

Nanotechnology in Imaging Techniques

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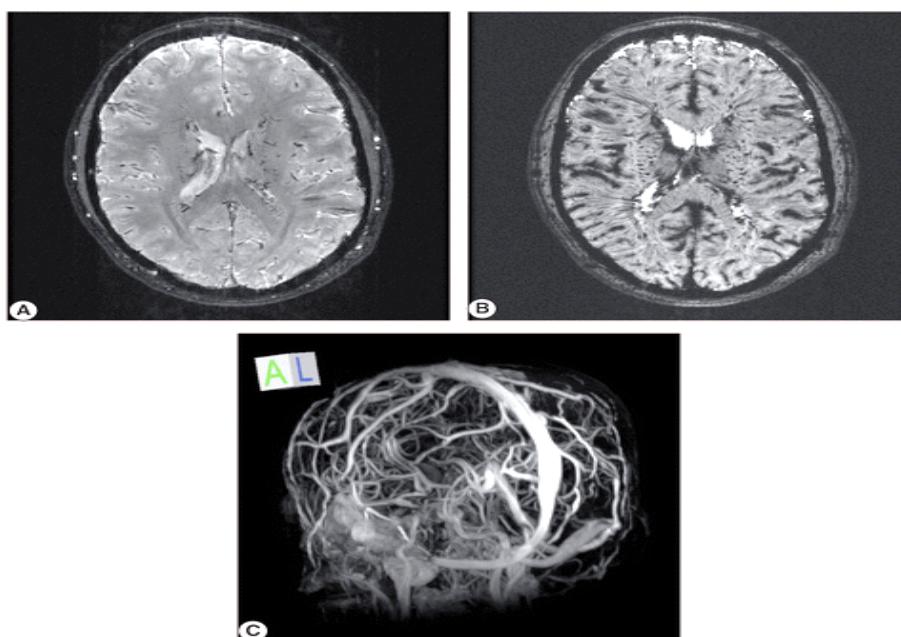


Figure 1: The advancements in technology growth are demanding its accuracy in the field of medical n that its health sector too. The need for early detection of diseases or disorders is high among those demands. with this, the treatment which would be faster and more accurate would also be needed. Current challenges remain for quick and accurate imaging of tissue microstructures and characterization of lesions that could be accomplished by the creation of longer circulation nontoxic contrast agents. The possibility is provided by nanoparticle technology. In the most popular biomedical imaging modalities, which include fluorescence imaging, MRI, CT, US, PET, and SPECT, nanoparticle-based contrast agents show their structure-related characteristics, advantages, and limitations. Multifunctional nanoplatforms will be studied in future research to address safety, efficacy, and theranostics capabilities. As imaging contrast agents, nanoparticles promise to be of great value to not only to clinical practice but also in almost all health sector industry. The above image shows a comprehensive anatomical and functional assessment of brain tumours to allow enhanced diagnostic and prognostic capabilities. Ultrasmall superparamagnetic nanoparticles of iron oxide are an evolving method that, due to their distinct physiochemical features and biodistribution, can add clinically useful knowledge, while providing a good safety profile.

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