Is Ulcer Recurrence after Simple Closure of Perforated Duodenal Ulcer Predictable?

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Abstract

Objective: To study whether factors such as age, duration of pre-perforation symptoms, size of perforation and operative evidence of chronicity could predict recurrence of ulcer after simple closure of perforated duodenal ulcers, thus enabling patients at high risk of recurrence to be subjected to definitive surgery instead of simple closure of perforation.

Design: Retrospective. One hundred and fifty-two patients who had undergone simple closure of duodenal ulcer perforation in the last 10 years were included in the study.

Setting: A postgraduate research and teaching institution.

Patients and Measurements: Patients were subjected to a personal interview and Visick grading of symptoms 1-10 years after simple closure of duodenal ulcer perforation. Ninety of them underwent esophagogastroduodenoscopic evaluation.

Results: Symptomatic ulcer recurrence rate was 23.1% by Visick grading and 42.2% on endoscopy. Ulcer symptom recurrence rate had no correlation with patient's age, duration of pre-perforation symptoms, or size of perforation, but correlated significantly with operative evidence of chronicity (p < 0.001). However, 7 of 35 symptomatic recurrences would have been missed by the use of this criterion alone. Endoscopic evidence of recurrence also correlated only with operative evidence of chronicity. False positives and false negatives with Visick grading showed that this symptomatic evaluation was unsatisfactory even for selecting patients for further endoscopic workup.

Conclusion: Though not infallible, evidence of chronicity of ulcer at laparotomy may be a useful predictor of recurrence of ulcer after simple closure of perforated duodenal ulcer. (Indian J Gastroenterol 1993; 12: 80-2).

Key words: Duodenal ulcer perforation, duodenal ulcer recurrence, endoscopy.

Introduction

Opinions are divided on the proper treatment of perforated duodenal ulcer essentially due to three unresolved questions: (i) safety of definitive procedures vis-à-vis simple perforation closure, (ii) long-term results of definitive surgery in the acute situation, and (iii) the exact method of selecting at the first instance itself those patients who would have a high risk of recurrence and thus require definitive surgery primarily.

While the safety and results of elective surgery have been established, it remains uncertain whether the reduction in ulcer recurrence rate achieved by acid-reducing operations warrants the risk of side-effects in those patients who would have otherwise remained well after simple closure alone.

This study was carried out to determine the frequency of ulcer recurrence after simple closure. This was done symptomatically by Visick grading and objectively by endoscopy. The frequency of recurrence was correlated with factors known or presumed to predispose to ulcer recurrence. The purpose was to ascertain whether patients prone to ulcer recurrence could be identified at the time of the first surgery itself.

Methods

All patients who had undergone simple closure of perforated duodenal ulcer performed from one to ten years earlier (1981 to 1990) in one surgical unit at this hospital were called for follow-up examination. Of 203 patients, 152 responded. Lack of response was primarily due to wrong recorded addresses of 51 patients. The responders were demographically no different from the whole cohort.

Details of age at the time of perforation, duration of ulcer symptoms prior to perforation, and operative evidence of chronicity were obtained from case records. The responders were interviewed in detail and assigned a Visick grade based on symptomatology. Patients in Visick grade I or II were categorized as 'asymptomatic' and those in Visick III or IV as 'symptomatic'. All patients who in the interim period had known ulcer recurrences requiring medical or surgical treatment were classified as
Visick IV. Eight patients had had a second definitive procedure for symptomatic recurrent ulceration.

Of 152 responders, 90 agreed to undergo upper gastrointestinal endoscopy to confirm or exclude recurrent ulceration or sequelae of progressive ulcer disease. Important findings looked for during endoscopy were: (i) presence of active ulcers, (ii) marked mucosal inflammation in the form of hyperemia with superficial ulcers, (iii) significant duodenal scarring and deformity, and (iv) evidence of gastric outlet obstruction as seen by narrowing of the pyloric channel and presence of gastric residue after overnight fast. Presence of any of these findings was taken as evidence of active duodenal ulcer or progression of the original duodenal ulcer pathology.

Ulcer recurrence was correlated with the following factors: (i) age and sex of patients, (ii) duration of classical symptoms of duodenal ulcer prior to perforation (patients with symptoms of more than 3 months duration were considered to have chronic ulcers while those with symptoms of less than 3 months duration were considered to have acute ulcers), and (iii) intraoperative evidence of chronicity at the time of perforation closure, such as size of perforation (smaller or larger than 5 mm), induration or scarring of the ulcer margins, thickening and motting of the peritoneum and adhesions to surrounding structures, and evidence of gastric outlet obstruction.

Results were analyzed statistically for significance of difference in proportions, using an a level of 0.05.

Results
The study population included 145 men and 7 women; 121 patients (79.7%) were below 50 years of age. At follow-up, 61 patients (40.4%) were in Visick grade I, 56 (36.8%) in grade II, 21 (13.8%) in grade III, and 14 (9.3%) in grade IV. Thus, overall 117 of 152 patients (76.9%) were classified as 'asymptomatic' and 35 (23.1%) as 'symptomatic'. The proportion of symptomatic patients did not vary with the duration elapsed after previous simple closure of perforation (Table).

Table: Correlation of Visick grading with duration after perforation closure

<table>
<thead>
<tr>
<th>No of years after perforation closure</th>
<th>n</th>
<th>Symptomatic*</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;8</td>
<td>20</td>
<td>3 (15.0)</td>
<td></td>
</tr>
<tr>
<td>6-8</td>
<td>27</td>
<td>8 (29.7)</td>
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</tr>
<tr>
<td>4-6</td>
<td>32</td>
<td>6 (18.8)</td>
<td></td>
</tr>
<tr>
<td>2-4</td>
<td>60</td>
<td>13 (21.7)</td>
<td></td>
</tr>
<tr>
<td>&lt;2</td>
<td>13</td>
<td>4 (30.8)</td>
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</tr>
</tbody>
</table>

*Proportion is statistically similar in different groups

Visick grading had no significant relationship with patients' age at initial surgery. Visick grade III and IV occurred in 23.1% (28/121) of patients below 30 years of age as opposed to 19.3% (6/31) in those over 50 years of age (p = ns).

The 'symptomatic' Visick score was observed in 20.5% (15/73) of patients in whom duration of the preperforation ulcer symptoms was less than 3 months as compared to 24% (19/79) in those with symptoms for more than 3 months (p = ns). Likewise, Visick score was symptomatic in 20% of patients (15/73) with perforations less than 5 mm in size as opposed to 24.7% (19 of 77) in those with perforations of larger size (p = ns).

There was significant association between symptomatic recurrence rate and evidence of chronicity of ulcer at the time of initial laparotomy (p < 0.001); 27 of 82 patients (32.9%) with operative evidence of chronicity at the time of perforation closure were in Visick grade III and IV as opposed to only 7 of 70 (10%) of those who did not have such evidence.

Of 90 patients undergoing endoscopy, 38 had evidence of recurrent ulcer or progressive ulcer disease. Six patients had no endoscopic evidence of ulcer disease but were symptomatic. Endoscopic evidence of recurrent ulcer or progressive ulcer disease also did not have any significant correlation with age of patient, duration of ulcer symptoms prior to perforation or size of perforation. It was, however, significantly higher in patients with operative evidence of chronicity (p < 0.01).

Discussion
Our study showed that less than a quarter of all patients after simple closure of duodenal perforation were symptomatic. This contrasts with much higher rates reported in Western literature, ranging from 40-90%.5,9,15,22,23 Farrett and Donaldson found that symptomatic recurrence rate increased with increasing postoperative duration after simple closure.11 Although we did not follow individual patients serially, the symptomatic recurrence rate did not significantly increase with increasing duration after perforation closure. McDonough and Foster also did not find any significant relationship between postoperative symptoms and years of follow-up.9

We were also unable to confirm the higher recurrence rates reported earlier in patients older than 50 years of age.9,10 There is no unanimity in literature on the relationship between duration of ulcer history prior to perforation and recurrence of ulceration after simple closure. Cassal et al10 reported a high incidence of recurrence in those with prolonged pre-perforation symptoms, other workers5,8,9,10 however, found no such relationship. Our study also did not show any sig-
nificant relationship between recurrence of symptoms and pre-perforation duration of symptoms.

Although Gilmore suggested that perforations smaller than 5 mm are usually acute and those larger than 5 mm are chronic, we did not find higher ulcer recurrence rates in patients with larger perforations.

The only significant correlation found by us was between recurrence rates and chronicity of ulcer as determined at laparotomy for perforation. While Gilmore felt that there was no difficulty in recognizing features of chronicity at operation, Prakash and Mittal found that edema and induration around acute ulcers made it difficult to distinguish them from chronic ulcers at surgery.

While all patients who had evidence of chronicity had symptomatic recurrence, only 22% of those without such features had symptomatic recurrence. However, other authors have reported a poor correlation between the appearance of the ulcer at laparotomy and the duration of symptoms. Only 18 of 53 patients whose ulcers were visually assessed as chronic subsequently came to definitive surgery. In 35 patients who had both chronic symptoms and visual chronicity, only 51.4% came to definitive surgery. Although operative evidence of chronicity in our study did pick out a group of patients more likely to have recurrence, it was not an infallible indicator; 67.1% of patients with operative evidence of chronicity did not have recurrence and 10% of those who did not have such evidence had recurrent symptoms.

It appears, therefore, that there is no infallible method of predicting recurrence of ulcer following simple closure at the time of perforation. Although operative evidence of chronicity is a significant factor, this is often difficult to assess. Besides, use of this criterion alone would have resulted in missing 7 of 35 patients who had symptomatic recurrence after previous perforation closure.

Since Vialek grading is inaccurate and routine endoscopy of all patients at intervals after perforation closure is not logistically feasible, we feel that all patients should have a definitive surgical procedure at the first instance itself provided they have no risk factors since operative mortality and long-term results are similar to those of simple closure.

References

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