Eur J Cancer Clin Oncol, Vol. 22, No. 2, pp. 225–227, 1986
Printed in Great Britain.

0277-5379/86$3.00+0.00

Letter to the Editor

Ultrasonically Guided Fine Needle Aspiration Biopsy (UG–FNAB): a Useful Technique for the Diagnosis of Abdominal Malignancies

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IN THE last few years, clinical ultrasound has achieved a primary role in the diagnosis of space-occupying lesions of the abdomen. Yet it is unable to detect their real nature (benignant/malignant). To this purpose, ultrasonically guided fine needle aspiration biopsy (UG–FNAB) is reported by some authors [1, 2] as a safe and efficacious technique, able to give an exact cyto-histological diagnosis.

We report here our experience on the value of UG–FNAB in the management of suspected neoplastic focal lesions of the abdomen. From February 1982 to December 1984, 197 patients (133 male, 64 female, aged 23–83 yr), who showed a suspected malignant abdominal lesion at conventional US examination, underwent UG–FNAB. Of these, 82 had a previous diagnosis and treatment for malignancy and underwent US abdominal examination in the course of clinical follow up. Among these 197 cases, 134 had hepatic lesions, 22 renal lesions, 13 pancreatic, 9 splenic and 19 abdominal lesions of unknown source.

Essential conditions for performing UG–FNAB were prothrombin time over 50%, platelet count more than 70,000/mm^3, normal PTT and informed consent from the patients.

US investigation was performed using high-resolution, real-time equipment, with a linear array 3–3.5-MHz probe (HITACHI EUB–22, EUB–26). We utilize, for performing FNAB, the 'free-hand' technique, recently described by Bret *et al.* [3] and by Livraghi [4], as we have previously reported [5].

Confirmation of cytological diagnosis was based on histology obtained by laparoscopy, laparotomy or autopsy (83 cases), or on clinical and US follow-up longer than 3 months (114 cases).

Accepted 5 August 1985.

Our results are shown in Table 1. One hundred and nine patients showed malignant cells at UG–FNAB and this result was confirmed (true positives: 55.3%; Table 2). In 65 cases the puncture was negative and the patients showed later no malignancy (true negatives: 33%; Table 3). Fifteen patients showed no malignancy at UG–FNAB, but neoplastic tissue was present in the side of the puncture (false negatives, 7.6%): among these patients, nine had hepatic focal lesions (final diagnosis: metastatic disease), two had abdominal lesions (one ganglioneuroblastoma, one peritoneal diffusion of adenocarcinoma), three had splenic lesions (all splenic focal involvement by non-Hodgkin's lymphomas) and one had a primitive carcinoma of the pancreas. We found no false positive results. In eight cases, the aspirated material was insufficient or inadequate: four renal masses showed no malignancy at clinical follow-up and the final diagnosis was of sonographically atypical renal cysts; one patient with a pancreatic mass underwent explorative laparotomy and the final diagnosis was carcinoma of the head of the pancreas; another patient with pancreatic mass undefined by UG–FNAB showed no malignancy at clinical follow-up (chronic pancreatitis).

The last two cases were patients with abdominal masses and both had a diagnosis of benign disease (calcified uterine leiomyoma, little parietal haematoma).

According to these results, the sensitivity was 87.9%, specificity 100% and overall accuracy 88.3%.

We report only one case of serious complication: in a patient with hepatocellular carcinoma, UG–FNAB was followed by bleeding, requiring a 500 ml whole-blood infusion.

Our results are favorably comparable with those reported in the recent literature [6]; for pancreatic

Table 1. *Results of UG–FNAB in patients with US-suspected abdominal malignancy*

Location	*n*	TP	TN	FN	N.S.	Sens. (%)	Spec. (%)	O.A.
Liver	134	82	43	9	—	90.1	100	93
Kidney	22	11	7	—	4	100	100	88
Abdomen	19	6	9	2	2	75	100	78
Pancreas	13	4	6	1	2	80	100	76
Spleen	9	6	—	3	—	66.6	100	66
Total	197	109	65	15	8	87.9	100	88

TP = true positive; TN = true negative; FN = false negative; N.S. = not significant (insufficient or inadequate material); O.A. = overall accuracy.

Table 2. *Distribution of true positive cases*

Location	*n*	Primary malignancy	Metastatic malignancy	Lymphoma
Liver	82	35	41	6
Kidney	11	10	—	1
Abdomen	6	—	6	—
Pancreas	4	1	2	1
Spleen	6	—	—	6

malignancies only, we found a lower sensitivity — this difference can be due to the small number of cases collected in our series. A further diagnostic yield improvement can be obtained when tissue fragments suitable for 'microhistological' evaluation are available. Schwerk *et al.* reported better diagnostic accuracy with cytological examination, but a modest increase in diagnostic yield can be obtained using both techniques at the same time. The employment of coarse needles (Tru-Cut, Vim-Silverman) seems not to improve the accuracy; moreover, good results are reported in these cases using CT guidance [7, 8], especially for deeply located or smaller lesions, which are badly visible at US examination [9]. CT guidance, a less favorable technique than US in terms of the cost/effectiveness ratio, must therefore be reserved to these particular cases.

Our results are also a further confirmation of the safety of UG–FNAB (0.5% prevalence of complications in our series); in one patient, the puncture of a hepatic lesion further diagnosed as an angioma caused no complications. Nonetheless, we believe that UG–FNAB in these cases is not acceptable; in fact, the danger of bleeding, especially for superficial lesions, is real [10]. Therefore, when angioma is suspected, we prefer CT scan or angiography.

In conclusion, we remark that UG–FNAB is safe, efficacious, cheap and without discomfort for the patients; hence, we consider this technique as the first invasive approach to the US-suspected neoplastic lesions of the liver, pancreas, kidney, spleen and abdomen. However, UG–FNAB remains an invasive procedure and must be performed when information so-obtained benefits the patient.

Table 3. *Distribution of the true negative cases*

Liver		Kidney		Abdomen		Pancreas		Spleen
Known malignancy*	14	known malignancy (cysts)	5	known malignancy†	2	chronic pancreatitis	6	—
Nodes in cirrhosis	19	abscesses	1	abscesses	4	—		—
Abscesses	6	cysts	1	foreign body granuloma	2	—		—
Cysts	3	—		chronic limhadenitis	1	—		—
Angioma	1	—		—		—		—
Total	43		7		9		6	—

*Normal hepatic cells.

†1 lipomatous mass and 1 horse shoe kidney.

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