ment in only eight patients (2%). Three have already died within 6 months, of unrelated causes, and five remain well, so far.

We strive not to leave stents in on a permanent basis, believing that most patients can be managed effectively by expert endoscopy, radiology, and surgery, including adjuvant techniques such as shock wave lithotripsy. Stenting is useful for a few weeks or months during which the patient's health and options can be reviewed. The King's group are rightly cautious in their recommendations. Stenting has not yet been shown to be a good permanent method for managing difficult stones, and should be used very sparingly.

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1 Cotton PB, Forbes A, Leung J, Dineen L. Endoscopic stenting for the long term treatment of large bile duct stones; 2 to 5 year follow up. *Gastrointest Endosc* 1987; **33**: 411–2.

Reply

EDITOR,—In his letter, Dr Cotton raises two important points. The first is the high number of patients that were treated with an endoprosthesis and the second the adequacy of such a treatment in the long term. It is true that the number of patients treated with this approach in our series is high and this is because of two reasons. Firstly, it reflects the referral of some patients who had not responded to treatment in other experienced hands and secondly a conscious decision to achieve immediate drainage and clinical stabilisation in elderly and frail patients in whom we considered a protracted procedure might be more detrimental.

Dr Cotton places great emphasis upon duct clearance, but we would suggest that in some cases this may expose the patient to more risk than an in-dwelling prosthesis. There is a need for controlled data to answer these important points and we are pleased to confirm that we are now well into a multicentre study in a well defined 'high risk' group of patients.

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Assessment of proliferation of squamous, Barrett's, and gastric mucosa in patients with columnar lined Barrett's oesophagus

EDITOR,—I comment on the interesting paper by Iftikhar *et al* on assessment of proliferation in oesophageal squamous, Barrett's, and gastric epithelium by flow cytometric evaluation of Ki67 immunolabelling (*Gut* 1992; 33: 733–7). The authors found that biopsy specimens from squamous lined oesophagus contained cell populations with a higher percentage of Ki67 positive cells than Barrett's, and gastric mucosal biopsy specimens. Barrett's and gastric mucosal biopsy specimens having similar percentages of Ki76 positive cells.

Their results may be misleading as the proportion of stromal cells in Barrett's mucosa greatly exceeds that in gastric and squamous mucosal biopsy specimens, which have over 90% pure epithelial populations; stromal cells are not excluded from the total cell count by their technique and dilute the epithelial cell population. Thus the finding that Barrett's mucosal biopsy specimens contain a similar percentage of Ki67 cells to gastric biopsy specimens (by this technique) is more likely to imply a considerably higher epithelial Ki67 labelling index in Barrett's than in gastric epithelial cell (as opposed to the total mucosal cell population).

This agrees with the studies performed on stained sections of mucosal biopsy specimens, including our own.[1] In our study of epithelial proliferation in Barrett's oesophagus we used PCNA immunostaining of specialised Barrett's, junctional, and gastric type metaplasia to evaluate proliferation in the epithelial cells only (excluding stromal cells). In our study specialised type Barrett's had a higher proportion of cells in cycle and an expansion of the proliferative compartment out of the crypt and into the lumenal and gland cell compartments; implying a higher level of proliferative activity in the specialised Barrett's than in the other types of metaplasia. Our findings are consistent with the proved association of specialised type Barrett's epithelium with malignant change (in smokers).[2–5]

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1 Gray MR, Hall PA, Lane DP, Nash J, Kingsnorth AN. Epithelial proliferation in Barrett's oesophagus – by PCNA immunolocalisation. *Gastroenterology* 1992; **103**: 1769–76.
2 Gray MR, Kingsnorth AN. Barrett's oesophagus and ulcerative complications of reflux oesophagitis. *Gullet* 1993; **3** (suppl 1): 42–52.
3 Gray MR, Wallace HM, Golding H, Hoffman J, Kenyon WE, Kingsnorth AN. Polyamine metabolism in the columnar lined oesophagus. *Gut* (in press).
4 Gray MR, Donnelly R, Kingsnorth AN. The role of smoking and alcohol in metaplasia and cancer risk in Barrett's columnar lined oesophagus. *Gut* (in press).
5 Gray MR. Barrett's columnar lined oesophagus-pathogenesis and predisposition to malignancy. [Thesis] University of London, 1991.

Reply

EDITOR,—Thank you for giving us the opportunity to reply to Mr Gray's comments. We share his concern about the increased population of stromal cells in Barrett's oesophagus and it is for this reason that we selected the size of the gate for the epithelial cell populations identified by staining with anticytokeratin. This is clearly stated at the end of the second subsection in the methods section of our paper.

We have not had the opportunity to study the recent paper by Mr Gray and his colleagues[2] as it has not yet appeared in print. It would seem, however, that they have been examining different types of Barrett's metaplasia rather than comparing Barrett's mucosa with gastric or oesophageal squamous mucosa. The relevance of their results with respect to our findings is therefore difficult to understand.

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Strategies for hepatitis B infection

EDITOR,—In their comprehensive leading article Catterall and Murray-Lyon (*Gut* 1992; **33**: 576–9) discuss strategies for hepatitis B immunisation. With regard to the need for booster vaccinations it seems to us that option I (no booster and reliance on immunological memory) has gained additional strength by new in vivo and in vitro data. Some of these have already been mentioned in the addendum. Our own data[1] have been supported by the findings of Jilg's group.[2,3] To our knowledge, not a single case of clinically evident hepatitis B or carriership following hepatitis B virus infection has been reported in a confirmed serologically to hepatitis B vaccine.

A spot ELISA assay, which visualises the specific immunoglobulin production of either IgG or IgM class by individual mitogenically stimulated B cells in vitro, is able to show latent immunological memory and adds further support to this strategy.[4] Long term follow up data confirm the presence of persisting circulating B cell memory despite undetectable anti-HBs in the serum seven to nine years after the first vaccination.[5] Further studies with an even longer interval are in progress. Moreover, follow up data carefully monitoring the course of events after accidental infection (such as needlestick injuries) will give additional information.

Omitting booster vaccinations completely despite theoretical objections, in all those who have been known to react to the initial vaccination series with an anti-HBs titre in excess of 100 IU/l, seems to be a perfectly reasonable alternative to expensive, complicated, and probably unnecessary booster immunisation programmes. This policy is actually being evaluated on a world wide scale at present (be it uncontrolled) because many vaccinees with known responder status will not have received a booster vaccination.

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1 Wismans PJ, van Hattum J, Mudde GC, Endeman HJ, Poel J, de Gast GC. Is booster injection with hepatitis B vaccine necessary in healthy responders? A study of the immune response. *J Hepatol* 1989; **8**: 236–40.
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Overview of screening and management of familial adenomatous polyposis

EDITOR,—In their review article Rhodes and Bradburn (*Gut* 1992; **33**: 125–31) emphasise the necessity, and potential benefits, of long term screening of family members and siblings of probands diagnosed as having familial adenomatous polyposis. These screening programmes have identified many affected subjects, usually by identification of rectal polyps at sigmoidoscopy,[1,2] and reduced the occurrence of invasive colorectal carcinoma to less

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