Ultrasound Guided Percutaneous Fine Needle Aspiration Biopsy (FNAB) of Intraabdominal and Retroperitoneal Masses

G M JIAN, RAJESH MAHAJAN

Departments of Pathology and Gastroenterology, Sher-i-Kashmir Institute of Medical Sciences, Srinagar, Kashmir.

Abstract

The diagnostic role of ultrasound guided fine needle aspiration biopsy (USG FNAB) was studied in 178 patients with clinically suspected intraabdominal and retroperitoneal masses (liver 31, gall bladder 47, pancreas 21, miscellaneous sites 29). A cytological diagnosis of neoplastic or non-neoplastic lesions was made in 125 patients, giving an overall accuracy of 70-0%. The cytological accuracy in hepatic lesions was 83-9% (68/81), in gall bladder lesions 73-3% (34/47), pancreas 76-1% (16/21) and miscellaneous sites 24-1% (7/29). USG FNAB provides a reliable morphologic diagnosis safely and rapidly. This may be especially helpful in patients with advanced unresectable intraabdominal malignancies, and may avoid diagnostic surgical intervention.

Key words: Ultrasound guided aspiration, intraabdominal masses, retroperitoneal masses.

Introduction

Ultrasound guided fine needle aspiration biopsy (USG FNAB) of space occupying lesions in the abdomen and retroperitoneum is now a common procedure in oncology.1 4 It is safer than procedures such as coarse needle biopsy or exploratory laparotomy and its diagnostic accuracy is commendable.5 Complications are rare.1 6 In a review of 11,700 patients who underwent this procedure, Livraghi et al8 reported a complication rate of 0-5%. No experience with this procedure has been reported in Indian literature.

Material and Methods

From January 1985 to September 1987, USG FNAB was performed in 178 patients (112 males, 66 females; aged 10-70 years). Aspiration was done aseptically under local anaesthesia using a real time ultrasound scanner (Model SSD-256, Aloka Co Ltd, Japan) and a 3-5 MHz puncture probe. The size and depth of the mass and the angle of the aspiration needle were measured by using an electronic caliper. A 22-23 gauge Chiba needle attached to a 20 cc glass or plastic syringe was used. Only lesions more than 1-3 cm in size were aspirated. Eight to ten slides were prepared from each aspirate, air dried and fixed in methanol. The slides were stained using May-Grünwald-Giemsa and other special stains like PAS, Alcian blue and Schmorl's stain.

Results

Two hundred aspirations were carried out in 178 patients. Aspiration was performed in one sitting (1-3 needle passes) in 156 patients, on two occasions in 21 patients (liver 7, pancreas 8, gall bladder 2, miscellaneous sites 4) and five times in one patient (pancreas).

A positive diagnosis of neoplastic or non-neoplastic lesions was made in 125 patients. This consisted of 22 hepatic malignancies (51 metastatic, one primary), 33 gall bladder carcinomas, ten pancreatic carcinomas and four malignancies from miscellaneous sites. The remaining 26 cases consisted of 11 adenos (9 non-specific, 2 ascariasis (Fl) and five other non-neoplastic liver lesions, one inflammatory lesion of the gall bladder, six pancreatic abscesses, two abdominal tubercular lymph nodes, and one benign neoplasm of the stomach. Fifty three cases were reported inconclusive, including 22 from miscellaneous sites. The final diagnosis was obtained by surgical biopsies in 48 cases (27 gall bladder, 11 liver, 5 pancreas, 4 colon, 1 stomach), from clinical radiologic data in 57 cases (46 liver, 6 gall bladder, 5 pancreas) or from results of microbiological investigations in 20 cases (11 liver, 1 gall bladder, 6 pancreas and 2 abdominal lymph nodes).

In 48 of 51 metastatic tumours of the liver, clinical follow up or the presence of a known primary elsewhere in the body helped in confirming the cytological diagnosis; in the remaining three cases, no primary lesion could be detected. Five cases with cirrhosis of the liver were reported as negative for malignancy on
cytology, and liver histopathology revealed cirrhosis. Two cases with ascariasis abscesses of the liver revealed ova of Ascaris lumbricoides on cytological examination of liver aspirate. The cytological diagnoses of nine nonspecific inflammatory lesions of the liver, six of pancreas, one of gall bladder and two abdominal lymph nodes were confirmed by culture examination of the USG FNAB aspirates of these sites.

A cytological accuracy of 83.9% (58/69) was observed in hepatic lesions, 72.5% (34/47) in the gall bladder, 76.1% (16/21) in pancreatic lesions and 24.1% (7/29) in miscellaneous sites. The overall accuracy was 70-0%. One patient developed biliary peritonitis after gall bladder perforation. The overall complication rate was thus 0.5%.

Discussion

USG FNAB has mainly been used to date in diagnosing pancreatic and liver malignancies. We included gall bladder lesions in our study. The overall cytological accuracy of 70-0% achieved by us compares well with reported figures of 64%-100%.

There have been reports of complications like abdominal bleeding and malignant seeding of the needle tract after USG FNAB. The only complication we observed was biliary peritonitis in one case after perforation of the gall bladder.

USG FNAB thus reliably and safely identifies neoplastic and non-neoplastic lesions and may avoid the need for more invasive procedures.

References