

Analysis of Ultrasonic Characteristics of Gallbladder Malignant Tumors

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Abstract Objective To analyze the ultrasonic image characteristics of gallbladder malignant tumors and explore the diagnostic value of B-Ultrasonography. **Methods** The conventional method was used in gallbladder examination. **Results** The detectable rates of gallbladder malignant tumor in 15 cases was 100% and accuracy was 46.67%. The coincidence rate of ultrasonic diagnosis with clinical stage was 46.67%. **Conclusion** The detection rate of gallbladder malignant tumor was fairly high. The qualification in the tumors of intermediate stage and advanced stage was accurate. And the comitant appearances were better showed by ultrasonography. However some initial malignant changes may be missed diagnosis or misdiagnosed as benign tumors and it was difficult to define the original focus in some of advanced stage.

Key Words Gallbladder; malignant tumor; Ultrasonic diagnosis

In this article we analysed the ultrasonic image characteristics of 15 cases gallbladder malignant tumors from Jan, 1996 to May, 2002, and compared the ultrasonic image characteristics with pathology results and clinical stages, in order to explored the diagnostic value of B-Ultrasonography.

MATERIAL AND METHODS

15 cases with gallbladder malignant tumor were composed of outpatients and inpatients, including 8 male and 7 female, aged from 40 to 78 years old, and the average age was 59 years old. 9 cases had been checked by X-ray computed tomography (CT). The instrumentations were ATL MK100, AI 5200s, ESAOTBIOMEDICA AU4, AU5 made in USA and ALOKA SSD 630, SIEMENS made in Germany. The frequency of the detectors were 3.5MHz and 5.0MHz. The patients were fasting from 8 pm. to the next morning for examination. They lied on supine position or right anterior oblique and were repetitionally checked in multi sections such as oblique cutting between inter-costa or below right costal margin. We observed the shape, figure, wall and capsule of gallbladder.

RESULTS

Pathology results

The pathological results of the gallbladder malignant tumor adenocarcinoma 7 cases, papillary adenocarcinoma 3 cases, blenn-papillary adenocarcinoma 1 cases, poorly differentiated cancer 1 case, and non-operation 3 cases.

Detection rate and diagnose accuracy rate of ultrasonography

The detection rates was 100% of 15 cases of gallbladder tumor. 7 cases were carcinoma of gallbladder, 4 cases were hepatoma, 2 cases were the mass of right upper quadrant, 1 case were adenoma of gallbladder, and 1 case were cholecystitis. The diagnostic accuracy was 46.67%. The coincidence rate of ultrasonic diagnosis with clinical stage was 46.67%.

Ultrasonic typing In

7 cases which were convinced as carcinoma of gallbladder, 2 cases were diagnosed as fungoid (Fig.1), 3 cases were mixed type (Fig.2) and 2 cases were parenchymal type (Fig.3) by ultrasonography.

Diagnosis of comitant appearances and coincidence of clinical stage

In this groupe 8 cases (53.33%) complicated with cholelithiasis, calculus of bile duct and cholangiectasis; 7 cases (46.67%) had metastasises

in liver, in lymph nodes of hepatic hilar region or in other locus of abdominal cavity. The ultrasonic diagnosis of 7 cases (46.67%) were conformed to clinical stage.

DISCUSSION

Carcinoma of gallbladder was a kind of biliary system tumor, with high malignancy which is commonly found in the older woman^[1]. Being devoid of typical clinical manifestations in early period, it always led to delaying the diagnosis^[2]. We also had lacked an effective approach before. Ultrasonography could straightly display the thickening of the wall, the mass inside the gallbladder, the metastasizes in liver and lymphatic nodes, so that it elevated the clinical diagnosis level of the carcinoma of gallbladder^[3].

The typical ultrasonograms of carcinoma of gallbladder had five pattern: lesser tubercle, fungoid, hadro-wall, mixed type and parenchymal type. In 7 cases which were convinced as carcinoma of gallbladder, 2 cases (28.57%) were diagnosed as fungoid, 3 cases (42.86%) were mixed type and 2 cases (28.57%) were parenchymal type. Otherwise 1 case of lesser tubercle was misdiagnosed as adenoma because its diameter was below 1cm and the age of the patient had not reached 60. 1 cases were misdiagnosed as chronic cholecystitis because of its homogeneous thickening of the wall. 2 cases of mixed type were misdiagnosed as undefined quality masses in the right upper quadrant for its inhomogeneous internal low level echo (pseudokidney sign) or medium echo with echofree space. 4 cases with metastasizes in liver and lymph nodes of hepatic portal were display as soft tissues without obstruction of biliary tract inside liver, they were misdiagnosed as hepatoma because it was difficult to differentiate the mass originating from liver or gallbladder.

In carcinoma of gallbladder because the tumor directly invaded bile duct or the metastasis in lymphatic nodes compresses the biliary tract, it always combined obstruction of biliary tract, the ultrasonic features of which helped to diagnose biliary tract disease. Cholelithiasis and cholecystitis were the frequent concomitant appearances. In advanced carcinoma of gallbladder of parenchymal type if a mass inside liver had hyperechoic stone, it helped to differentiate carcinoma of gallbladder from hepatic tumor. In our group 53.33% cases had the ultrasonic features of above concomitant appearances. According to the study of Pradhan S, in 100 cases with carcinoma of gallbladder, 73% were combined with calculi, 74% with liver infiltration, 52% with intrahepatic ductal dilatation (IHDD), 19% with

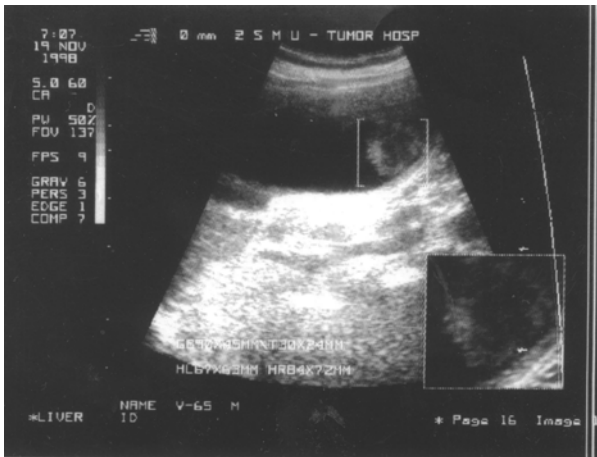


Fig.1 Case 1, male, 65 years old, the fungoid of carcinoma of gallbladder by ultrasonography

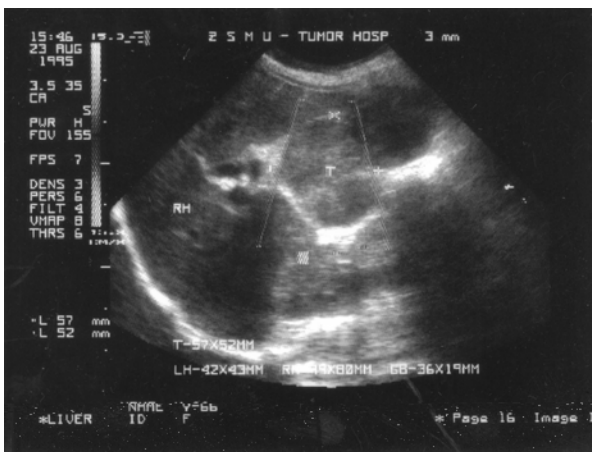


Fig.2 Case 2, male, 72 years old, the mixed pattern of carcinoma of gallbladder by ultrasonography

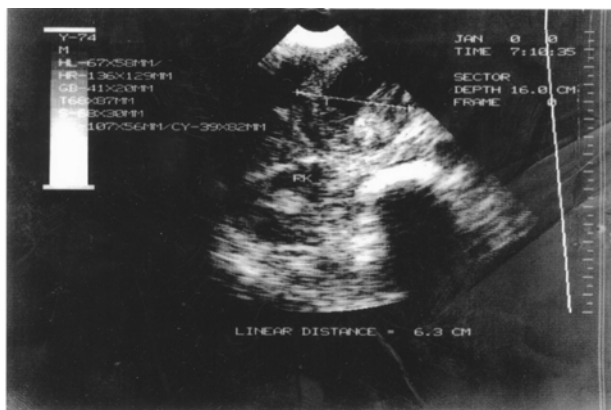


Fig.3 Case 3, female, 66 years old, the parenchymal type of carcinoma of gallbladder by ultrasonography

lymphadenopathy and 5% with ascites^[4].

Therefore, ultrasonography had fairly high detection rate of cholecystic disease, in our group it were 100%. It had accurate qualification in the tumors of intermediate stage and advanced stage. It also well displayed the concomitant symptoms of carcinoma of gallbladder. So that it did good to the diagnosis and differential diagnosis of carcinoma of gallbladder. And it had important value of clinical stage and determination of treatment plan. It was one kind of chief examination means of carcinoma of gallbladder. But it was limited in some degree. For example, in some cases of advanced stage, it could not display the figure of gallbladder because of the obliteration of the gallbladder, so it was difficult to define the mass in the cholecystic area originating from hepatoma invading gallbladder or carcinoma of gallbladder invading liver. Some initial malignant changes may be missed diagnosis or misdiagnosed as benign tumors. So we must check the gallbladder by ultrasound in mult-section and multiple alter body position. And we must pay attention to the sonogram of the wall, the capsular space, the cervical part and the surrounding of gallbladder^[5], we must combine the sonogram with the history, the developing process of the disease with the clinical feature, so we could draw a correct diagnosis.

Some factors such as gauge factor and the experience of the inspector could affect the ultra-

sonography. It was difficult to check the patient who is fat or there was much gas in his intestinal tract. In our study the detection rate and diagnostic accuracy was gradually improving with the uninterrupted renewal of the ultrasonic instrumentations. Ultrasonography was a kind of means with no-invasive, no complaints, high accuracy and repetitive multiple use. It had the succedaneous forte and it was the first choice of imaging examination means for the tumor of gallbladder.

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