five times more common in men than women, and this sex difference may be because of the lower incidence of smoking, alcohol, and tobacco consumption among women, although among male patients the prevalence of these habits was similar to the West.²⁰

In our series, bleeding was encountered in only two patients, and stenosis in four patients with post-bulbar ulceration, whereas previous studies have reported a higher rate of complication.⁴⁻⁶ One explanation for this discrepancy could be a bias in patient selection. In our study, this was unlikely, because we performed a prospective evaluation of patients derived from all cross sections of society (Table I). In contrast, previous studies have reported retrospective data from patients in hospital. Moreover, barium studies can miss erosions and post-bulbar ulcers.^{5 17} Both factors may have overestimated the complication rate. The lower incidence of bleeding was not surprising, as this problem is rare in India for reasons not yet understood¹²; a lower incidence of NSAID consumption (<10%), and a comparatively younger and predominantly male population with ulcer disease may be important in preventing this complication.

Our study shows an unusually high incidence of chronic post-bulbar and coexisting peptic ulceration in a younger and predominantly male population, which is associated with a lower rate of complication. Clearly, these findings merit a

further study to confirm and elucidate the pathophysiological mechanisms and causes of ulceration.

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