# INTERVENTIONAL COMPUTED TOMOGRAPHY IN ABDOMINAL LESIONS

## THÈSIS

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M.D. **(Radiodiagnosis)**

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بسم الله الرحمن الرحيم

"وقل اعملوا فسيرى الله عملكم ورسوله والمؤمنون"

صدق الله العظيم

(الآية ١٠٥ سورة التوبة)

*To my husband...*

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# ABSTRACT

The aim of this study was to define abdominal lesions where CT guided biopsy is of value and to determine the more practicable technique for CT guidance to reach a proper diagnosis or to drain fluid collection. This work was performed on 60 patients classified into 2 groups: The first group of percutaneous biopsy which included 51 patients in whom 54 biopsies were made. The over all accuracy rate was 90.7%. Two types of needles were used, the accuracy rate of cutting needles was 93% compared to 81.8% for aspirating needles. The 2nd group is that of abscess drainage. It comprises 9 patients, in 3 patients only diagnostic aspiration was done while defenitive drainage was performed in 6 patients. In five patients complete cure was reached.

# INTRODUCTION AND AIM OF THE WORK

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The advent of effective chemotherapy, radiotherapy and surgery has made many mass lesions curable or amenable to palliation. The first step in the evaluation of patient suspected of having neoplastic lesions is a thorough review of the diagnostic biopsy material. *(Tepler et al., 1990).*

Percutaneous procedures using radiologic guidance have become common over the past 10 years. Increasingly, these procedures are accepted as primary methods of both diagnosis and treatment, as they are performed with minimal anaesthesia usually only local anaesthesia to the skin; thus avoiding unnecessary surgery by providing tissue diagnosis of benign or malignant abnormalities. *(Bernardino, 1984).*

Computed tomography offers precise, three dimensional localisation of abdominal lesions for biopsy and/or drainage. This provides detailed depiction of the relationships of vital structures surrounding the lesion in question and allows precise planning of a percutaneous access route. This explains why

percutaneous biopsy is the most frequently performed C.T. guided procedures for abdominal lesions. *(Picus et al, 1989).*

C.T. guidance for percutaneous aspiration and drainage is a logical extension of the techniques used for CT guided biopsy. It provides a highly accurate method for detection of abdominal abscesses and collections and is the imaging technique of choice for their diagnosis. In the meantime it allows precise planning of a safe access route for a percutaneous approach. *(Gerxzof et al, 1979).*

The aim of this study is to determine abdominal lesions where C.T. guided intervention could be of value. Meanwhile, the best and more practicable technique for C.T. guidance would be identified; seeking a more effecient diagnosis and treatment planning that would minimize exposure of patients to many surgical procedures that might be hazardous.

# ANATOMY

# C.T. ANATOMY OF THE ABDOMEN

In this chapter, the C.T. anatomy of the abdomen is discussed. The abdomen consists of the abdominal wall and the abdominal cavity. The discussion that follows will consider the abdominal wall. Besides, the details of the CT anatomy of the organs contained in the abdominal cavity are discussed.

**C.T. anatomy of the abdominal wall:**

The anterior abdominal wall is composed of several layers: skin, superficial fascia, subcutaneous fat, anterolateral (internal oblique, external oblique and transversus muscle) and midline (rectus) muscle groups, transversalis fascia, extraperitoneal fat, and peritoneum. Most adults have sufficient body fat to allow identification of the subcutaneous fat layer and individual muscles on computed tomography (Fig. 1). In very thin or muscular individuals, the 3 anterolateral muscles (external oblique, internal oblique and transversus) may appear as a single muscle mass *(Heiken, 1989).*

The aponeurosis of the anterolateral muscle unite at the lateral border of the rectus muscle to form the Spigelian fascia, which splits to become the anterior and posterior rectus sheaths which contain beside the rectus muscle the superior and inferior