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South Valley University
Sohag Faculty of Medicine

Value of Power Doppler and Colored Doppler with Gray-Scale Sonography in Diagnosis of Hepatic Tumors

THESIS

Submitted for partial fulfillment of the master degree in Internal Medicine

BY

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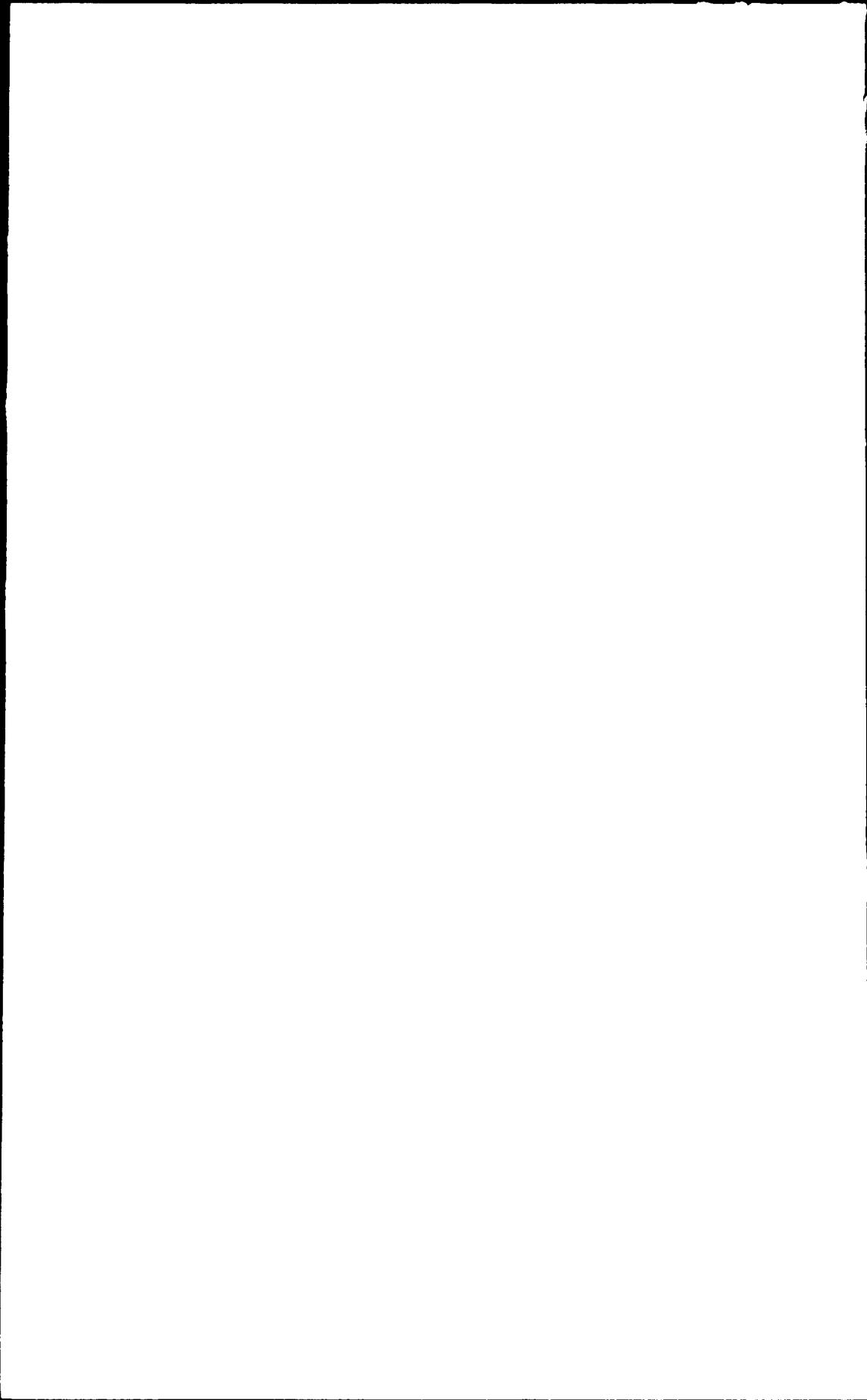
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2001



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Handy saad mohamed

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Introduction:

Since the advent of US ,morphological descriptions of the liver in health and disease continued to add to our knowledge of hepatic pathology and gained a permanent place in the investigations and management of liver disease. This because it is rapid , safe and non invasive .(Cossgrove et al 1981).

Colored doppler flow imaging developed by Namekawa et al in 1982 was originally to evaluate the dynamics of blood flow in heart and big vessels.

Its application to liver tumors was initiated in 1985 by Sukigura et al who reported successful color imaging of the arteries running in the margin and within the tumor in two cases of advanced hepatocellular carcinoma.

Merrit in 1987 observed increased vascularity in most cases of metastatic cancer in the liver.

Tanaka et al in 1989 described special vascular patterns for hepatic focal lesions:

1. Basket pattern for HCC
2. Spot pattern for haemangioma
3. Detouring pattern for metastasis

Tanaka also advocated that colored doppler imaging provides informations on blood flow of the tumors and this is useful for differential diagnosis of hepatic tumors and he looked forward for further improvements in the equipment to achieve color imaging of much slower and finer blood flow.

Power doppler US is a new technique that was developed to overcome some of the drawbacks of conventional colored doppler.(Rubin et al ,1994).

Power doppler displays the integrated power of doppler signals instead of its mean frequency shift and extends the dynamic range of doppler scale (Bude et al 1994).

Power doppler US has the potential of being substantially more sensitive to blood flow than conventional color doppler (Weskott et al,1997). The demonostration of intratumoral blood flow at power doppler could enable more reliable diffrentiation of HCC from non-metastatic lesions in cirrhotic liver (Rheinhold et al ,1995).

Although the rate of detection of blood flow was substantially lower in lesions less than 2cm in diameter with Colored doppler (Numata et al 1993), the rate of detection of doppler signals was not affected by the size or the site of the