剪切波弹性成像定量技术对不同大小甲状腺良恶性结节的诊断价值

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Title: To explore the diagnostic value of shear wave elastography in benign and malignant thyroid nodules of different sizes

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关键词: 实时剪切波弹性成像技术; 杨氏模量值; 甲状腺结节; 结节大小

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摘要: 目的：探讨剪切波弹性成像(SWE)定量技术对不同大小甲状腺良恶性结节的诊断价值。方法:回顾性分析230例行SWE并经手术病理证实的甲状腺结节患者，以病理结果为金标堆，绘制诊断良恶性的ROC曲线，判断诊断效能最高的杨氏模量值及其诊断甲状腺良恶性结节的诊断截断值。根据甲状腺结节最大径线将结节分为A组（≤10 mm组）、B组（>10 mm组）。以SWE最优诊断截断值作为甲状腺恶性结节诊断标准，通过卡方检验判断结节大小对Emax值诊断甲状腺结节恶性是否有影响。绘制ROC曲线，分别判断A、B两组诊断截断值及其诊断效能。结果:230例甲状腺良恶性结节，Emax、Emean、Eratio三者诊断甲状腺良恶性结节的截断值分别为57 kPa、39 kPa、2.7。相应的曲线下面积分别为0.877、0.776、0.866。Emax值诊断甲状腺结节良恶性诊断效能最高。以Emax诊断截断值诊断两组结节良恶性，其P < 0.05，差异有统计学意义。A组Emax值>45 kPa，B组Emax值>60 kPa提示恶性可能。其A、B两组诊断的敏感度、特异度、阳性预测值、阴性预测值、准确度分别为0.92、0.89、0.94、0.87、0.92和0.89、0.84、0.91、0.82、0.87。结论:SWE杨氏模量Emax值在鉴别诊断甲状腺结节良恶性时诊断效能最高。Emax值诊断截断值受甲状腺结节大小影响，且对于≤10 mm组诊断效能最高。

Abstract: Objective:To investigate the diagnostic value of shear wave elastography (SWE) quantitative technique for benign and malignant thyroid nodules of different sizes.Methods:A retrospective analysis of 230 patients with thyroid nodules who underwent SWE and confirmed by surgery and pathology showed pathological results as a gold standard.The ROC curve for the diagnosis of benign and malignant was drawn,and the Young's modulus value with the highest diagnostic efficiency and the diagnostic cut-off value for the diagnosis of benign and malignant thyroid nodules were judged.The nodules were divided into group A (≤10 mm group) and group B (>10 mm group) according to the maximum diameter of thyroid nodules.Taking SWE optimal diagnostic cut-off value as the diagnostic criteria for malignant thyroid nodules,the chi-square test was used to determine whether the size of the nodule had an effect on the Emax value in diagnosing the malignancy of thyroid nodules.The ROC curve was drawn to determine the diagnostic cut-off values of the two groups A and B and their diagnostic efficacy.Results:In 230 cases of benign and malignant thyroid nodules,the cut-off values of Emax,Emean and Eratio for the diagnosis of benign and malignant thyroid nodules were 57 kPa,39 kPa and 2.7,respectively.The area under the corresponding curve was 0.877,0.776,and 0.866,respectively.Emax value was the most effective in diagnosing benign and malignant thyroid nodules.The diagnosis of cut-off value of Emax was used to diagnose the benign and malignant nodules of group A and B,P < 0.05,and the difference was statistically significant.Group A of Emax value>45 kPa,group B of Emax value>60 kPa suggested malignant

possibility.The sensitivity,specificity,positive predictive value,negative predictive value and accuracy of the diagnosis of the A and B groups were 0.92,0.89,0.94,0.87,0.92 and 0.89,0.84,0.91,0.82, 0.87,respectively.Conclusion:The Emax value of SWE's Young's modulus is the most effective in the differential diagnosis of benign and malignant thyroid nodules.The Emax value diagnostic cut-off value was affected by the size of the thyroid nodules,and the diagnostic power was highest for the ≤10 mm group.

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