with the most probability for malignancy. Lactate and lipid peaks have been also observed in malignant tumors (15). Inflammation is shown in a case with focal cortical involvement of Behcet's syndrome by using MRS technique (16).

In 3D MRS with Cho, Cr and NAA peaks, the Cho/Cr and Cho/NAA ratios were significantly higher in high-grade than in low-grade glioma, whereas the NAA/Cr ratios were significantly lower in high-grade than in low-grade glioma. Statistic analysis demonstrated a threshold value of 2.04 for Cho/Cr ratio. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) with this threshold value were 84.00%, 83.33%, 91.30% and 71.43%, respectively. Threshold value of 2.20 for Cho/NAA ratio resulted in sensitivity of 88%, specificity of 66.67%, PPV of 84.62%, and NPV of 72.73%. There was no significant statistical difference in overall diagnostic accuracy between Cho/Cr and Cho/NAA ratios (17).

A review article on differentiating local tumor recurrence and radiation-induced changes showed that developing MRI modalities like MRS have technical limitations such as small size or irregular shape. Artifacts resulting from air or bone closed to the lesion may affect the results. So in this article, stereotactic biopsy has been introduced as a reliable modality (18).

Conclusion

The application of both conventional and advanced MRI provides additional information about focal brain lesions which in future may completely alternate histopathological evaluations. There is a strong necessity for further studies on MRS capabilities.

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Conflict of Interest

The authors declare no conflict of interest.

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