Diagnostic value of magnetic imaging

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Magnetic resonance imaging (MRI),a new diagnostic imaging modality,is receiving a great deal of attention and is generating the most excitement in the medical community since the advent of the computed tomography in (1972) by Hounsfield . The reason for this excitement is the capability of MRI to generate high resolution,diagnostic quality, medical images at any angle and projection of the human body without ionizing radiation. Although MRI has come to the fore as a modality of medical imaging rather recently by P.C.Lauterbur,(1973), the fundamental phenomenon of nuclear magnetic resonance is much older discovery by Bloch & Purcell in 1946. Since the hydrogen proton is the most abundant element in all living tissues and has high magnetogyric ratio,it has excellent MRI characteristics suitable for imaging . The physical basis for MRI involves the interaction of the nuclei of a selected atom (hydrogen),with an external osillating (radiofrequency)electromagnetic field that is changing as a function of time at a particular frequency .Creation of MR images involves use of a large resistive or superconducting magnet. Attached to this are magnets of lesser strenghth and an energy source. The selection of the planes,or volume of interest is controlled through a computer terminal. The opening in the magnet for the patient resembles the gantry in a CT scanner. The information provided in magnetic resonance imaging depends primarily on three tissue-specific parameters T1,T2 and proton density. In choosing special acquisition modalities (spin-echo,invertion recovery,FLASH,FISP) and varying acquisition parameters (repetion time TR and echo time TE) a multitude of variations in contrast between different tissues can be obtained.Gadolinium-DTPA is water soluble contrast it shortens T1& T2 relaxation times in proportion to its concentration in the tissues,and concentrates selectively in pathologically altered tissues (tumour or inflammation). After reviewing the MRI characteristics for different pathological diseases involving the ENT, we presented our cases (sixty-four),forty-one males and twenty-three females,they range in age from two months to seventy-nine years,with a mean age of thirty-seven years. Thorough examination for all patients including history taking,general examintion,ENT examination,audiological investigations when needed and other imaging modalities been