

Survey of current practices among members of CAG in the follow-up of patients diagnosed with gastric ulcer

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INTRODUCTION: Guidelines recommend a policy of endoscopic follow-up of all gastric ulcers until healing. Analysis of data from the Alberta Endoscopy Project indicates that fewer than 50% of patients diagnosed with benign gastric ulcer had undergone a repeat procedure. The practice and attitudes of physician members of the Canadian Association of Gastroenterology (CAG) on the follow-up of such patients were assessed.

METHODS: A self-administered questionnaire was mailed to members of CAG. Respondents were asked to indicate their practice setting and to estimate the proportion of gastric ulcer patients in whom they perform follow-up endoscopy. They were also asked to indicate factors influencing this choice, including the role of *Helicobacter pylori*.

RESULTS: Fifty-seven per cent of 220 respondents indicated that they perform repeat endoscopy in 95% to 100% of individuals with benign gastric ulcer. The most common reasons influencing this choice were to ensure healing (86.3%) and to confirm the benign nature of the lesion (79.5%). Nonsteroidal anti-inflammatory drug (NSAID) use (83.2%) and patient ill health (62.9%) were the most common reasons for not repeating the endoscopy. Twenty per cent of individuals indicated that *H pylori* had influenced a change in their practice.

DISCUSSION: Physicians vary widely in their follow-up of benign gastric ulcer. Studies on the occurrence of gastric cancer in this setting are not unanimous in their conclusions. Subgroups of patients with NSAID exposure and successfully eradicated *H pylori* infection may have a lower risk of malignancy. Studies to confirm this are warranted, and modified guidelines may be appropriate.

Key Words: Endoscopy; Follow-up; Gastric cancer; Gastric ulcer; Questionnaire; Survey

Sondage sur les pratiques actuelles des membres de la SCG quant au suivi des patients qui ont un diagnostic d'ulcère gastrique

INTRODUCTION : Les directives préconisent une politique de suivi endoscopique dans tous les cas d'ulcère gastrique jusqu'à cicatrisation. L'analyse des données de l'*Alberta Endoscopy Project* indique que moins de 50 % des patients qui reçoivent un diagnostic d'ulcère gastrique bénin ont subi une autre endoscopie. La pratique et les attitudes des médecins membres de la Société canadienne de gastro-entérologie (SCG) quant au suivi de ces patients ont été évaluées.

MÉTHODES : Un questionnaire auto-administré a été posté à tous les membres de la SCG. On a demandé aux répondants d'indiquer dans quel contexte ils pratiquent et d'estimer la proportion des patients atteints d'ulcère gastrique chez qui ils effectuent une endoscopie de suivi. On leur a en outre demandé d'indiquer les facteurs qui influent sur ce choix, y compris le rôle d'*Helicobacter pylori*.

RÉSULTATS : Cinquante-sept pour cent des 220 répondants ont indiqué qu'ils procédaient à une endoscopie de contrôle chez 95 à 100 % des individus atteints d'un ulcère gastrique bénin. Les raisons les plus couramment invoquées pour expliquer ce choix ont été la vérification de la cicatrisation (86,3 %) et la confirmation de la nature bénigne de la lésion (79,5 %). L'emploi d'anti-inflammatoires non stéroïdiens (AINS) (83,2 %) et le mauvais état de santé des patients (62,9 %) ont été les raisons les plus couramment invoquées pour ne pas reprendre l'endoscopie. Vingt pour cent des sujets ont indiqué que *H. pylori* avait influé sur leur pratique.

DISCUSSION : Le suivi de l'ulcère bénin à l'estomac varie grandement d'un médecin à l'autre. Les études sur le cancer de l'estomac dans ce contexte ne sont pas unanimes sur le plan de leurs conclusions. Les sous-groupes de patients exposés aux AINS puis traités avec succès contre *H. pylori* pourraient être exposés à un risque moindre de néoplasie. Il faudra procéder à des études pour confirmer cela et modifier les directives en conséquence.

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It has been recommended practice for a number of years that patients found to have a gastric ulcer at endoscopy should have multiple biopsies taken from the ulcer margin or base (1). It is further recommended that, following a six- to eight-week course of ulcer healing therapy, the endoscopy should be repeated and further biopsies be taken from the affected area to exclude occult malignancy (2-4). Furthermore, repeat endoscopy should be continued until healing occurs. It is suggested that such a practice leads to the detection of early gastric cancers at a treatable stage. The merits of this practice have been questioned by a number of investigators (5-9). However, international guidelines still recommend repeat endoscopy in the follow-up of all cases of gastric ulcer (10,11).

There are many reasons why endoscopists may elect not to follow-up gastric ulcers endoscopically. The lesion may appear obviously benign. Ulcers in the body of the stomach and fundus tend to arouse more suspicion (4). There may be associated nonsteroidal anti-inflammatory drug (NSAID) use or helicobacter infection, or the patient's age or medical condition may dissuade the endoscopist from performing further invasive tests. In some cases the patient may relocate or default from follow-up.

We examined data from the Alberta Endoscopy Project to identify patients with gastric ulcer and follow-up endoscopy with a view to validating or refuting this report (12). During the three-year study period, gastric ulcer was noted in 1597 patients. However, only 684 of these patients underwent a second endoscopy (42.8%) (95% CI 40.4% to 45.3%). In those who did have a second procedure, the apparent reason for repeat endoscopy was frequently to obtain biopsies that could not be taken initially because of recent hemorrhage. This suggests a change in practice that has important implications with regard to existing guidelines and cost issues.

The primary aim of our study was to assess, via a survey, the proportion of members of the Canadian Association of Gastroenterology (CAG) performing repeat endoscopy in patients with gastric ulcer. We also wished to ascertain the factors influencing their practice in relation to the endoscopic follow-up of such patients. Data were also recorded on *Helicobacter pylori* evaluation and treatment in this setting.

MATERIALS AND METHODS

A cross-sectional survey of physician members of CAG was performed. A study package containing a covering letter, self-administered questionnaire and return-addressed, stamped envelope was mailed to each individual inviting their participation in the study.

Questionnaire: The questionnaire was developed by the authors (Appendix A) and was pilot tested among local Calgary gastroenterologists to assess comprehension and content. The physician was specifically asked to report his or her actual practices rather than what he or she perceived practice to be elsewhere.

The questionnaire recorded age, years since primary qualification as a physician and the type of hospital in which

they practised (teaching versus nonteaching). Those who did not perform any upper gastrointestinal endoscopies were requested to return the form without further completion. Otherwise, the respondent was asked to indicate the proportion of patients with gastric ulcer in whom they repeated the endoscopy. Four possible answers were provided: 95% to 100% (termed for the purpose of analysis as 'almost all'), 75% to 94%, 50% to 74% and below 50% (collectively termed for the purpose of analysis as 'less than 95%'). Following this, they were asked to choose from a list of factors that might influence them to perform follow-up endoscopy in this population. This was followed by a list of factors that might influence them not to repeat the procedure. They were then asked to indicate whether they had changed their practice recently and what factors had influenced any change. Last, a series of questions regarding the diagnosis and treatment of *H pylori* and gastric ulcer disease was posed.

Design and statistical considerations: Members of CAG formed the study population. The survey was a cross-sectional questionnaire-based descriptive study. Results were expressed as the proportion of respondents (and confidence interval) expressing a particular view. Where appropriate, a two-tailed *t* test, Student's *t* test and χ^2 tables were used for comparisons between groups. A Bonferroni correction was applied to all *P* values less than 0.05 to avoid introducing a type I error due to multiple comparisons.

RESULTS

Three hundred and ninety-seven questionnaires were mailed to eligible subjects. Responses were received from 241 individuals constituting a 60.7% response rate (95% CI 55.7 to 65.5%). Fourteen individuals did not perform upper gastrointestinal endoscopy. Thus, the study population comprised 227 individuals. The mean age of respondents was 48.6 years (95% CI 47.4 to 47.9 years), and the mean number of years since primary qualification as a physician was 24.5 years (95% CI 23.2 to 25.7). Two hundred were practising as gastroenterologists or as internists with an interest in gastroenterology. One respondent did not indicate his specialty. The remainder were pediatric gastroenterologists (13 respondents), hepatologists (three respondents), surgeons (nine respondents) or diagnostic radiologist (one respondent). The small numbers in these groups precluded meaningful comparisons for interspecialty differences in practice.

Of the respondents, 57.3%, 22.5%, 9.2% and 11.0% indicated that they performed follow-up endoscopy in 95% to 100%, 75% to 94%, 50% to 74% and fewer than 50% of patients with gastric ulcer, respectively. There was no significant difference in practices between physicians working in teaching and nonteaching hospitals (*P*=0.88).

The subsequent analyses compare practices between those performing repeat endoscopy in the 95% to 100% group ('almost all patients') to the remainder (fewer than 95%). The mean ages of physicians in the two groups were very similar (48.5 versus 48.7 years, respectively; *P*=0.86). There was no significant difference in the length of time in medical practice between the two groups (24.3 versus 24.7

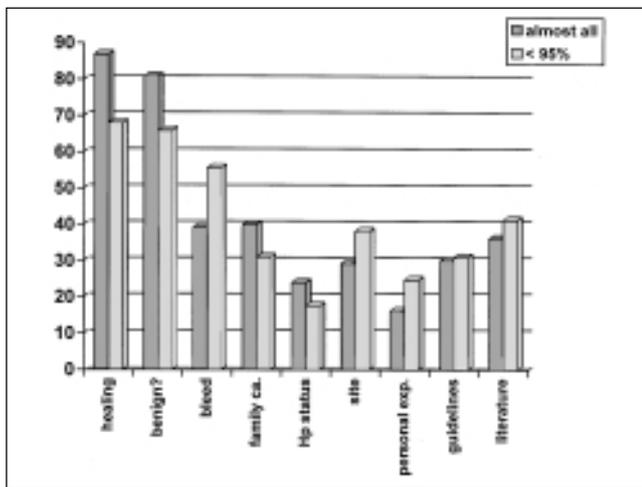


Figure 1 Factors influencing physicians in favour of repeat endoscopy in benign gastric ulcer. Benign? To confirm benign nature; bleed History of bleeding; family ca Family history of cancer; Hp Helicobacter pylori infection; personal exp Personal experience

years; $P=0.75$). In the group performing repeat endoscopy in almost all patients the most common reasons influencing this choice were to ensure healing (86.9%), to confirm the benign nature of the lesion (80.8%), a history of complicated ulcer (39.3%) and a family history of cancer (40%). In those performing repeat endoscopy in fewer than 95% of patients with gastric ulcer, the most common reasons for carrying out a follow-up procedure were the confirmation of healing (68%), the confirmation of the benign nature of the lesion (66%), a history of complicated ulcer (55.7%) and the ulcer site (38%) (Figure 1).

In those performing a repeat procedure in 'almost all patients' with gastric ulcer, patient ill health (50%) and a history of NSAID use (36.9%) were the most common reasons for not repeating the procedure. In those performing follow-up in fewer than 95% the most common factors discouraging the physician from repeating the endoscopy were NSAID use (81.4%), patient ill health (60%) and young patients (54.6%) (Figure 2).

Of the respondents, 21.5% indicated that they had changed their practice recently. Of these, 95.6% attributed this to the role of *H pylori*. In excess of 97% of respondents indicated that they routinely check for *H pylori* infection in patients with gastric ulcer, with 99.5% indicating that they would prescribe eradication therapy in this setting. However, only 35.4% would routinely confirm eradication. In this subgroup, 64.8% indicated that they would use endoscopic-based diagnostic methods for this purpose, and 57.9% indicated that they would use the urea breath test.

DISCUSSION

This cross-sectional survey indicates that approximately 57% of the physician membership of CAG report that they invariably perform follow-up endoscopy in patients found to have a benign gastric ulcer at an initial procedure. This practice is not related to the age of the physician, the setting in

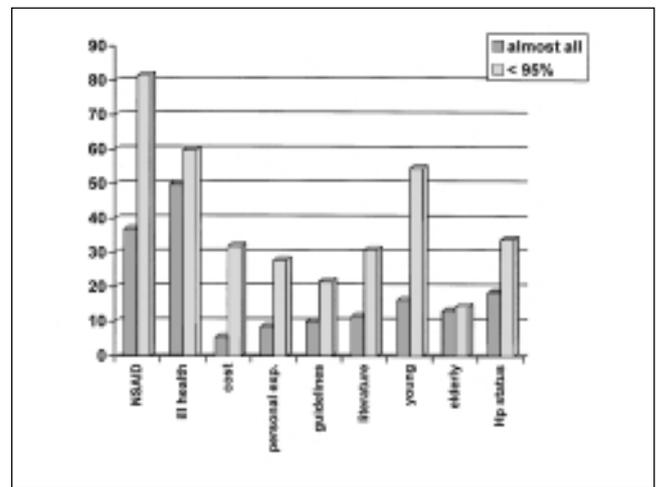


Figure 2 Factors influencing physicians against repeat endoscopy in benign gastric ulcer. Hp Helicobacter pylori infection; NSAID Non-steroidal anti-inflammatory drugs; personal exp Personal experience

which he or she practises or the length of time that the physician is in practice. Confirmation of healing was the most commonly cited reason for repeating endoscopy among all those surveyed.

There are many possible reasons underlying this divergence from practice guidelines. The importance of repeating endoscopy in patients with gastric ulcer to rule out occult malignancy is a divisive issue. A number of studies and case reports have highlighted the risk of occult gastric cancers occurring in apparently benign ulcers (4,13-18). However, several studies suggest that the risk of gastric cancer in apparently benign gastric ulcer is very low (5-7,9). In a large study of 1812 Japanese patients with gastric ulcers, 38 patients developed gastric cancer a mean of 6.1 years after the initial diagnosis of gastric ulcer (8). Only nine of the 31 cases where the cancer site was known developed in the site of the original ulcer. This suggests that the incidence of gastric cancer occurring in the actual site of a benign ulcer is very low even in a population with a high risk of gastric cancer.

It appears that an experienced endoscopist's macroscopic impression combined with adequate biopsies and/or brush cytology has a high sensitivity for detecting malignant transformation in gastric ulcers (6). Some authors report sensitivities approaching 100% when seven to 10 ulcer biopsies are taken (19,20). However, Bytzer et al (21) reported a 1.1% prevalence of gastric cancer among 773 patients with an apparently initial benign ulcer who were followed until healing. In six of 10 of these the malignant transformation did not become manifest until a range of two to 10 years after the initial diagnosis (21). The authors report that 250 endoscopies would have to be performed to detect one curable cancer. In the Canadian health care system this would cost \$140,000 dollars per cancer diagnosed.

Gastric malignancies can ulcerate. However, whether benign ulcers become malignant is controversial. *H pylori* is regarded as a class 1 gastric carcinogen (22). Whether

eradication of *H pylori* reduces the risk of malignant transformation in gastric ulcers is unknown. Successful eradication of the bacterium, in the setting of *H pylori*-associated gastric ulcer, reduces recurrence rates at one year to 0% to 8%. This suggests that for these patients confirmation of eradication by urea breath testing may be sufficient follow-up (23). In our survey, approximately 20% of respondents indicated that they had recently changed their practice in the follow-up of gastric ulcers as a result of the role played by *H pylori*.

Patients developing gastric ulcers while taking NSAIDs appear to have a lower risk of developing gastric ulcer-

associated malignancy (21). Among those surveyed in the present study, 56.1% indicated that a history of NSAID use would influence them not to repeat endoscopy.

The performance of repeat endoscopies for gastric ulcer healing constitutes 10% of the workload in some hospitals (21). This is an area where workload could be reduced. In an era in which the cost of health care is important, prospective studies on the natural history of the subtypes of gastric ulcer are warranted, taking into account the role of NSAID use and helicobacter infection. In the meantime, Canadian gastroenterologists vary widely in their individual practices.

APPENDIX
Survey of current practices among Canadian gastroenterologists in the follow-up of patients diagnosed with gastric ulcer

ID number: _____

Age: _____

Year of qualification as an MD: _____

Specialty (please circle one):

gastroenterologist internal medicine surgeon pediatric GI
 family practice other: _____

Type of hospital:

Teaching Non-teaching
 Other: _____

Number of beds:

How many upper GI endoscopies do you perform yearly? (please circle one)

None* <200 200-500 >500

*If the answer is "none" there is no need to proceed any further but please return the form

On finding a gastric ulcer at endoscopy do you routinely take the following biopsies? (please circle one)

Histology from ulcer margin yes no
Helicobacter pylori yes no

Do you perform follow-up endoscopy on patients with gastric ulcer? (please indicate approximate percentage by circling one)

95-100% 75-94% 50-74% <50%

Which of the following reasons influence you to repeat the endoscopy when the first procedure and biopsies suggest a benign ulcer? You may choose more than one. Please circle

All gastric ulcers yes no
 Confirm healing yes no
 Confirm benign nature yes no
 Suspicious lesions only yes no
 Previous bleeding complications yes no
 Family history of cancer yes no
 Helicobacter infection yes no
 Ulcer site yes no
 Personal/group experience yes no

Guidelines yes no
 Literature yes no
 Other: _____

What reasons influence you not to repeat the endoscopy when the first procedure and biopsies suggest a benign ulcer? You may choose more than one. Please circle.

NSAID use yes no
 Patient ill health yes no
 Cost yes no
 Personal/group experience yes no
 Guidelines yes no
 Literature yes no
 Young patients yes no
 Elderly patients yes no
 Helicobacter infection negative positive neither
 Other: _____

Have you changed your practice recently?

yes no

What prompted this?

Helicobacter role yes no
 Personal experience yes no
 Changed local guidelines yes no
 Other: _____

Do you routinely check for *Helicobacter pylori* in patients with gastric ulcers?

yes no other: _____

Do you routinely treat *Helicobacter* infection if present in patients with gastric ulcers?

yes no

Do you routinely check for *Helicobacter eradication* in patients with gastric ulcers?

yes no

How do you do this?

endoscopy urea breath test
 other: _____

The possibility of response bias affecting the outcome of our study cannot be discounted. Another dilemma of any survey on physician practice is whether the responses reflect actual clinical practice. Each physician in our study was requested to complete the questionnaire according to his or her actual practices rather than how he or she perceived a practice should be. There is evidence from other studies that self-reported behaviours by physicians are a valid measure of actual behaviour (24). We sought to confirm the accuracy of their self reporting by comparing the responses for a subset of individuals for whom we had in-practice evidence of their follow-up of gastric ulcers in the Alberta Endoscopy project. All of the physicians overestimated the proportion of endoscopies they repeated in this setting. However, the database may have underestimated this proportion because any gastric ulcers diagnosed during the initial phase of data entry would have been regarded as first time diagnoses, whereas a proportion of them would have been follow-up procedures. In addition, approximately half of the ulcers occurred in the setting of NSAID use; 82% of physicians who responded to the present survey and who took part in the Alberta Endo-

scopy Project indicated that this would influence against repeat endoscopy.

CONCLUSIONS

Fifty seven per cent of CAG members indicate that they repeat endoscopy in virtually all patients with a benign gastric ulcer. The primary reasons for doing so include ruling out occult malignancy and confirmation of healing. In those who repeat endoscopy in fewer than 95% of cases the most common reasons for not performing endoscopy are a history of NSAID use and patient ill health. Comparison of the results of our study with in-practice data from the Alberta Endoscopy Project suggests a discrepancy between actual and reported practice. This discrepancy may be best resolved by a prospective study on physician practice in this area. It appears that many of the malignancies occurring in patients with gastric ulcers occur after a long period of nonhealing. The eradication of *H pylori* may be of benefit in this regard.

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