ROLE OF HELICAL C.T IN DIAGNOSIS OF RENAL MASSES

ESSAY

Submitted for Partial Fulfillment of the

M.Sc Degree in

RADIODIAGNOSIS

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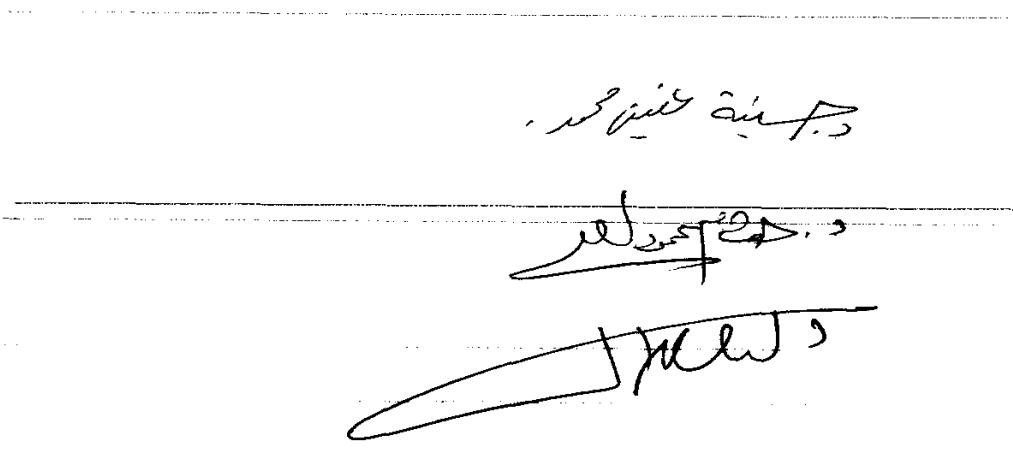
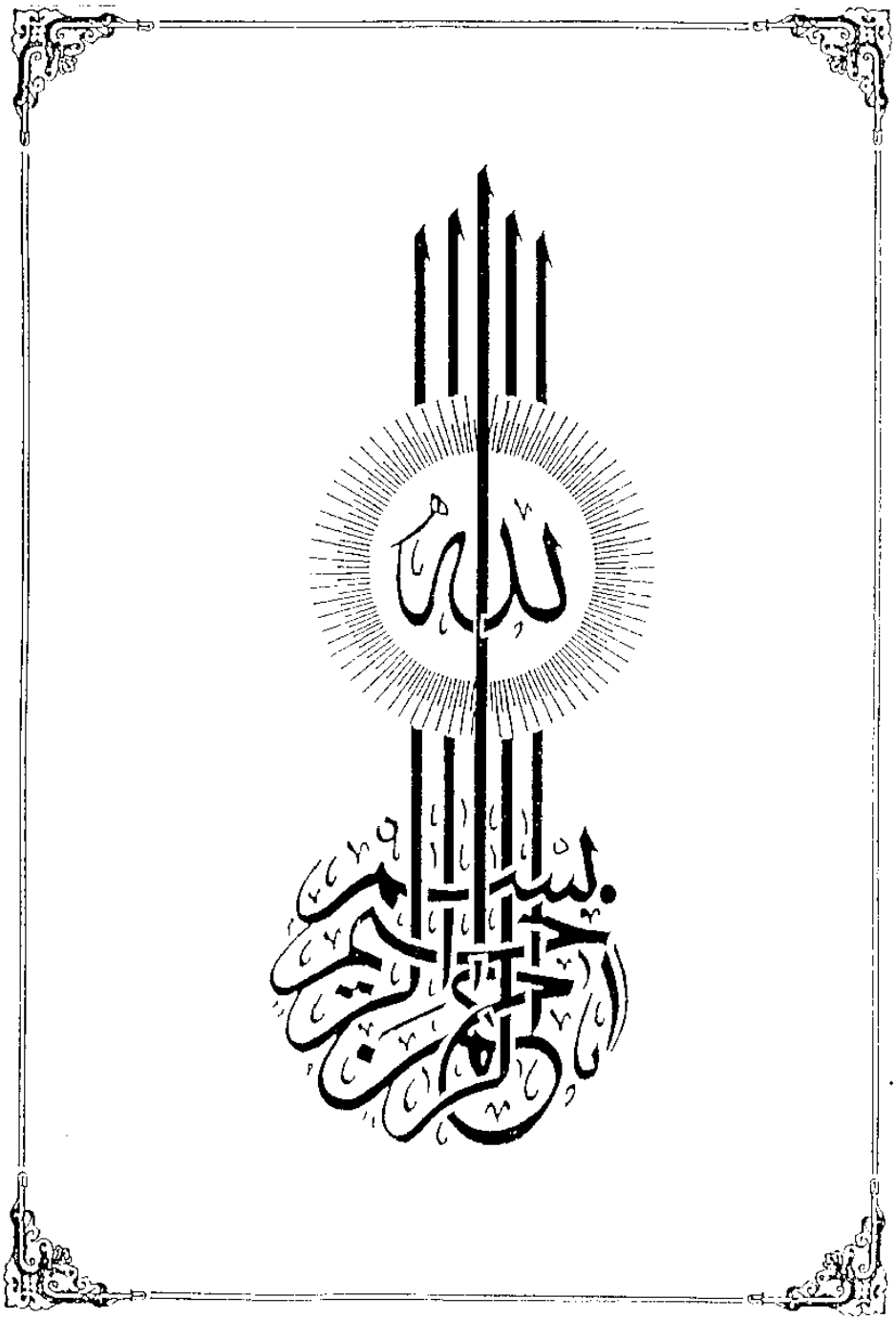
CAIRO 1998





Acknowledgement

First and Foremost, thanks to
ALMIGHTY GOD
to whom any success in life is related

I am greatly honoured to have been supervised by
Professor Dr. *Laila Mohamed Fouad Galal,*
Professor of Radiodiagnosis,
Faculty of Medicine, Ain Shams University
who contributed with her valuable advice, patience and enthusiastic encouragement in the completion of this work,

My sincere gratitude to
Dr. *Sahar Naem Salem*
Lecturer of Radiodiagnosis,
Faculty of Medicine, Ain Shams University
for her generous help and kind assistance and guidance

My deepest and profound appreciation for my parents for their continuous support and encouragement.

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INTRODUCTION

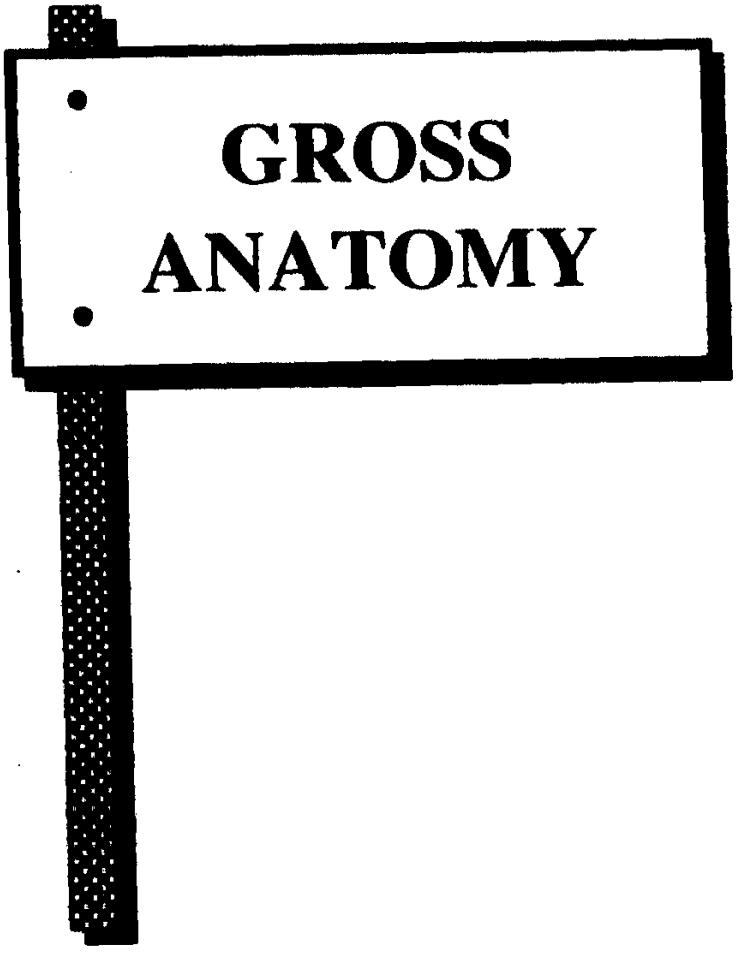
The introduction of helical C.T has created important advances in detection, characterization and subsequent treatment of diseases throughout the body *(Zeman et al., 1993).*

Helical C.T has many advantages over conventional C.T for the evaluation of renal masses, first, the elimination of respiratory misregistration ensures that the entire lesion is imaged and that the chance of identifying small enhancing lesions is maximized. Second, the aquisition of volumetric data during single breath allows comparison of identical levels on scans obtained before and after administration of contrast material *(Heiken et al., 1993).*

Thus helical C.T is the best technique for characerization of renal masses even as small a 3.0cm *(Silverman et al., 1994).*

AIM OF THE WORK :

The aim of this study is to evaluate the potential of helical C.T scans in the detection and characterization of renal masses.



Anatomy of the kidney

Position :

The kidneys are two reddish - brown organs situated in the posterior part of the abdomen one on each side of the vertebral column, behind the peritoneum, they are surrounded by fat and some areolar tissue.

They lie in the lumbar region extending from the 12th thoracic vertebral body to the 2nd or 3rd lumbar bodies. *[Stephanie, 1992]*

The right kidney is slightly inferior to the left, probably on account to its relationship to the liver. The left is little longer and narrower than the right and is slightly nearer to the median plane. *[Wegner, 1995]*

Size of the kidney :

The kidneys measure approximately 12cm long, 6 cm wide and 3.6 cm thick.

Their sizes are approximately that of two and one half lumbar vertebrae and their associated discs on radiograph. *[Stephanie, 1992]*

Shape of the kidney :

On coronal section each kidney is seen to have an outer cortex and an inner medulla.

Extensions of cortex centrally as columns [of bertini] separate the medulla into pyramids whose apices, jutting into

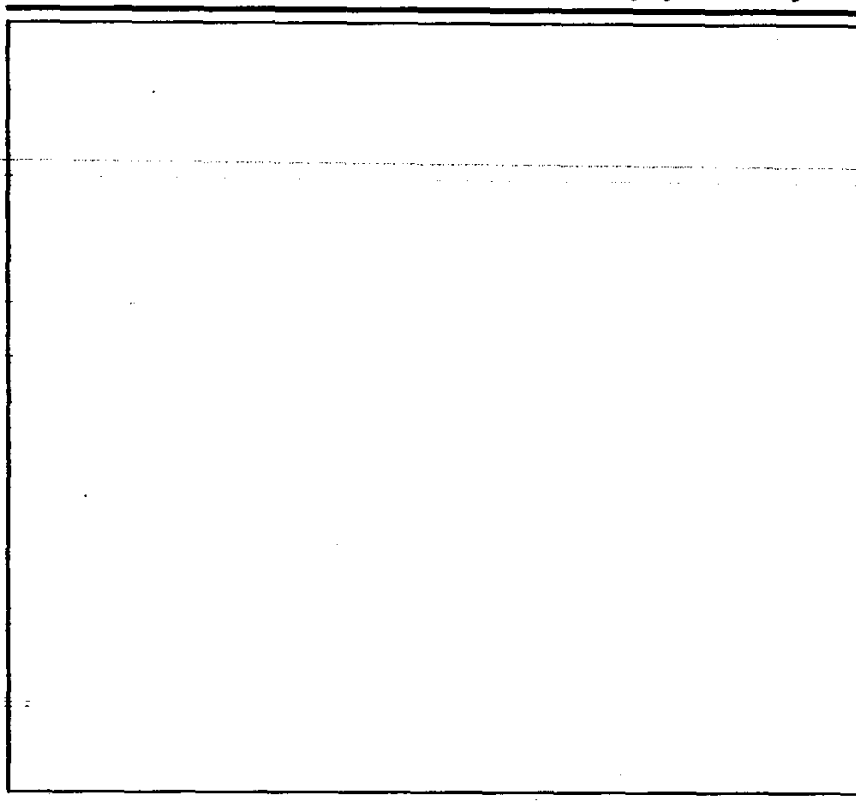


Fig. 1 : *The order of structures at the hilum (entrance to the renal sinus) from anterior to posterior is vein, artery, renal pelvis. or ureter: often a branch of the artery passes posterior to the renal pelvis; the superior pole of the kidney is usually wider than the inferior pole and is closer to the median plane.* ***(Agur, 1991).***

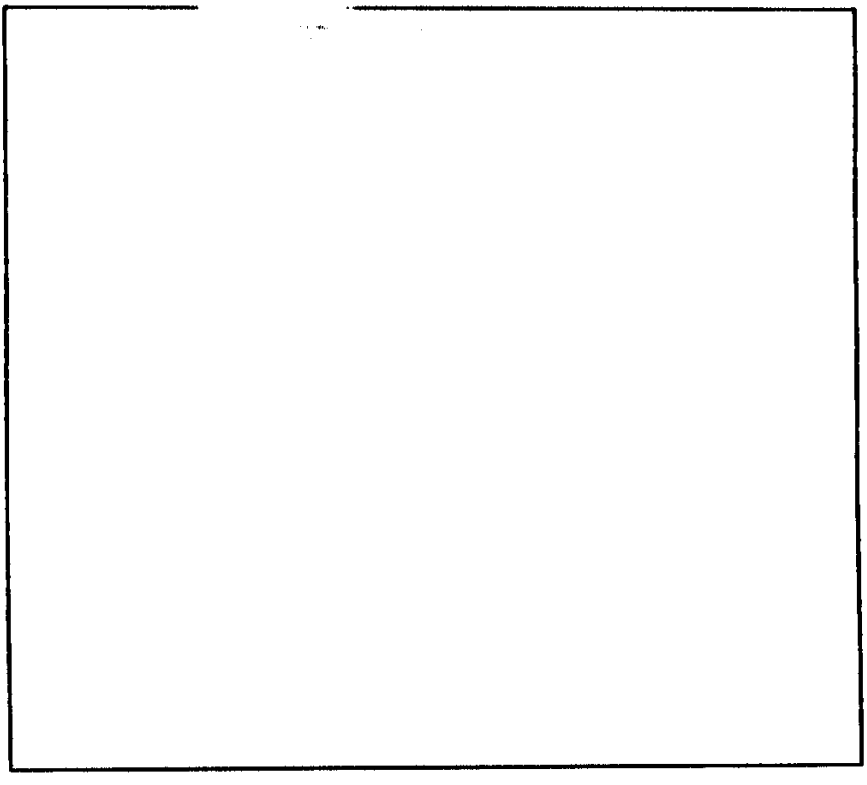


Fig. 2 : *The renal sinus is a vertical "pocket" on the medial side of the kidney. Tucked into the pocket are the renal pelvis and the renal vessels.* ***(Agur, 1991)***

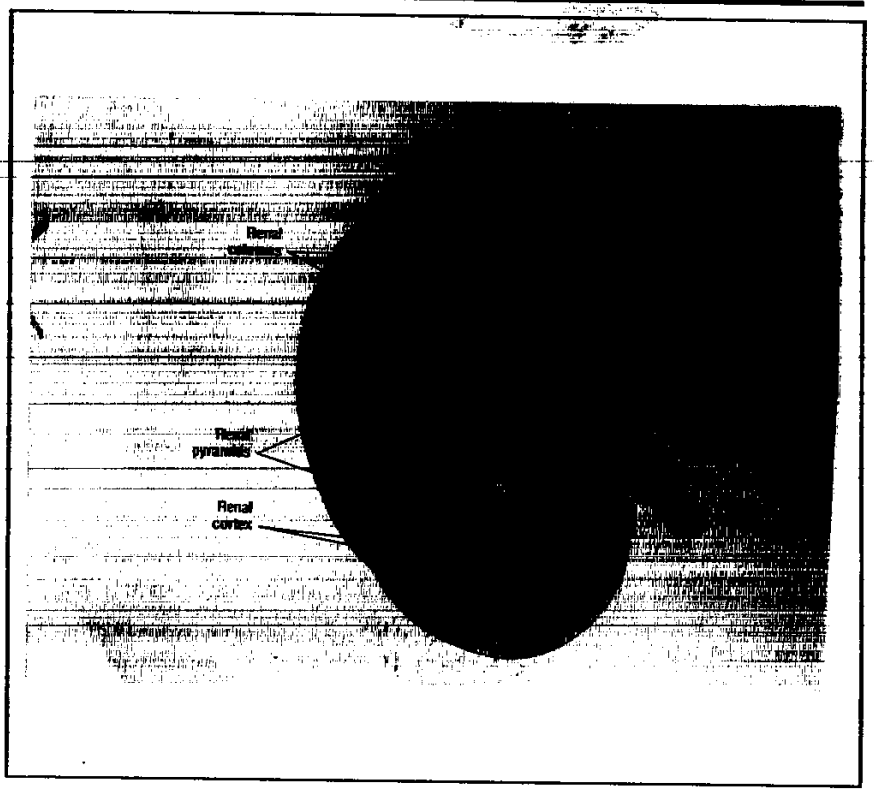


Fig. 3 : ***Observe*** *: 1) The conical renal pyramids radiating from the renal sinus toward the surface of the kidney; their blunted apex, the renal papilla, pouts into a minor callx into which it discharges urine from the openings of its collecting tubules; the pyramids, which appear striated, form the medulla of the kidney and contain loops of Henle and collecting tubules.*

2) The renal cortex forming the outer onethird of the renal substance, extending between pyramids as renal columns, appears rather granular, and contains glomeruli and convoluted tubules; interlobar arteries travel in the renal columns.

3) The ureter draining the renal pelvis that recelives two or three major calices; each kidney has seven to fourteen minor calices. ***(Agur, 1991).***