

بسم الله الرحمن الرحيم



**Sudan University of Science & Technology**  
**College of Graduate Studies**  
**Characterization of Liver Metastases using**  
**ultrasonography**

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الصوتية

**A thesis Submitted for Partial Fulfillment for the**  
**Requirement of**

**M.Sc.Degree in Diagnostic Medical Ultrasound**

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# 2016

## الآية

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## صدق الله العظيم

**سورة البقره الآيه 156**

## **Dedication**

**To:**

My parents

My wife

My sons

,

And every one who

contribute to this

work

## **Acknowledgements**

I am eternally indebted to my supervisor for all the help, guidance and expertise provided by her throughout this study. I really appreciate all the valuable time she has spent in helping me with programming and new ideas about this research.

I have been very fortunate to have her as my supervisor and she take more than a few words to express my sincere gratitude,

I would sincerely like to thank my both special friends Dr Mohammed Alfadil and ustaz Babikir for being with me and for

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Last, but not least, I would like to thank my colleges.

### **List of abbreviation**

| <b>Abb</b> | <b>word</b>                    |
|------------|--------------------------------|
| PZT        | polarized zircon ate titan ate |
| MHZ        | Mega hertz                     |

|        |  |
|--------|--|
| LLV    | Left liver vein                        |
| MLV    | Middle liver vein.                     |
| RLV    | Right liver vein                       |
| PU     | pars- umbilical's                      |
| (SPSS) | Statistical Package for Social Science |
| MRI    | Magnetic resonance image               |
| CT     | Computed tomography                    |
| PET    | Positive emission tomography:          |
| SHA    | Selective hepatic angiography          |
| US     | Ultrasound                             |

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## **ABSTRACT**

The liver is one of the most common sites of metastatic disease and consequently, liver metastases represent the commonest form of malignant liver disease.

This is a descriptive cross-sectional study to characterize the liver metastases in a cancerous patients using ultrasound machine (Toshiba Xario, Diagnostic ultrasound System, with 3.5 curve-linear transducer and Sony printer).

The study compromise of 50 patients with liver metastases referred to radiology department of Radio Isotopes Centre and Dr Osman Abdu Alwahab private clinic in Khartoum state, their age

ranged between 4 – 80 years, Underwent gray scale ultrasonography.

The result of the study showed that the liver metastases arised from ca breast were (n=9) 18%. Followed by ca pancreas were (n=5) 10%, few were arised from ca colon, hepatocellular carcinoma and ca cervix each of them were (n=2)4% and the remaining were arised from ca rectum ,ca uterus, acute lymphatic leukemia and lymphoma each was (n=1) 2%

The current study revealed that the echogenicity of liver metastases was hypo echoic, hyper echoic, mixed( hypo echoic &hyper echoic), Iso echoic, hyper echoic with cavitations , I so echoic with calcifications and cystic signal in 46%, 26%,16%, 4%, 4%, 2% and 2%of cases respectively.

The study found that the majorities of liver metastases arised from ca breast and they were hypo echoic, multiple, rounded, small size, and involved the right liver lobe.

The ultrasound is highly sensitive, specific, safety, available and cost effective method in identifying, characterizing liver metastases and follows up the patients.

## **خلاصة البحث**

الكبد من اكثر الاعضاء التي تتكون فيه الاورام الثانويه وبناءا علي ذلك تمثل العضو

الاكثر استقبالا للاورام

الثانويه. هذا البحث عبارته عن دراسته وصفيه مقطعيه لوصف اورام الكبد الثانويه لمرضي

السرطان وذلك باستخدام جهاز موجات فوق الصوتيه ماركة توشيبا بواسطه المسبار ذو

التردد 3.5 ميغاهيرتز مع الطابعه ماركة سوني.

يتضمن البحث عدد 50 من مرضي السرطان المصابون باورام ثانويه في الكبد تتراوح اعمارهم

بين 4-80 ترددوا علي قسم الاشعه في مستشفى الذره وعيادة د عثمان عبدالوهاب بولاية

. الخرطوم لعمل موجات فوق الصوتيه

نتيجة الدراسة اوضحت ان اورام الكبد الثانويه الناتجه من سرطان الثدي ( عدد 9 ) بنسبة

18% تتبعها تلك التي نتجت من سرطان البنكرياس (عدد 5 ) بنسبة 10% وقليل من اورام الكبد

الثانويه الناتجه من بعض الاورام الاوليه مثل سرطان القولون, سرطان الكبد, وسرطان عنق

الرحم لكل (عدد 2) بنسبة 4% , وبقية الاورام الناتجه من سرطان المستقيم, سرطان الرحم ,

. % الليوكيميا الليمفاويه الحاده , وسرطان الغدد اللمفاويه لكل ( عدد 1 ) بنسبة 2

كشفت الدراسة الحاليه ان ظهور اورام الكبد الثانويه في صورة الموجات الصوتيه ذات ظهور

توهجي منخفض , ظهور توهجي عالي , ظهور توهجي خليط ( متوهج & منخفض ) , ظهور

توهجي شبيه بالكبد , ظهور توهجي عالي مع وجود تجاويف , ظهور توهجي منخفض مع

وجود تكلس وذات ظهور كيسي بنسب كالآتي 46%, 26%, 16%, 4%, 2%, و 2% علي

. التوالي

خلصت الدراسة الى انه معظم اورام الكبد الثانويه ناتجه من سرطان الثدي وهي ذات توهج منخفض متعدد دأئرية الشكل صغيرة الحجم ومتركزه في الفص الايمن من الكبد . وان الموجات فوق الصوتيه هى من اكثر انواع التصوير متاحه وفعاله من ناحية التكلفة الماديه وهي عاليه الحساسيه والامان في تحديد وتوصيف اورام الكبد الثانويه وكذلك المتابعه الدوريه لمرضي

السرطان

,