ROLE OF MULTI DETECTOR ROW C.T IN EVALUATION OF GASTRIC MALIGNANCY

Essay

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بِسْمِ اللَّهِ الرَّحْمنِ الرَّحِيمِ

{قَالُوا سُبْحَانَكَ لا عِلْمَ لَنَا إِلاّ مَا عَلَّمْتَنَا

إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ }

صَدَقَ اللَّهُ الْعَظِيمِ

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Abstract

Although gut diseases are numerous and show wide range of variations in their presentation and outcome yet, gastric malignancies are among the leading causes of death worldwide.

They show wide range of clinical and pathological presentations and through the correct diagnosis of such diseases, their complications and progress can be prevented. Multidetector CT has become an important modality for evaluation of such diseases.

In addition, it shows many advantages over single-section technique as shorter acquisition time, retrospective creation of thinner and thicker images, better resolution and ease in performance.

So, it can be used as the first diagnostic tool for suspected neoplastic lesions, post operative tumor recurrence and residual lesions .

CONTENTS

List of abbreviations

AGC	Advanced Gastric Carcinoma.
CT	Computed Tomography.
EGC	Early Gastric Cancer.
EUS	Endoscopic Ultrasonography.
GIST	Gastrointestinal Stromal Tumor.
HU	Hanfield Unite.
H Pylori	Helicobacter Pylori.
IV	Intravenous .
KV	Kilo Volt.
mAs	Milli Ampere Second.
MALT	Mucosa Associated Lymphoid Tissue.
MDCT	Multidetector Computed Tomography.
MPR	Multiplanar Reformation.
MEN	Multiple Endocrine Neoplasia.
pTNM	Pathologic Tumor, Nodes, Metastases.
Pen	Penetrating.
Super	Spreading.
3D	Three Dimensional.
2D	Two Dimensional.
UGIS	Upper Gastrointestinal Series.
VG	Virtual Gastroscopy.
VR	Volume Rendering.

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Introduction

Introduction

Gastric carcinoma is the most common cancer in the world after lung cancer and is a major cause of mortality and morbidity. Five years survival rates are less than 20%, as most patients present late and are unsuitable for curative, radical surgery. Adenocarcinomas account for approximately 95% of all malignant gastric neoplasms. The remaining 5% of tumors are lymphomas, leiomyosarcomas, carcinoids, or sarcomas **(Hassan,2009).**

Recent advances in computed tomographic (CT) technology including the introduction of multi–detector row CT (MDCT) and the development of three dimensional (3D) imaging systems have provided the distinct clinical potential for evaluation of various gastric diseases, particularly for the initial staging of gastric cancer **(Bhandari et al.,2004).**

MDCT allows thinner collimation, which improves the visualization of subtle tumors as well as the quality of the 3D data sets **(Kim et al.,2005).** Also it allows large anatomic ranges to be scanned while simultaneously producing both thin and thick slices. **(Goldman LW,2008)**.

MDCT has a similar high accuracy in the preoperative diagnosis of different gastric tumors compared with double-contrast barium meal (DCBM) and provides additional

information including tumor depth, lymph node and hepatic metastasis. Therefore, MDCT may be used as a primary tool for preoperative tumor diagnosis and staging **(Chen et al., 2007).**

The use of 2D Multi-planar Reformation (MPR) and of virtual gastroscopy with the Volume Rendering (VR) technique is a promising method for the detection of Early Gastric Cancer (EGC). Some investigators have reported the application of these techniques using MDCT for EGC detection. the rate of EGC detection was higher using 2D MPR or virtual gastroscopy than using 2D axial CT alone **(Hong et al.,2006).**

Endoscopic ultrasonography (US) provides the most useful information about extension of the tumor, the depth of mural invasion, and perigastric lymphadenopathy.However, endoscopic US has not been able to replace CT for tumor staging because of its limitations in demonstrating distant lymphadenopathy Thus, CT is a promising method for evaluating gastric lesions or metastatic deposits **(Kim et al.,2006).**

MDCT with the water-filling method has advantages in acceptable evaluation of depth invasion of gastric carcinomas and in visualization of histological changes in the tumors. MPR images may be a useful guide for the evaluation of the cranio-caudal (z-axis) extent of tumor **(Shimizu et al.,2005).**

AIM OF THE WORK

The purpose of this study is to highlight the value & accuracy of multi-detector CT in early diagnosis & preoperative assessment of gastric cancer.