MRI in Diagnosis of Orbital Masses

Purpose: To evaluate the role of diffusion-weighted magnetic resonance imaging and proton magnetic resonance spectroscopy in diagnosis of different orbital masses and their advantages over conventional magnetic resonance imaging.

Methods: The study included 32 patients presenting with proptosis. Every patient was subjected to a clinical examination; conventional MRI (T1 weighted, T2 weighted, and post-contrast T1 weighted if needed); diffusion-weighted MRI; and proton magnetic resonance spectroscopy. Orbitotomy was performed, the orbital mass was excised, and histopathological examination was performed.

Results: Diffusion-weighted MRI can be used to differentiate between benign lesions and malignant tumors in 75% of cases; however, overlap occurred in 25% of cases with benign tumors showing restricted diffusion while proton magnetic resonance spectroscopy could differentiate between benign and malignant tumors in 93.7% of cases.

Conclusion: Diffusion-weighted MRI and proton magnetic resonance spectroscopy increased the accuracy of diagnosis of orbital masses through giving in vivo tissue characterization; with magnetic resonance spectroscopy being more accurate.