VALUE OF COMPUTED TOMOGRAPHY IN THE DIAGNOSIS OF LOW BACKACHE

THESIS

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بسم الله الرحمن الرحيم

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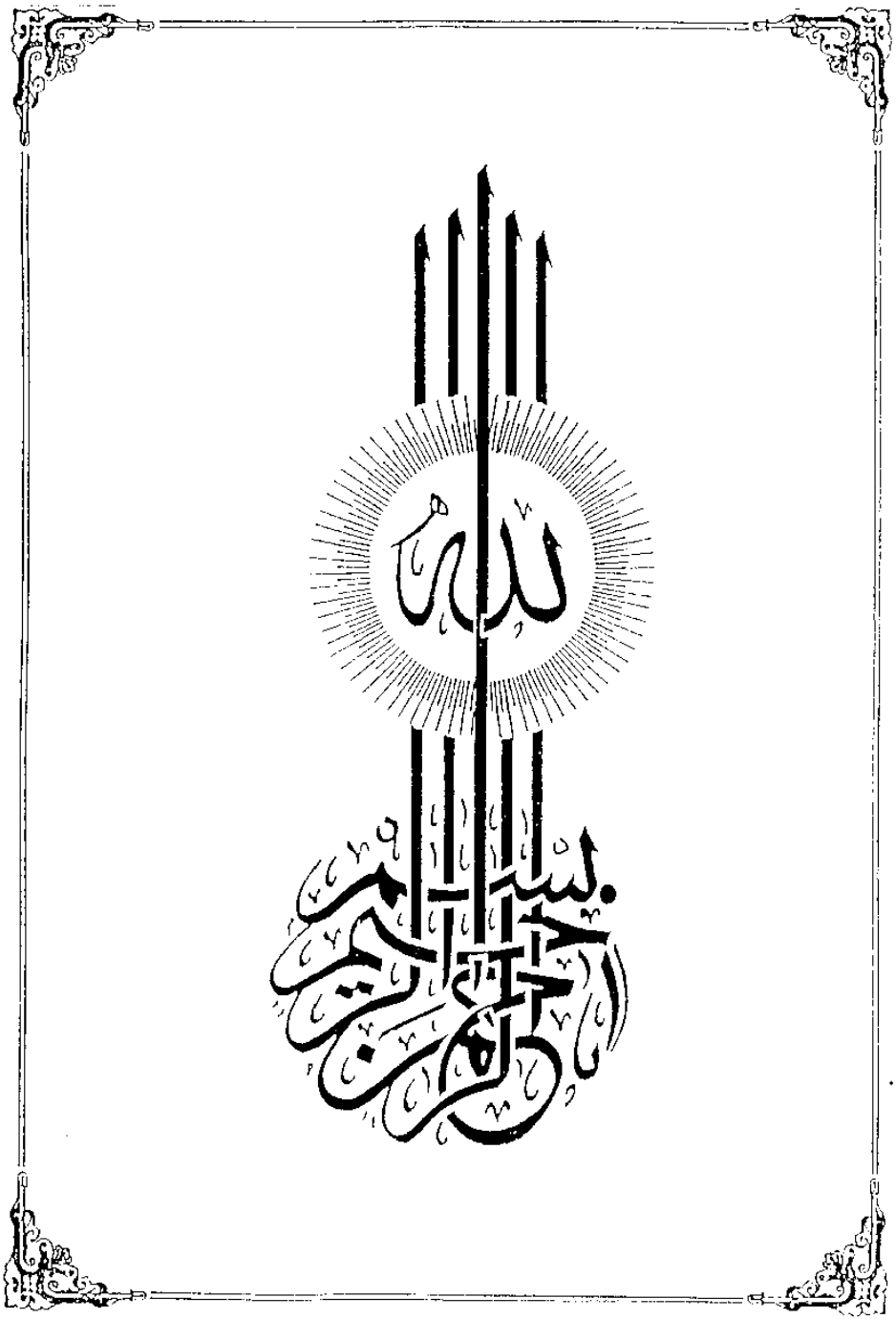

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CONTENTS

Abberviations used:

AP anteroposterior.

CT Computed Tomography.

CTM Computed Tomography with metrizamide.

MRI Magnetic Resonance Imaging.

INTRODUCTION AND AIM OF THE WORK

INTRODUCTION AND AIM OF WORK

Computed tomography has become an adjunct technique to lumbar myelography for evaluation of patient with low backache as it provides an efficacious manner of diagnosis.

The Aim of this work is to describe the causes of low backache syndrome which can be depicted reliably by computed tomography.

NORMAL CT ANATOMY OF LUMBAR SPINE

BONY COMPONENTS OF THE LUMBAR SPINE

The five lumbar vertebral bodies are oval in cross section with a greater transverse than anteroposterior dimensions. Fig. [1]

(Haughton and williams, 1982).

The body is composed of a periphery dense cortical bone which contains cancellous bone and Marrow within it.

(Dorwart and Genant 1983).

The superior and inferior surfaces of lumbar vertebral are covered by compact bone and a cartilaginous end plate which is surrounded by the fused ring apophysis. In the thick trabeculation of the spongiosa, the basivertebral veins are clearly distinguished where the basivertebral veins perforate the posterior vertebral body. Fig. [2]

(Haughton and williams, 1982).

The basivertebral vein passes through to anastomose with the anterior internal vertebral veins and anterolaterally where anastomatic veins pass from the basivertebral to the anterior external venous plexus.

(Dorwart and Genant, 1983).

The cortical disruptions are occasionally seen on axial scans obtained approximately midway between superior and inferior end-plates of a vertebra.

The basivertebral complex is sometimes represented by a "2" distinct paramedian channels.

Occasionally, the margins of the radiating collateral channels are sclerotic.

(Dorwart and Genant, 1983).

In the lumbar spine, the pedicles, laminae, and the spinous process are short and thick, whereas the transverse processes are long, delicate, flat, and in the anteroposterior plane large medullary cavities of the pedicles, laminae and process are easily demonstrated by C.T.

(Haughton and Williams, 1982).

The anterolateral margin of the laminae, near the superior articular facet,is notched by insertion of the facet joint capsule. Fig. [3]

(Haughton and Williams, 1982).

THE SPINAL CANAL

The spinal canal of the upper lumbar vertebrae (L_1-L_3) is oval or round in cross-section, at lower levels, the articular masses bow inwardly in some individuals, with a resultant trefoil configuration.

Transitional configurations (triangular, deltoid) resulting from minimal or mild inward bowing of the articular facets are occasionally seen at L_3 and more often encountered at L_4 and L_5 on spinal CT scans.

On spinal CT scans, sagittal and transverse dimensions can be measured electronically. The minimum sagittal dimension = 1.15cm, and minimum area is 1.45 cm^2.

(Dorwart and Genant,1983).

The lateral recess has been used to refer to the canal for a lumbar nerve as it exits the bony spinal canal. It has been referred to as the spinal nerve canal. This tunnel formed anteriorly by the posterolateral margins of an intervertebral disc and the upper one half of the vertebral body inferior to that disc, laterally by the pedicles, posteromedially by the ligamentum flavum and posterolaterally by the superior articulation process and pars interarticularis