treated by diathermy, and there was no clinical evidence of further deep seated lesions. A cannula was placed in the portal vein through the left gastroepiploic vein, and the liver was perfused with heparin and fluorouracil continued for one week.

At a subsequent laparotomy for a second carcinoma (rectum) seven months later there was no evidence of any tumour in the liver. He remained well during the next four years with no clinical evidence of recurrent tumour and died suddenly from a myocardial infarct. Regular monitoring of carcinoembryonic antigen during the four years always yielded normal results, the concentration three weeks before his death being 5 µg/l (normal 0-9 µg/l). The liver was removed intact at necropsy and fixed in formaldehyde. Whole organ slices at 5 mm intervals did not show any macroscopic tumour deposits; 20 standard histological blocks from all areas of the liver did not show any microscopic evidence of secondary tumours.

Comment

Surgical resection seems to be indicated for single hepatic metastases,⁴ although Finlay and McArdle found that even in these cases surgery should be approached with caution: four of their six patients with single occult metastases (identified by computed tomography) had multiple deposits within six months.⁵ The argument favouring surgical resection is certainly not as convincing when deposits are multiple, even when they are apparently confined to one lobe.

The prognosis for a patient with multiple metastases, even confined to one lobe as with our patient, is very poor, and the chances of a disease free liver after four years are slight. There is some evidence that liver perfusion improves the prognosis of patients, at least those with Dukes's stage B colonic tumours,³ but whether our patient's four year survival can be attributed to the perfusion or to the diathermy is not known. As tumour deposits were visible on the surface of the liver, however, there were probably further tumours in its substance; perfusion of the liver was therefore an important factor helping his survival. This furthers the case for postoperative perfusion of the liver in patients with no obvious metastases but perfusion of the remaining liver after hepatic resection for metastases may also improve the prognosis.

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New technique of blind peritoneal biopsy

Blind peritoneal biopsy is an accepted alternative to direct vision biopsy.¹⁻⁴ Different methods vary in their technical ease, diagnostic accuracy, and incidence of complications. I have used the forward biting fibreoptic endoscopic biopsy forceps for blind peritoneal biopsy during routine abdominal paracentesis and report the results in 18 patients with ascites.

Materials, method, and results

The biopsy equipment comprised a medium size metal cannula and trocar as used for routine abdominal paracentesis (Dawn Surgical Ltd) and the fibreoptic endoscopic biopsy forceps used for taking gastric biopsy specimens at gastroscopy (FB-K1, an accessory to the Olympus P2 gastroscope). The forceps was used without its plastic handle because heat was used for sterilisation instead of ultrasonic autoclaving, which was not available.

The trocar cannula is placed in the peritoneal cavity through the abdominal wall at the right iliac fossa in the conventional way as for abdominal paracentesis. The trocar is then removed and the fluid allowed to drain freely, without tubing, into a collector. As the fluid drains out the closed biopsy forceps is introduced through the cannula and pushed in gently. When resistance is felt, usually after 10-15 cm, it is opened and, with a slight push, closed firmly and gently pulled out. Tissue so obtained is then preserved for histological examination. The forceps is reintroduced through the cannula and, with a slight change in direction, a different site may be sampled. Further specimens may be taken in the same way. After the procedure the trocar is reinserted and both it and the cannula withdrawn. The skin is stitched and dressed and the patient monitored for any immediate or late complications.

I treated seven men and 11 women, all except one of whom were inpatients. Patients with a bleeding tendency were excluded. The consent of the patients and their attending physicians was obtained.

The biopsy procedure was easy and took no more than 10 minutes. It was well tolerated by the patients, needed no premedication, and, apart from the usual discomfort of introducing the paracentesis cannula, there were no immediate or late complications attributable to the procedure. In 15 patients the first attempted biopsy yielded tissue satisfactory for diagnosis; the average size of the specimens was about 1 mm. In the remaining three patients, who were treated early in the series, the specimens were too small. Repeat biopsy in one resulted in a positive diagnosis, raising the success rate to 88.9%. The table summarises the results.

Comment

Previous methods of blind peritoneal biopsy sampling were used mainly in diagnosing tuberculous peritonitis,^{2,4} though the Cope needle improved the diagnosis of malignant peritoneal conditions.⁵ The present method gave a high diagnostic yield for both tuberculosis and malignancy. This may be ascribed to securing large enough samples for histological examination and to the length and pliability of the biopsy forceps, which makes it possible to take multiple samples from different peritoneal sites during the same session without having to repierce the abdominal wall. This improves the diagnosis of malignancy where disease of the peritoneum is patchy. The blades of the forceps are small and the margin sharp, so causing the least trauma and complications.

I recommend this method in patients with ascites and suggest a trial of blind biopsy sampling in other cavities such as large joints, using a trocar cannula and forceps of appropriate size and type.

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Biochemical, cytological, and biopsy results in 18 patients with ascites grouped according to diagnosis

	Cancer	Tuberculosis	Other
No of patients	7	8	3
Mean age in years (range)	55 (30-70)	36 (18-75)	67 (62-75)
Fluid protein	Exudate in 6	Exudate in all	Exudate in all
Fluid cytology for malignant cells	Positive in 3, suspicious in 1	Negative in all	Negative in all
First biopsy result	Malignant in 6	Tuberculosis in all	Fibrinous inflammation in 1, failure in 2
Second biopsy result	Malignant in 1	Not done	Not done