History and evolution of brain tumor imaging: insights through radiology.

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Abstract
This review recounts the history of brain tumor diagnosis from antiquity to the present and, indirectly, the history of neuroradiology. Imaging of the brain has from the beginning held an enormous interest because of the inherent difficulty of this endeavor due to the presence of the skull. Because of this, most techniques when newly developed have always been used in neuroradiology and, although some have proved to be inappropriate for this purpose, many were easily incorporated into the specialty. The first major advance in modern neuroimaging was contrast agent-enhanced computed tomography, which permitted accurate anatomic localization of brain tumors and, by virtue of contrast enhancement, malignant ones. The most important advances in neuroimaging occurred with the development of magnetic resonance imaging and diffusion-weighted sequences that allowed an indirect estimation of tumor cellularity; this was further refined by the development of perfusion and permeability mapping. From its beginnings with indirect and purely anatomic imaging techniques, neuroradiology now uses a combination of anatomic and physiologic techniques that will play a critical role in biologic tumor imaging and radiologic genomics.

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