

AbstractID: 13070 Title: Comparison Of 3T MRI And 3D Endorectal Ultrasonography For Evaluating Invasion To Muscularis Propria And Perirectal Tissue in Colorectal Cancer

Purpose:

The purpose of this study is to investigate whether 3T MRI can offer better diagnostic value over 3-D-EUS for evaluating the invasion to muscularis propria and perirectal tissue.

Method and Materials:

26 patients (age range 45-78, mean age 59.42) with biopsy proven rectal cancer underwent 3T MR Imaging and endorectal sonography. Pathology was the gold standard. Invasion through the muscularis propria and perirectal tissue at histological examination were used as the standard of reference. The sensitivity, specificity, positive predictive value, negative predictive value and overall accuracy in prediction of muscularis propria invasion and perirectal invasion were calculated for both 3T MRI and 3D EUS.

Results:

In evaluating the muscularis propria invasion in rectal cancer, the overall sensitivity, specificity, positive predictive value, and negative predictive value of 3T MRI 100%, 50%, 91.7%, 100% (P=0.125) respectively, for depiction of the invasion depth to muscularis propria. Sensitivity, specificity, positive predictive value, and negative predictive value using EUS were 90.9%, 100%, 100%, 66.7% (P=0.125) respectively.

In evaluating the perirectal tissue invasion in rectal cancer, sensitivity, specificity, positive predictive value, and negative predictive value for 3.0 T MR was 75%, 100%, 100%, 71.4% (P=0.0078) respectively, for depiction of the invasion depth to perirectal tissue. Sensitivity of EUS for the depiction of the invasion depth to perirectal tissue was 25%, specificity was 100%, positive predictive value was 100%, negative predictive value was 45.5%, P=0.0078.

3T is more sensitive and accurate than EUS for evaluating the invasion depth to perirectal tissue. There is no difference between 3T and EUS for evaluating the invasion depth to muscularis propria.

Conclusion:

3T MRI derives benefit mainly from the improvement of Signal to noise ratio and spatial resolution. 3T MRI is non invasive and offers better diagnostic value over 3-D-EUS for evaluating the invasion depth of rectal cancer.