CT AND MR IMAGING FEATURES OF ADRENAL NEOPLASMS

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Praise is to GOD who exalted in knowledge whom he wills but above those who have knowledge there is one more knowing; the cherisher and sustainer of all what is in heaven and what is on earth. To HIM is the goal and to him is the return of all.

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3D	Three dimension
ACC	Adrenocortical carcinoma
ACTH	Adrenocorticotropic hormone
APW	Absolute percentage washout
CAH	Congenital adrenal hyperplasia
CECT	Contrast enhanced CT
cm	Centimeter
CT	Computed Tomography
DTPA	Diethylenetriamine-penta-acetic acid
FLASH	Fast low-angle shot
g	gram
Gd-DTPA	Gadolinium diethylenetriamine-penta-acetic acid
GE	Gradient echo
HU	Hounsfield unit
HVA	Homovanillic acid
IV	Intravenous
IVC	Inferior Vena Cava
MEN	Multiple Endocrine Neoplasia
mm	millimeter
MRI	Magnetic Resonance Imaging
ms	millisecond
NF-1	Neurofibromatosis type 1
PAA	Primary adrenal angiosarcoma
ROI	Region Of Interest
RPW	Relative percentage washout
SGE	Spoiled gradient echo
T	Tesla
TE	Echo time
TNM classification	Tumor, lymph node, and metastasis classification
UICC	Union for International Cancer Control
VHL	von Hippel-Lindau
VMA	Vanillyl mandelic acid
vs.	Versus
WHO	World Health Organization

INTRODUCTION & AIM OF WORK

Introduction

The adrenal gland is a frequent site of clinically silent mass. Many adrenal masses can arise from adrenal gland. The "incidentaloma" are increasing in parallel with the increased use of cross sectional imaging by CT and magnetic resonance imaging (MRI). The work-up of the incidentaloma patient should aim to differentiate between benign and malignant lesions ***(Sundin, 2012)***.

Non-contrast enhanced computer tomography (CT) is a modality of choice used for the differential diagnosis of adrenal lesions. It allows the detection of 95% of adrenal masses and the characterization of most of them. Magnetic resonance imaging (MRI) is a good modality for cases in which CT examination cannot determine the character of an adrenal tumor ***(Podgorska et al., 2012)***.

The decision on a surgical versus a non-surgical management of patients with incidentaloma was previously governed primarily by the tumors size and all lesions larger

than approximately 4 cm were removed because of the risk of a malignant tumor. Currently this decision is increasingly influenced by the imaging characterization of the incidentaloma according to its radiographic features which likely support a benign tumor include rounded, well delineated tumor borders, clear separation of the tumor from surrounding structures, no evidence of tumor extension into adjacent organs and homogenous internal structure ***(Sundin, 2012)***.

In practice, a combination of CT, MRI, and PET is used to characterize adrenal masses in the oncology patient ***(Freeman et al., 2008).***

The key role of CT is to distinguish "leave-alone" lesions from those requiring further evaluation or representing specific disease processes. Correct characterization of benign entities that do not require intervention (i.e., longstanding calcification or pseudocyst) is important to properly guide patient management ***(Johnson et al., 2009a)***.

MR imaging is highly recommended for differentiation of incidental adrenal lesions since its high tissue contrast and multiplanar imaging capabilities provide a detailed display of adrenal glands and their adjacent anatomic structures. MR imaging can often determine the nature of the lesion in cases which are indeterminate on CT ***(Kulawska-Didoszak and Krestin, 2011a)***.

Aim of work

Is to detect the value of CT and MRI in diagnosis and characterization of adrenal neoplasms and to differentiate benign from malignant lesions as well as primary from secondary adrenal tumors.