

# The diagnostic value of ultrasonography-guided fine needle aspiration biopsy from liver and pancreas

Karaciğer ve pankreas kitlelerinde ultrasonografi eşliğinde ince iğne aspirasyon biyopsisinin tanısal değeri

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**Background/aims:** The aim of this study was to evaluate the results of ultrasonographic guided fine needle aspiration biopsy conducted at our clinic between 1999 and 2000. **Methods:** Biopsy was taken from either the liver or pancreas of 40 patients (29 male, 21 female) with a mean age of 59.7±11.99 years. **Results:** The diameter of lesions was 2-15 cm, with 26 of 33 lesions in the liver being malignant. There was a solitary lesion in the liver being malignant. There was a solitary lesion in the pancreas in seven cases and these were found to be adenocarcinomas. **Conclusions:** This procedure is concluded to be a highly accurate diagnostic method, which is both fast and practical in clinical practice.

**Key words:** Ultrasonography, fine needle aspiration biopsy, liver, pancreas.

**Amaç:** Bu çalışmada kliniğimizin 1999-2000 yılları arasındaki ince iğne aspirasyon biyopsisi sonuçları değerlendirilmiştir. **Yöntem:** Ortalama yaşı 59.67± 11.99 olan 40 hastadan (29 erkek, 21kadın) karaciğer veya pankreastan ultrasonografi eşliğinde ince iğne aspirasyon biyopsisi yapıldı. **Bulgular:** Lezyonların ortalama çapı 2-15cm arasında olup, karaciğerdeki 33 lezyonun 26'sı malignandı, 7 vakada pankreasta soliter lezyon mevcuttu ve bunların adenokarsinom olduğu görüldü. **Sonuç:** Bu çalışmadaki amaç doğruluk oranı yüksek olup klinik kullanımda pratik ve hızlı bir tanı metodu olan ultrasonografiesliğinde ince iğne aspirasyon biyopsisinin önemini vurgulamak ve kliniğimizin 1999-2000 yılları arasındaki karaciğer ve pankreastan alınan ince iğne aspirasyon biyopsisi sonuçlarını dokümanete etmektir.

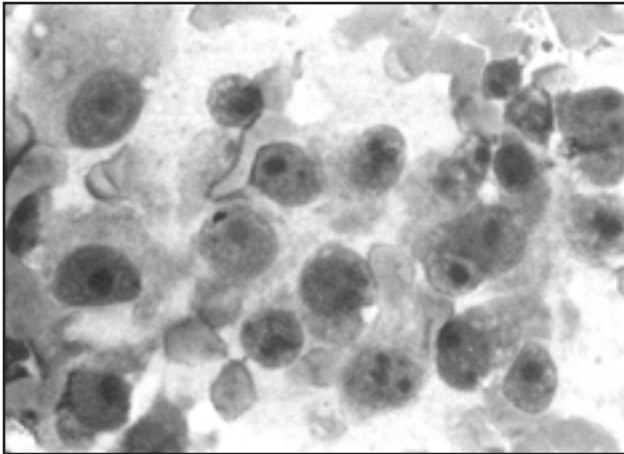
**Anahtar kelimeler:** USG,ince iğne aspirasyon biyopsisi, karaciğer, pankreas.

## INTRODUCTION

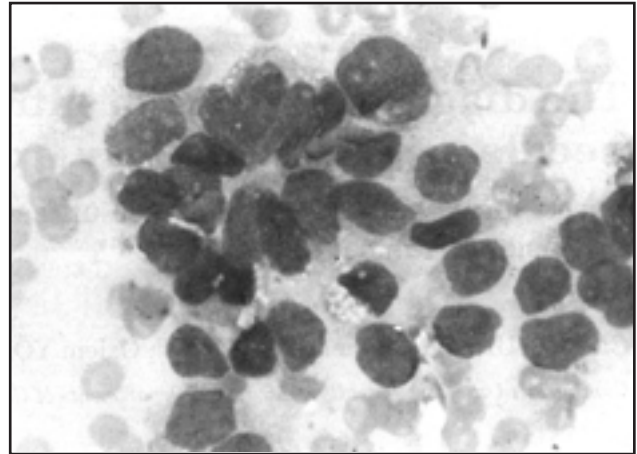
During the last 20 years, the number of image guided percutaneous procedures, including tissue biopsies and fluid aspirations, has markedly increased. The increasing popularity of these procedures stems in part from their less invasive nature, lower risk compared with surgery, high diagnostic accuracy and substantial cost savings. Improvements in needle design, cytopathologic techniques and interpretation, and the need for oncologists to obtain a tissue diagnosis in suspected metastatic lesions has also driven the popularity of these techniques (1).

Various methods may be used for such procedures including simple palpation, fluoroscopy ultra-

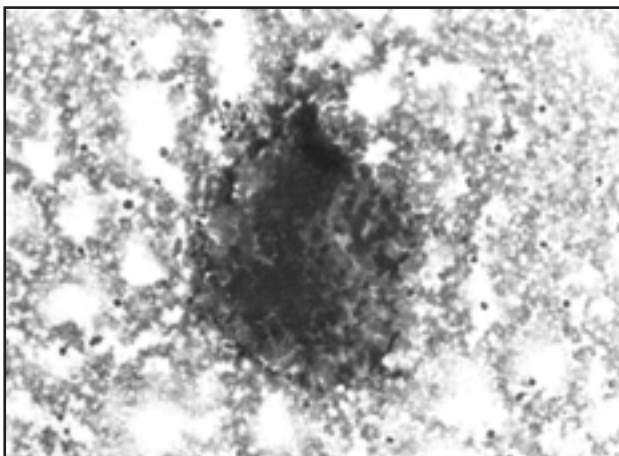
sonography (USG), magnetic resonance imaging (MRI) and computerized tomography (CT). In most situations palpation is too inaccurate to be useful while fluoroscopy requires contrast material injection for observation of the target and it is not especially convenient. The strong magnetic fields used in MR imaging seem to preclude its use as a puncture guide. Although CT can be used in some situations where USG imaging is impossible (extraordinary obesity or gaseous patients), it can not compete with ultrasound because CT guided puncture takes one or two hours while USG guided puncture takes only 5-15 minutes; even more importantly, the needle stays inside the body for only a few seconds in each pass (2).



**Figure 1.** Significant nucleoli in HCC (MGG;x250)



**Figure 2.** Carcinoid metastasis in liver (MGG; x250)



**Figure 3.** Small cell carcinoma metastasis in liver (MGG; x50).

Additionally, USG is the diagnostic method of choice because continuous observation of the needle is possible, no ionizing radiation is used, and sonography's portability allows access to immobile patients (3). This study was performed to investigate the diagnostic value of USG guided percutaneous fine needle aspiration biopsy (FNAB).

#### MATERIAL AND METHODS

The USG guided aspiration biopsies from the liver and pancreas of 40 patients attending our clinic between 1999 and 2000 were included in this study. These were taken from liver and pancreatic lesions using a 21 G Chiba needle or 22 G IV catheter needle for superficial lesions. There were

29 males and 11 females with a mean age of  $59.67 \pm 11.99$  years.

No procedure related complications were observed. At each procedure, one or two aspirations were made at random and  $6 \pm 2$  preparations were made. They were then dried and stained with May-Grünwald Giemsa and evaluated by the same cytology.

#### RESULTS

The diameter of the lesions ranged from 2 cm-15 cm and 26 of the 33 lesions were malignant. Hepatocellular carcinoma was found in nine patients (Figure 1), adenocarcinoma in ten (Figure 2), non small cell metastasis in four (Figure 3), round cell malignant metastasis in one and cholangiocellular carcinoma in two patients. Benign lesions included cirrhosis (two), alveolar cyst (one) and hemangioma (two). There was a solitary lesion in the pancreas of seven patients which was found to be adenocarcinoma. No procedure related complications were observed.

#### DISCUSSION

Despite recent advances in diagnostic imaging of the liver, the management of a patient with focal liver lesions often depends on obtaining tissue for histological diagnosis (4). The accuracy of USG guided FNAB in diagnosing malignant liver disease ranges from 73% to 94% (5). Its sensitivity is 85-90% for liver and 50-90% for pancreatic lesions (6). Its role in elucidating the etiology of portal vein thrombosis has also been reported (7). In the

study of Gazele et al. of percutaneous biopsy of abdominal masses, they reported that while USG can be used in predominantly cystic and superficial lesions having a diameter of over 3 cm-5 cm, CT guided biopsy was more appropriate in deeper lesions (8). Middleton et al. were able to diagnose cases with liver metastasis less than 1.5 cm diameter by using USG guided FNAB with an accuracy rate of 93% (9). Fischer et al. diagnosed abdominal pelvic and retroperitoneal pathological lymph nodes having an average diameter of 2.1 cm and 4.5 cm-8 cm distant from the skin with an accuracy rate of 86% (10). We used a 21 G Chiba needle for deep lesions; the lesion diameter varied between 2 cm-15 cm in this study and it was found that USG guided aspiration biopsy had a high diagnostic value even in small lesions. The limitations of this method are inadequate sampling

and limited value in diagnosing well-differentiated malignant tumours and benign tumours (4). Sheikh et al. found in their study of 85 cases that USG guided fine needle aspiration could differentiate malignant-benign lesions in 63.7% of malignant and 53.8% of benign cases (11). The risks of USG guided FNAB are low. In a retrospective study on the results of 2091 biopsies, no death related to the procedure was reported (12). Also, no acute or chronic post procedural complications related to USG guided FNAB were identified in Ballo's study of 20 patients with gastrointestinal wall masses (13).

It is concluded that USG guided percutaneous fine needle aspiration biopsy is a valuable diagnostic method with easy application and which achieves fast and accurate results.

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