

Authors' reply

Sir

I read with great interest the comments and preliminary data reported by Dr Kimmings and associates. Similar to the situation in previous trials that evaluated the role of preoperative percutaneous biliary drainage, the number of patients in our trial (which spanned 4 years) was too low to allow evaluation of individual subgroups. Given the opportunity to repeat the trial, jaundiced patients undergoing pancreatoduodenectomy would be the ideal subjects to study, as previous retrospective data suggested¹. The physiological disturbances in these patients with distal malignant obstruction would mimic closely those induced by ligation of the distal common bile duct in animals.

The reasons behind the impaired nutritional status of our patients after endoscopic drainage might be the frequent procedure-related complications, especially cholangitis. None the less, additional parenteral nutritional support might be necessary for patients awaiting operation to ensure the patient is optimally prepared².

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- 1 Trede M, Schwall G. The complications of pancreatotomy. *Ann Surg* 1988; **207**: 39-47.
- 2 Foschi D, Cavagna G, Callioni F, Morandi E, Rovati V. Hyperalimentation of jaundiced patients on percutaneous transhepatic biliary drainage. *Br J Surg* 1986; **73**: 716-19.

Perioperative and postoperative tranexamic acid reduces the local wound complication rate after surgery for breast cancer

Sir

We were concerned to read the recent paper by Dr Oertli and colleagues (*Br J Surg* 1994; **81**: 856-9), which described the use of tranexamic acid to reduce the number of local wound complications following surgery for breast cancer. Numerous animal studies have shown that coumarin anticoagulant drugs and fibrinolytic agents can consistently inhibit metastasis^{1,2}. Warfarin significantly improved survival in patients with small cell carcinoma of the lung³. Perioperative antifibrinolytic therapy may promote metastasis by enhancing the adhesion of intravascular fibrin-tumour cell emboli to the endothelium of distant target organs. The use of tranexamic acid may adversely affect the outcome of patients with breast cancer and should not be advocated.

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- 1 McCulloch P, George WD. Warfarin inhibition of metastasis: the role of anticoagulation. *Br J Surg* 1987; **74**: 879.
- 2 Agostino D, Clifton EE. Decrease of metastases of carcinoma Walker 256 with irradiation and heparin or fibrinolytic agents. *Radiology* 1962; **79**: 848.
- 3 Zacharski LR, Henderson WG, Rickles FR *et al.* Effect of warfarin anticoagulation on survival in sarcoma of the lung, colon, head and neck, and prostate. *Cancer* 1984; **53**: 2046-52.

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We agree that there is evidence of inhibition of metastasis by anticoagulant drugs such as warfarin in animal models. The effect of

antifibrinolytic agents such as tranexamic acid has not been fully investigated in this respect. However, Ambrus *et al.*¹ found a beneficial antiangiogenic effect of tranexamic acid in an animal metastasis model. Clinical data assessing the effect of anticoagulant drugs on tumour recurrence, disease-free survival and overall survival are difficult to interpret and still contradictory. In operable colorectal adenocarcinoma, no significant effects of either intravenous urokinase or long-term sodium warfarin therapy were found². In another trial of adjuvant portal liver infusion in colorectal cancer with 5-fluorouracil and heparin *versus* urokinase *versus* control, there was no significant effect in reducing metastases nor on survival³. The cited work of Zacharski *et al.*⁴ showed a significant improvement of the median survival time in patients with small cell carcinoma receiving warfarin therapy, but survival rates were identical (less than 10 per cent) in the warfarin-treated and control group after 2 years. Furthermore, no differences in survival were observed between the two groups for advanced non-small cell lung, colorectal, head and neck, and prostate cancers. Further clinical trials are necessary to clarify the relationship between anticoagulant drugs and cancer metastasis.

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- 1 Ambrus JL, Ambrus CM, Forgach P *et al.* Studies on tumor induced angiogenesis. *Experientia* 1992; **61**: 436-44.
- 2 Daly L. The first international urokinase/warfarin trial in colorectal cancer. *Clin Exp Metastasis* 1991; **9**: 3-11.
- 3 Wereldsma JC, Bruggink ED, Meijer WS, Roukema JA, van Putten WL. Adjuvant portal liver infusion in colorectal cancer with 5-fluorouracil/heparin *versus* control. Results of a prospective randomized clinical trial. *Cancer* 1990; **65**: 425-32.
- 4 Zacharski LR, Henderson WG, Rickles FR *et al.* Effect of warfarin anticoagulation on survival in carcinoma of the lung, colon, head and neck, and prostate. *Cancer* 1984; **53**: 2046-52.

Abdominal wall metastases following laparoscopy

Sir

We appreciated the timely review by Mr Nduka and colleagues of the under-reported complication of malignant seeding to the abdominal wall following laparoscopy (*Br J Surg* 1994; **81**: 648-652) and agree that there is a need to define such risks in patients with intra-abdominal malignancy better. Several other instances of port-site seeding from gallbladder cancer following laparoscopic cholecystectomy have also come to our attention^{1,2} but were presumably published after submission of their comprehensive review. It is also worthy of mention that seeding of gallbladder cancer to the parietes has been reported 6 years after open cholecystectomy and exploration of the common duct in a patient whose gallbladder had demonstrated severe dysplastic changes³.

We recently experienced this complication in two patients. One was a 48-year-old woman with unsuspected gallbladder carcinoma who had undergone elective laparoscopic cholecystectomy. The gallbladder had been breached with intraperitoneal spillage of stones during a difficult procedure. Histological examination indicated poorly differentiated adenocarcinoma penetrating all layers of the gallbladder wall, and laparotomy was performed 6 weeks after referral to our department. Infiltration of the epigastric and right lateral cannula sites with metastatic carcinoma was confirmed histologically. Malignant nodules were also observed on the deep surface of the umbilical and right flank port sites; several small omental abscesses associated with retained gallstones were also the seat of regional tumour dissemination. The second patient, an 80-year-old man, had undergone diagnostic laparoscopy with needle biopsy for poorly differentiated gallbladder carcinoma with deep liver invasion. Some 3 months later he presented with painful subcutaneous masses at each of the two laparoscopic cannula sites;