

## Correspondence

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### Cholelithiasis

SIR,—Murray and colleagues are to be congratulated for producing an excellent series of patients with common bile duct (CBD) stones treated by endoscopic sphincterotomy (ES), nasobiliary catheter (NBC), and methyl-tert-butyl-ether (MTBE) (*Gut* 1988; **19**: 143). There remains, however, a question mark as to its actual efficacy. Of the 10 patients treated, four passed stones spontaneously, four required further endoscopic extraction and two required surgery. The authors state that 'fragmentation' occurred in five of the patients. It would have been helpful to have had an independent observer objectively measuring degrees of dissolution or 'fragmentation' of the stones as nasobiliary cholangiography can be at times difficult to interpret. It is not enough to say that stone passage occurring spontaneously or that endoscopic extraction being easier at a second attempt should be attributed to MTBE, as this is common experience in the absence of any stone dissolution therapy.

Our own experience and that of others<sup>1-3</sup> would suggest that CBD stone dissolution by MTBE is liable to meet with a low success rate. There are three reasons for this: (1) MTBE will inevitably rise above bile and hence the stones. Positioning of the NBC and pre-infusion aspiration of bile is obviously important, but the contact time between MTBE and the stones will be quite small, partly because it has an extremely low viscosity. (2) Whereas the incidence of pigment stones in the CBD is around 25% in patients with gall bladders, the incidence rises to as high as 70% some 10 months after cholecystectomy.<sup>4,5</sup> Methyl-tert-butyl-ether will not dissolve pigment stones. (3) Mixing is very important for contact dissolution in bile; the presence of a wide sphincterotomy reduces the possibility of this occurring, because of losses into the duodenum.

Problem (1) and (3) may partly be overcome by rapid infusion and withdrawal using programmed pumps,<sup>7</sup> but these have still to be assessed for dissolving CBD stones.

In collaboration with Mr Murray and colleagues, we have been contacting potential users of MTBE in the UK in order to obtain a general overview of the situation. We would welcome details of treatment of MTBE by anyone who has yet to be contacted.

Despite these reservations MTBE is a very useful agent for direct dissolution of stones in the gall bladder. There are, however, potential hazards and one could echo the caution expressed by Murray and colleagues regarding its indiscriminate use.

### References

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### Reply

SIR,—Mr Neoptolemos gives three reasons why CBD stone dissolution using MTBE may be unsuccessful. Two of these potential problems can be overcome by technique while the third is population dependent. Our article stresses that NBC positioning is critical to ensure maximum chemical/stone contact. We minimise MTBE escape into the duodenum by using the NBC to pull the stone(s) downwards thus achieving a 'ball valve' effect at the sphincterotomy. Many years of gall stone analysis in our Unit reassures us that the vast majority of ductal stones in our population have a chemical composition suitable for dissolution using MTBE. This may not be the case for Birmingham.

We have now treated 16 patients with cholelithiasis using MTBE. Complete duct clearance without surgery has been achieved in 12. In one patient a 6 cm × 3 cm stone could not be extracted endoscopically but crumbled during surgery. The technique failed to alter stone composition in three patients. This experience continues to support our initial observations.