THE ROLE OF MULTIDETECTOR COMPUTED TOMOGRAPHY IN THE EVALUATION OF GASTRIC MALIGNANCY

A Thesis submitted for partial fulfillment of M.D. degree in Radiodiagnosis

By

Mona Ali Mohamed Ali Nagi

M.Sc. Radiodiagnosis

Faculty of Medicine Ain Shams University

Supervised By

Prof. Dr. Mervat Tawfik Mohamed

Professor of Radiodiagnosis

Faculty of Medicine Ain Shams University

Prof. Dr.Ahmed Mostafa Mohamed

Assistant Professor of Radiodiagnosis

Faculty of Medicine Ain Shams University

Dr. Sherine Mohamed Ibrahim Sharara

Lecturer of Radiodiagnosis

Faculty of Medicine Ain Shams University

Faculty of medicine

Ain Shams University

2014

Acknowledgement

First & foremost thanks to Allah, the most gracious and the most merciful.

- I wish to express my deepest gratitude and respect to ***Prof. Dr. Mervat Tawfik Mohamed*** Professor of Radiodiagnosis, Faculty of Medicine, Ain Shams University for her kind guidance and generous supervision.

- I would also like to express my great thanks to ***Prof. Dr. Ahmed Mostafa Mohamed,*** Professor of Radiodiagnosis, Faculty of Medicine, Ain Shams University for his sincere advice, valuable instructions and endless patience all through this study.

- My deepest gratitude to Dr**.** ***Sherine Mohamed Ibrahim Sharara*** lecturer of Radiodiagnosis, Faculty of Medicine, Ain Shams University, for her valuable instructions.

- I would also like to express my appreciation to all my professors, staff and colleagues.

- Lastly and not least, I send my deepest love and gratitude to my parents, my family, for their love, care and ever-lasting support.

CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

INTRODUCTION

Stomach cancer is one of the leading causes of cancer mortality worldwide. Complete resection of a gastric tumor and adjacent lymph nodes represents the only potentially curative intervention. ***(Lim J.S , Yun M.J et al .2006).***

Currently, MDCT has been introduced as a more advanced method of spiral CT. It has modified the imaging approach for the assessment of many diseases. The technique enables the acquisition of a volume of data, rather than slices. ***(Avni et al, 2005).***

Improvement in both temporal and Z axis spatial resolution with multi-slice detectors permits higher performance data acquisition and higher speed image reconstruction. ***(Shinohara T et al., 2005).***

Recent advances in computed tomographic (CT) technology and three-dimensional (3D) imaging software have sparked renewed interest in using CT to evaluate gastric disease. Multidetector row CT scanners allow thinner collimation, which improves the visualization of subtle tumors as well as the quality of the 3D data sets. ***(Horton K.M and Fishman E.K, 2003).***

Multiplanar reformations (MPR) provide a powerful tool for identifying gastric wall invasion and the perigastric extent of

gastric cancer. In addition, MPR images confer advantages in the assessment of both intra and extra-luminal processes of the gastric wall and the evaluation of more distant regions, such as the paraaortic lymph nodes and other abdominal organs. ***(Shen Y, Kang H.K et al. 2011).***

Moreover, virtual endoscopy helps in detecting subtle mucosal changes and differentiating them from submucosal lesions in the same way as conventional endoscopy. Virtual endoscopy can depict abnormal endoluminal lesions within a wider field of view than can conventional endoscopy, and there are no "blind spots" because retrospective image reformation is available, which provides useful information for preoperative mapping. ***(Shen Y, Kang H.K et al. 2011).***

AIM OF THE WORK

AIM OF WORK

To highlight the diagnostic value of multidetector CT in assessment of gastric malignancy compared to pathological results.

CHAPTER 1
ANATOMY OF THE STOMACH

GROSS ANATOMY OF THE STOMACH

Introduction:

The stomach is the most dilated part of the digestive tube, and is situated between the end of the esophagus and the beginning of the small intestine. It lies in the epigastric, umbilical, and left hypochondriac regions of the abdomen, and occupies a recess bounded by the upper abdominal viscera, and completed in front and on the left side by the anterior abdominal wall and the diaphragm. ***(Healy et al, 2009).***

The stomach is J-shaped but varies in size and shape with the volume of its contents, with erect or supine position, and even with inspiration and expiration ***(Ryan et al, 2007).***

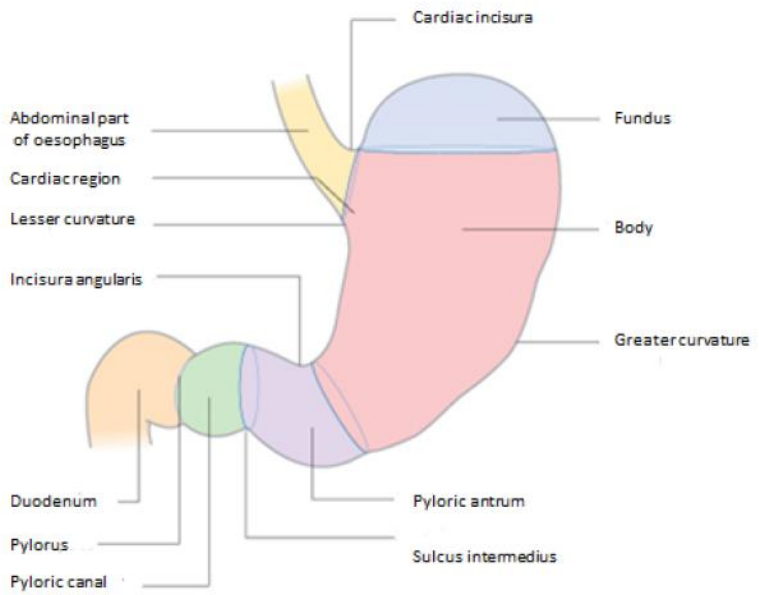

Fig. (1): The parts of the stomach ***(Healy at al, 2009).***