VALUE OF N.M.R IN SURGICAL DIAGNOSIS

Essay

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By

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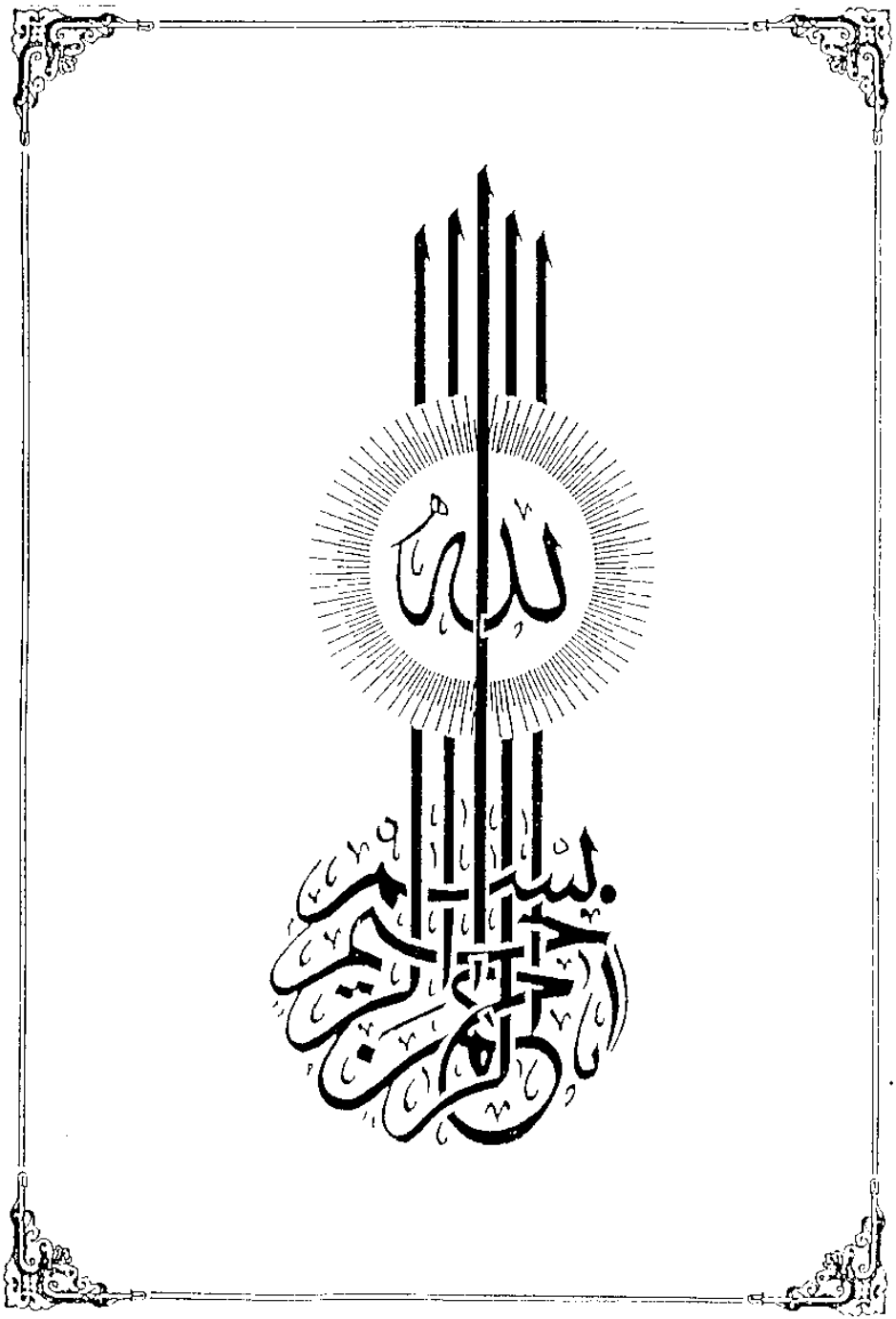

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INTRODUCTION

INTRODUCTION

Nuclear Magnetic Resonance (N.M.R), or Magnetic Resonance Imaging (M.R.I), is a new noninvasive method of mapping the internal structure of the body . It completely avoids the use of ionizing radiation .

M.R.I. provides an excellent anatomical display in ways they could never be seen before . It is now proposed as the imaging modality of first choice in diagnosis of a wide range of diseases . It has become one of the most significant advances in diagnostic body imaging .

M.R.I. combined the advantages of other imaging modalities, without sharing their disadvantages .
One of the most important advantages of M.R.I. is that it can offer multiplanar images without reformatting .

M.R.I is far safer for the patient than other diagnostic modalities . No adverse effects have been reported from its use . Iodinated contrast medium enhancement is unnecessary . It utilizes an apparently safe interaction between magnetic fields , radiowaves and atomic nuclei . It depends not only on one single parameter , but on multiple parameters .

Although still in its development stage ,M.R.I. is cosidered the most exciting new diagnostic modality.

AIM OF THE WORK

AIM OF THE WORK

The aim of this work is to discuss the value of Magnetic Resonance Imaging (M.R.I.) in diagnosis of different surgical lesions .

Also , the physical principles of M.R.I.will be discussed.

CHAPTER I

REVIEW OF LITERATURES

- *Historical review*
- *Basic physics of M.R.I.*
- *Image choice and interpretation*
- *Disease evaluation by M.R.I.*
- *Economics of M.R.I.*
- *Distribution in the world*
- *Safety of M.R.I.*
- *M.R. image display*

REVIEW OF LITERATURES

-Historical review

In 1971 ,**Damadian** discoverd the differences in the proton parameters of normal and malignant tissues.In 1973,the principles of N.M.R. imaging were first introduced by **Mansfield and Grannell** and simultaneously by **Lauterbur (1973)** . In the same year , imaging techniques to depict the magnetic behaviour of protons were developed by **Lauterbur (1973)** disclosing the field of M.R.I. .

Image quality has improved steadily while imaging time has shown a gradual decrease , bringing M.R.I. within the reach of clinical practice. The muliplanar facility of M.R.I. was first demonstrated by **Hawkes et al. (1980)** who proceeded in the same year to report,for the first time , the demonstration of intracranial pathology by M.R.I. .

-Basic physics of M.R.I.

The physics necessary for image interpretation in M.R.I. is more complex than for any other technique in radiology . This difficulty is compounded by the rapid and continuing evolution of the technique

(Bydder ,1988).