T R HENDRIX
J H YARDLEY
The Johns Hopkins Medical Institutions,
Baltimore, Maryland, USA

- 1 Ming SC. Hyperplastic gastropathy. In: *Atlas of tumor pathology*. Fascicle 7, 2nd series. Tumors of the esophagus and stomach. Washington, DC: Armed Forces Institute of Pathology, 1973: 115-9.
- 2 Ménétrier P. Des polyadénomes gastriques et de leur rapports avec le cancer l'estomac. *Arch de Physiol Norm Pathol* 1888; 1: 32-55, 236-65.
- 3 Wolfson HC, Carpenter HA, Talley NJ. Ménétrier's disease: a form of hypertrophic gastropathy or gastritis? *Gastroenterology* 1993; 104: 1310-9.
- 4 Dempsey PJ, Goldenring JR, Soroka CJ, Modlin IM, McClure RW, Lind CD, et al. Possible role of transforming growth factor alpha in the pathogenesis of Ménétrier's disease: supportive evidence from humans and transgenic mice. *Gastroenterology* 1992; 103: 1950-63.
- 5 Yardley JH, Hendrix TR. Gastritis, duodenitis, and associated ulcerative lesions. In: Yamada T, Alpers DH, Owyang C, Powell DW, Silverstein FE, eds. *Textbook of gastroenterology*. 2nd ed. Philadelphia: Lippincott (in press).

Reply

EDITOR,—We agree with Hendrix and Yardley that *Helicobacter pylori* infection with hypertrophic gastric folds and a protein loss syndrome should in future be termed merely 'Helicobacter pylori induced hypertrophic gastritis' and not Ménétrier's disease; and further, that on detection of hypertrophic gastric folds a search should be carried out for other possible infectious causes or underlying diseases with hypertrophic folds, or both. In the past, this has not been done, either in case reports or reviews of large numbers of cases of Ménétrier's disease. In particular, most publications failed to evaluate inflammatory infiltration as an exclusion criterion for Ménétrier's disease. Thus, for example, Schindler¹ described Ménétrier's disease in his article on 'hypertrophic glandular gastritis', and Scharschmidt² in his review, expressly emphasised that 'round cell infiltration of the lamina propria was also frequently noted and was very prominent in some cases' of Ménétrier's disease.

The suggestion that only massive foveolar hyperplasia in the absence of gastritis should be termed Ménétrier's disease, was made comparatively late by Appelman,³ but was often ignored. The cases of Ménétrier's disease reported from the Mayo Clinic were, for example, accepted as being Ménétrier's disease when 'a hypertrophic gastropathy with hypoproteinaemia' presented. Indeed, in the first synopsis of 43 patients, a 'systematic histological study of the gastric mucosa' was even deliberately not undertaken.⁴ In the latest review of the Mayo Clinic cases, it was then shown that a comparatively large percentage of these patients had a 'lymphocytic gastritis', also with loss of protein.⁵ If we recall that the former 'gastritis en nappe'⁶ has more recently been shown to be a special form of lymphocytic gastritis,⁷ and that this gastritis can also include appreciable foveolar hyperplasia, and if we also take into account the fact that Ménétrier made reference to 'polyadénomes gastriques', which he further subdivided into 'polyadénomes polypeux' and 'polyadénomes en nappes', there are justifiable doubts as to whether Ménétrier's disease as such ever was an individual entity in the first place.

The description 'polyadénomes polypeux' given by Ménétrier himself, did not include macroscopically evident hypertrophic gastric folds, and his histological description fits that

of present day 'hyperplastic' polyps, which the drawing of the macroscopic findings in Ménétrier's publication also seems to confirm, as it shows multiple polyps in the antrum and corpus, but no hypertrophic folds.

Also, in these polyps – in contrast with the interpretation of Hendrix and Yardley – Ménétrier described an inflammatory infiltrate ('infiltré de cellules migratrices'). And also in the case of the 'polyadénomes en nappes', Ménétrier noted 'des phénomènes de gastritis chronique'.

When it is further considered that the histological technology of 1888 was, of necessity, inferior to that of the present day, that the descriptions were based on necropsy findings, and that we now know that 'polyadénomes en nappes' changes in the corpus and fundus are typical of lymphocytic gastritis, doubts that Ménétrier had ever really described an individual entity or that the cases of Ménétrier's disease published over the past decades really represented an individual entity, are considerably strengthened.

Our case history was intended merely to draw attention to the fact that when the clinical and endoscopic pictures suggest Ménétrier's disease, we should in future give more consideration to the possibility that the condition presenting is really *H. pylori* induced gastritis, which can then be cured by eradicating the *H. pylori*.

M STOLTE
Institute of Pathology,
Bayreuth, Germany
E BAYERDÖRFFER
Medical Department II,
Klinikum Großhadern,
University of Munich,
Germany

- 1 Schindler O. On hypertrophic glandular gastritis, hypertrophic gastropathy, and parietal cell mass. *Gastroenterology* 1963; 45: 77-82.
- 2 Scharshmidt BF. The natural history of hypertrophic gastropathy (Ménétrier's disease): report of a case with 16 year follow up and review of 120 cases from the literature. *Am J Med* 1977; 63: 644-52.
- 3 Appelman HD. Localized and extensive expansions of the gastric mucosa: mucosal polyps and giant folds. In: Appelman HD, ed. *Pathology of the esophagus, stomach, and duodenum. Contemporary issues in surgical pathology*. New York: Churchill Livingstone, 1984: 79-119.
- 4 Searcy MR, Malagelada JR. Ménétrier's disease and idiopathic hypertrophic gastropathy. *Ann Intern Med* 1984; 100: 565-70.
- 5 Wolfson HC, Carpenter HA, Talley NJ. Ménétrier's disease: a form of hypertrophic gastropathy or gastritis? *Gastroenterology* 1993; 104: 1310-9.
- 6 Lambert R, Andre C, Moulinier B, Bugnon B. Diffuse varioliform gastritis. *Digestion* 1978; 17: 159-76.
- 7 Haot J, Journet A, Willette M, Gossuin A, Mainguet P. Lymphocytic gastritis – prospective study of its relationship with varioliform gastritis. *Gut* 1990; 31: 282-5.

Polyethylene glycol (PEG) as a marker of small intestinal permeability

EDITOR,—We were very interested to read the paper by Peeters *et al* who, in an attempt to standardise intestinal permeability test conditions, have studied the effects of probe solution composition and osmolality on the permeation of ⁵¹CrEDTA and PEG 400 (MW 280-634) across the small intestine (*Gut* 1994; 35: 1404-8). We endorse the need for standardisation in the conduct of small intestinal permeability tests and in a recent investigation of the effects of hydration status on urinary probe recovery in normal subjects

we found that fluid hydration had a considerable effect on the recovery of PEG (MW range 280 to 1100). In contrast, mannitol and lactulose recovery were not affected.¹ Peeters *et al* expressed their results as ⁵¹CrEDTA/PEG 400 ratios and found that the permeation of both markers was significantly reduced in the presence of lactulose and mannitol. We wonder whether differences in the hydration status of their subjects might explain their results.

The dependence of PEG permeation on the state of subjects' hydration at the time of the test is just one problem facing those determined to use PEG as a marker of small intestinal permeability. PEG 400 is absorbed and excreted in vivo in much greater amounts than other probes of similar molecular weight such as lactulose (MW 342)² and the absorption of PEG is reduced in conditions associated with flat mucosa whereas that of lactulose is increased.² These anomalies have never been fully explained by the proponents of PEG as a passive permeability marker. In their recent paper, Peeters *et al* attempt to explain the unusually avid permeation of PEG 400 in comparison with sugar molecules of similar size on the basis of theoretical considerations regarding the long, thin shape of PEG. It has been proposed that PEG has access to absorptive areas inaccessible to other molecules of comparative molecular size because of its shape.³ However, this theory has not stood up to experimental analysis.⁴ Furthermore the concept of PEG as a long, thin molecule does not take into account the fact that the effective size of PEG may in fact be much larger because of hydrogen bonding by the available ether oxygen atoms along the backbone of the molecule. Another possible explanation for the avid permeation of PEG across cell walls is, because PEG is lipid soluble, it interacts with the phospholipid bilayer of the cell wall.^{2,5} In a recent in vitro study comparing PEG with lactulose and mannitol we were able to show that PEG 400 (in contrast with the other molecules) could traverse lipid barriers with comparative ease.⁶ Another problem with the use of PEG as a marker of intestinal permeability is the wide variability in the recovery of the lowest molecular weight polymers of PEG 500.⁷ This variability suggests that the smallest polymers may have a larger volume of distribution in the body, a suggestion that was supported by our recent finding that the urinary recovery of the smallest molecules in a range of PEGs is comparatively delayed in normal subjects, suggesting a slow wash out of these molecules from the extravascular space into the circulation.¹

Given all these problems with regard to the permeation of PEG across the intestine and its subsequent urinary recovery we suggest that the time has probably come for this molecule to finally be abandoned as a marker of passive small intestinal permeability in vivo.

T H IQBAL
M A COX
K O LEWIS
B T COOPER
Gastroenterology Unit,
City Hospital NHS Trust,
Dudley Road,
Birmingham B18 7QH

- 1 Iqbal TH, Cox MA, Lewis KO, Cooper BT. Problems with polyethylene glycol (PEG) as a marker of small intestinal permeability. *Gut* 1994; 35 (suppl 5): S20.
- 2 Ukabam SO, Cooper BT. Small intestinal permeability to mannitol, lactulose, and polyethylene glycol 400 in celiac disease. *Dig Dis Sci* 1984; 29: 809-16.

- 3 Hollander D. The intestinal permeability barrier. A hypothesis as to its regulation and involvement in Crohn's disease. *Scand J Gastroenterol* 1992; 27: 721-6.
- 4 Teahon K, Menzies IS, Bjarnason I. Importance of molecular geometry on permeation rates of in vivo permeability probes. *Gut* 1992; 33 (suppl 1): S57.
- 5 Philipsen EK, Batsberg W, Christensen AB. Gastrointestinal permeability to polyethylene glycol: an evaluation of urinary recovery of an oral load of polyethylene glycol as a parameter of intestinal permeability in man. *Eur J Clin Invest* 1988; 18: 139-45.
- 6 Iqbal TH, Lewis KO, Cooper BT. Diffusion of polyethylene glycol-400 across lipid barriers in vitro. *Clin Sci* 1993; 85: 111-5.
- 7 Maxton DG, Bjarnason I, Reynolds AP, Catt SD, Peters TJ, Menzies IS. Lactulose, 51Cr-labeled ethylenediaminetetra-acetate, L-rhamnose and polyethyleneglycol 500 as probe markers for assessment in vivo of human intestinal permeability. *Clin Sci* 1986; 71: 71-80.

- 1 Filice C, Pirola F, Brunetti E, Dughetti S, Strosselli M, Foglieni Scotto C, et al. A new therapeutic approach for hydatid liver cysts. *Gastroenterology* 1990; 98: 1366-8.
- 2 Khuroo MS, Zargar SA, Mahajan R. Echinococcus granulosus cysts in the liver: management with percutaneous drainage. *Radiology* 1991; 180: 141-5.
- 3 Khuroo MS, Dar MY, Yattoo GN, Zargar SA, Javid G, Ahmad K, et al. Percutaneous drainage versus albendazole therapy in hepatic hydatidosis: a prospective, randomized study. *Gastroenterology* 1993; 104: 1452-9.
- 4 Bastid C, Azar C, Doyer M, Sahel J. Percutaneous treatment of hydatid cysts under sonographic guidance. *Dig Dis Sci* 1994; 39: 1576-80.

BOOK REVIEWS

Echinococcus of the liver

EDITOR.—We read with interest Dr Morris's leading article on echinococcus of the liver (*Gut* 1994; 35: 1517-8).

We were surprised to read that percutaneous aspiration entailed a high risk of fluid leakage and anaphylaxis. Published reports do not support this view.

In Filice's report¹ on five patients successfully treated by percutaneous aspiration and 95% alcohol injection, no complications were noted.

Two series were reported by Khuroo *et al.* The first² involved 12 patients with 21 cysts, no anaphylaxis was reported, one patient had reversible urticaria and two antibiotic responsive cyst infection. The second study³ of 33 cysts was prospective and randomised comparing albendazole and percutaneous drainage and a combination of both. Twenty two aspirated cysts showed significant size reduction and change in echopattern compared with two in the albendazole group. Maximum size reduction was achieved in cysts treated with albendazole and percutaneous drainage. No patient suffered anaphylaxis, two had urticaria, two cyst infections, three developed fever, and one had biliary rupture.

We have reported our experience⁴ with percutaneous drainage of 14 cysts. To decrease the risk of peritoneal spillage, cysts were approached under ultrasound guidance through thick normal liver parenchyma and initially decompressed by fine (20 gauge) needle aspiration. Pigtail (8.3 French) catheters were subsequently used for 20% saline lavage and 95% alcohol injection. All cysts showed significant shrinkage during a mean follow up of 9.6 months. A single episode of reversible anaphylaxis was seen and average hospital stay was 48 hours.

We acknowledge the limitations of current studies, mainly the small patient numbers and lack of longterm follow up. We believe, however, that the technique is a valuable cost effective addition to treatment. It should be undertaken by experienced hands under intensive monitoring and is particularly attractive in high operative risk patients and those with recurrent disease after surgery.

C AZAR
C BASTID

Division of Hepatology and Gastroenterology,
Hôpital Sainte-Marguerite,
Marseille,
France

Correspondence to: C Azar, Department of Gastroenterology, Erasme Hospital, Route de Lennik 808, 1070 Brussels, Belgium.

Familial adenomatous polyposis and other polyposis syndromes. Edited by R K S Phillips, A D Spigelman, J P S Thomson. (Pp 234; illustrated; £65.00.) London: Edward Arnold, 1994. ISBN 0 340 56755 4.

Just as Marks is to Spencer, so St Mark's is to polyposis. The condition may have remained the same but only recently has the term familial adenomatous polyposis (FAP) become common currency. It has evolved through stages variously as familial polyposis coli, familial multiple polyposis, multiple intestinal polyposis, familial adenomatosis coli, familial polyposis coli – and just about every other combination of the terms – until arriving at its latest form. Indeed, in the way that terminological difficulties are now resolved, a meeting of 30 of the great and good in colonic polyps from 11 countries met at Leeds Castle in June 1985 to resolve the nomenclature. Those Euro-sceptics among the gastroenterological community might be distressed to learn that the horizon of polyposis groups has now extended from a castle in Kent to Euro-FAP, which is supported financially by the European Union.

It is obviously worthy that such experts in a comparatively rare condition should come together to share their experiences, data and, above all, their patient bases. It must be recognised, however, that all of the fundamental work in setting up registries, which has proved such a fruitful foundation for research, have come from the effort of three people who worked at St Mark's Hospital: Lockhart-Mummery, Dukes, and (at that time) Dukes's junior laboratory technician – Bussey. The tribute that the editors of this present volume pay to Bussey is clearly justified by his enormous and meticulous contribution, especially in establishing the St Mark's Polyposis Register (in 1924 or 1925, there is some uncertainty). The homage to Bussey is made abundantly clear in the preface and generous foreword. The other name that towers throughout this book is that of Gardner, who sadly died some six years ago at the very time that molecular biology was coning in on the gene defect in Gardner's syndrome. The interesting suggestion is made here that, as a mark of respect and acknowledgment of their contributions, familial adenomatous polyposis might be renamed Bussey-Gardner polyposis. It would certainly be a fitting memorial but I just wonder how easy it would

be to eradicate the familial and polyposis from the title of the condition and, of course, although the edges of Gardner's syndrome have become somewhat blurred in recent years, it does stand as a fairly established entity. As St Mark's Hospital closes its doors and moves to new pastures within Northwick Park Hospital elsewhere in London, I would have thought there was a good case to be made for renaming the condition St Mark's syndrome.

This is a superb book, which has been lovingly edited by three of the senior surgical staff at St Mark's Hospital. Their affection for those involved in the history of this condition, as well as their current enthusiasm for their subject, permeates through every page and surely none can challenge the credentials or the authority of any of the people involved with this monograph. The history, pathology, genetic, and clinical evaluation of patients are covered in separate chapters. All are readable, and the chapter on genetics is particularly clear. As with all the very best of British surgical teaching, anecdote abounds. Indeed, the potential benefit of such embellishments to teaching are not restricted to surgeons: there is an exceptionally witty parody of Lewis Carroll's *Father William* as applied to polyposis and was penned by Cuthbert Dukes. I think this is good enough to share with *Gut*'s readers.

'You are old, Father William,' the young surgeon said,
'And your colon from polyps is free.
Yet most of your sibling are known to be dead –
a really bad family tree.'

'In my youth,' Father William replied with a grin,
'I was told that a gene had mutated,
That all who carried this dominant gene
To polyps and cancer were fated.'

'I sought for advice from a surgical friend,
Who sighed and said, 'Without a doubt
Your only escape from an untimely end
Is to have your intestine right out.'

'It seemed rather bad luck – I was then but nineteen –
'So I went and consulted a quack,
Who took a firm hold on my dominant gene
And promptly mutated it back.'

'This,' said the surgeon, 'is something quite new
And before we can ascribe any merit
We must see if the claims of the fellow are true,
And observe what your children inherit!'

If this book has a fault, it is that the last 60 odd pages are devoted to 'other polyposis syndromes'. Inevitably, this does not have the depth of the earlier chapters on FAP, and mentions some of the cancer family syndromes, which are, of course, strict 'non-polyposis cancer syndromes'. I think this departure does perhaps illustrate the difficulties of not knowing quite where to stop in the search to be comprehensive.

I cannot believe there is a single practising gastroenterologist who would not benefit from studying this book.

IAN FORGACS

This title may be purchased from the distributor: Bookpoint Limited, 39 Milton Park, Abingdon, Oxon OX14 4TD. Tel: 01235 400403; fax: 01235 821511.