Proceedings of Anticancer Research

Research Article

Clinical analysis on the differential diagnosis of gastrointestinal neoplasms by real-time endoscopic ultrasonography

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Abstract: ***objective:*** to study and analyze the effect of real-time endoscopic ultrasonography in the differential diagnosis of gastrointestinal tumors.Selection ***methods:*** between January 2014 and January 2015 xinyang 53 cases of digestive system cancer patients admitted in hospital, a total of 79 substantial tumor of the digestive system lesions, all patients were diagnosed by endoscopic ultrasonography real-time tissue elastography, use elastic imaging score, for patients with lesions and their surrounding structures control the elastic strain rate ratio of measure and comparison analysis.***Results:*** compared with the malignant lesion group, the difference between the benign lesion group and the benign lesion group was statistically significant (P<0.05).The ratio of elastic strain rate in benign lesion group was lower than that in malignant lesion group (P<0.05).The diagnostic accuracy, sensitivity and specificity were 91.14%, 94.74% and 81.82% respectively.***Conclusion:*** endoscopic ultrasound real-time tissue elastography is effective in the differential diagnosis of digestive system tumors, and can effectively determine the benign and malignant tumors and improve the diagnostic accuracy.

Keywords: endoscopic ultrasonography;Real-time tissue elastography;The digestive system;Benign and malignant tumors;Clinical analysis

Publication date: June, 2019

Publication online: 30 June, 2019

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Traditional abdominal 2 d ultrasound imaging were more likely to position the digestive organs (such as the pancreas) and diagnosis of gastrointestinal submucosal lesions has large limitation, (endoscopicultrasonograpy, EUS) and endoscopic ultrasonography imaging technology because of its probe against the inner wall of the digestive tract, and check the target, not only can effectively avoid gastrointestinal gas interference also significantly shorten the detection range, to break the limitations of ultrasound in the diagnosis of digestive system diseases.Ultrasound elastography was first proposed by Ophir et al in 1991. Color images were obtained by detecting the hardness of tumors, so as to identify the benign and malignant tumors.This paper analyzes the situation.

1 materials and methods

1.1 general information

From January 2014 to January 2015, 53 patients with digestive system tumor admitted to xinyang hospital of traditional Chinese medicine were selected, with a total of 79 substantive tumor lesions of digestive system. All the patients were diagnosed as patients with digestive system tumor by b-ultrasound, CT and endoscopy.There were 32 males and 21 females. The age ranged from 35 to 69 years, with an average age of 51.35±13.51 years. There were 22 benign lesions and 57 malignant lesions. There were 15 cases of pancreatic cancer, 11 cases of liver cancer, 9 cases of hepatic hemangioma, 4 cases of hepatic abscess, 9 cases of gastric stromal tumor and 5 cases of esophageal leiomyoma.

1.2 diagnostic methods

Using color doppler ultrasonic diagnostic apparatus and ring type electronic endoscopic ultrasonography in the diagnosis of esau, first by using B mode gray-scale imaging for regular detection, in mastering lesion location, size and characteristics of the echo, and so on

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and so forth to row after ultrasound elasticity imaging target area, then into ultrasound image real-time elastography mode, and adjust the ultrasonic interested area to the right size, through breathing exercises, XiongFuQiang artery pulse and probe the oppression of pressurization, achieve target elasticity imaging of the image.

1.3 evaluation indicators

Endoscopic ultrasound elasticity scoring criteria: the soft and hard of the lesion was judged according to the image color of real-time tissue elastography. Blue was hard and red was soft.Green and yellow indicate somewhere between soft and hard.Five points according to the elastic imaging method for elasticity imaging rate [: 1 is divided into lesions and surrounding tissue completely covered by green; 2 is divided into blue green mixed lesions area, give priority to with green; 3 into focal area is given priority to with blue, visible around the green, is divided into 4 lesions area for blue cover completely; divided into 5 lesions area all in blue, visible blue from the surrounding tissue. Malignant lesions to score 3 points or more, or less benign lesions to score two points. The elastic strain rate ratio (SR) method [6] : choose A focal region as areas of interest, then choose at the surrounding tissue as interested in B as control, calculate the SR,SR= peripheral tissue strain rate B/ focal strain rate A.

1.4 statistical analysis

Statistical software SPSS18.0 was used for data analysis, and qualitative data were tested by test, P<0.05 was considered statistically significant.2

2 the results

2.1 endoscopic ultrasound elasticity score

Compared with the malignant lesion group, the difference in ultrasound elastography score was statistically significant (P<0.05).See table 1.

Table 1. endoscopic ultrasound elasticity score [n(%)]

病理类型	*n*	1 分	2 分	3 分	4 分	5 分
良性	22	7(31.82)	12(54.55)	3(13.64)	0(0.00)	0(0.00)
恶性	57	0(0.00)[a]	6(10.53)[a]	6(10.53)	27(47.37)[a]	18(31.58)[a]

Note: compared with the benign group, P<0.05.a

2.2 accuracy, sensitivity and specificity of endoscopic ultrasonography

The diagnostic accuracy was 91.14%(72/79), the sensitivity was 94.74%(54/57), and the specificity was 81.82%(18/22).Are shown in table 2.

Table 2. comparison of endoscopic ultrasonography and pathological results (n)

弹性成像	病理结果		总计
	良性	恶性	
良性	18	3	21
恶性	4	54	58
总计	22	57	79

2.3 ratio of elastic strain rate of benign and malignant lesions

The ratio of elastic strain rate in benign lesion group was lower than that in malignant lesion group (P<0.05). See table 3.

Table 3. ratio of elastic strain rate of benign and malignant lesions (%)

病理类型	*n*	弹性应变率比值范围	中位弹性应变率比值
良性	22	0.02~7.35	7.35
恶性	57	1.01~47.68[b]	20.08[b]

Note: compared with the benign group, P<005.b

3 discuss

Endoscopic ultrasonography (endoscopic ultra sonography, EUS) with the help of ultrasonic probe, digestive submucosal tumor to detect, a short range, low interference, the advantages of high organization, has become a digestive submucosal tumor diagnosis

and differential diagnosis of an important means, but the EUS B mode gray-scale imaging to distinguish between benign and malignant tumor specificity is poor,To assess the diagnostic value of EUS is restricted. Endoscopic ultrasonography real-time tissue elastography (EUS real - timeelastographimaging) is in the EUS examination of tissue elasticity quantitative and visual images of a recently developed technology, in the clear nature of the lesion and identification of benign and malignant lesion for EUS provides effective supplement, show superior performance. The real-time tissue elastography technology has been successfully applied to the thyroid gland, prostate, breast, liver, pancreas disease diagnosis.The clinical application of this technique is still in its infancy at home and abroad, and its application in the diagnosis of digestive submucosal tumors is still limited. The purpose of this study is to preliminarily explore the characteristics of endoscopic ultrasonography of digestive submucosal tumors and its value in the differential diagnosis of benign and malignant lesions.

In this study, there was a statistically significant difference in ultrasound elastography scores between the benign lesion group and the malignant lesion group ($P<0.05$), indicating that the tissue hardness of the malignant lesion was greater.The main reason is that the compliance and hardness of malignant tumors are smaller than that of benign tumors. The diagnostic accuracy, sensitivity and specificity of endoscopic ultrasound real-time tissue elastography are high, 91.14%, 94.74% and 81.82%, respectively, indicating that endoscopic ultrasound elastography has a high diagnostic effect.The ratio of elastic strain rate in benign lesion group was lower than that in malignant lesion group ($P<0.05$), indicating that the ratio of elastic strain rate in benign lesion group was lower.The main reason is that under the action of external forces, benign and malignant tumors will appear corresponding shape, benign tumor soft deformation is large, while malignant tumor hard deformation is small.

Although eus-rtei has a broad application prospect, it still has certain limitations. For example, the probe cannot directly see the degree of compression on the tissue when it enters the lumen, which may lead to misdiagnosis when the pressure is heavy.In addition, due to the use of high-frequency transducers, endoscopic ultrasonography can only detect lesions adjacent to the digestive tract, and may not be able to image distant tissues. In addition, limitations such as motion artifacts cannot be avoided.

References

[1] zhu yan, jia hua-ping, liang hui-ze. Application and research progress of ultrasound elastography in the diagnosis of prostate cancer [J]. Journal of clinical ultrasound medicine, 2016,07 :477-479.

[2] Chen shuyuan. Effect of ultrasound and elastography in qualitative diagnosis of liver tumors [J]. Chinese medical engineering, 2016,07 :57-59.

[3] ding bo, li xiulan, xiao yan, sun wenbing, yuan li, xu li. Differential diagnosis of benign and malignant breast tumors by real-time ceus [J]. World's latest medical information abstract, 2016, 94:209+205.