

Sudan University of Science and Technology

College of Graduate Studies



**ACCURACY OF ULTRASOUND IN DETECTING
PALPABLE SOLID BREAST MASSES**

دقة الموجات الفوق صوتية في الكشف عن الكتل الصلبة و الملموسة

*A proposal submitted for partial fulfillment for the Requirements
Of Master degree in Medical Diagnostic Ultrasound*

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قالتعالى:

وَلَوْ أَنَّهُمْ رَضُوا مَا آتَاهُمُ اللَّهُ وَرَسُولُهُ وَقَالُوا حَسْبُنَا
اللَّهُ سَيُؤْتِينَا اللَّهُ مِنْ فَضْلِهِ، وَرَسُولُهُ إِنَّا إِلَى اللَّهِ رَاغِبُونَ ﴿٥٩﴾

صدق الله العظيم

سورة التوبة الآية 59

DEDICATION

**I DEDICATE THIS WORK TO MY PARENTS ATTYA AND
MAKKA WHO SUPPORTED ME ALL THE WAY
TO MY DEAR HUSBAND FOR BELIEVING IN ME AND NEVER
ENDING SUPPORT
TO MY CHILDREN, AL- RASHEED & AL-WALEED YOUR
PATIENCE WAS INVALUABLE AND MOST APPRECIATED**

" TO BELIVE is to know that every day is a new beginning , to trust that miracles can happen, and that dreams really do come true.

TO BELIVE is to find the strength and courage that lies within us , when it is time to pick up the pieces and begin again.

TO BELIEVE is to know that wonderful surprises are waiting to happen and all our hopes and dreams are within or reach"

Unknown author

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ABSTRACT

This study aimed to determine the validity of ultrasound in the assessment of the palpable breast mass by determining the sensitivity, specificity, positive predictive value, negative predictive value and accuracy of ultrasound in distinguishing a malignant mass. To determine the most discriminating ultrasound characteristics for differentiating benign and malignant nodules in an attempt to avoid unnecessary biopsies. Quantitative cross section retrospective design was employed in a study population which consisted of all women over the age of 35 who came to well women clinic in Mother and Child health Care Centre in Sharjah , complaining of palpable mass and took part in mammographic , ultrasound screening & had a proved solid palpable breast mass histologically. Sixty five patients who had biopsy of a palpable breast mass were subjected to an ultrasound assessment of the mass. The ultrasound findings were classified as probably benign, indeterminate or malignant. These findings were then compared with histology results. The age of the patients ranged between 35 and 63 years the majority of patients (68.6%) were in the third and fourth decades . The ultrasound findings had detected 27 (41.53%) out of 30 malignant lesions. All of these were confirmed malignant on histopathology and none of these cases were benign. Ultrasound had a sensitivity of 100%, specificity of 46.66%, positive predictive value of 69%, negative predictive value of 100% and accuracy of 75% for distinguishing a palpable solid malignant mass from benign masses.

Main benignancy criteria were: well defined shape, regular contour, homogeneous echo texture, and horizontal orientation. While Irregular shape, indistinct margins, vertical orientation and tissue distortion were powerful indicators for malignancy.

مستخلص البحث

هدفت هذه الدراسة إلى تحديد مدى صلاحية الموجات فوق الصوتية في تقييم كتلات الثدي الملموسة والصلبة وذلك من خلال تحديد الحساسية والنوعية والقيمة التنبؤية الإيجابية والقيمة التنبؤية السلبية و دقة الموجات فوق الصوتية ومدى حساسيتها في تمييز الكتلة الخبيثة من الكتلة الحميدة.

كما هدفت الى تحديد خصائص الموجات فوق الصوتية الأكثر تمييزا للفرقة بين العقيدات الحميدة والخبيثة في محاولة لتجنب الخزعات غير الضرورية.

وقد اختير اطار محدد لإقامة وتطبيق هذه الدراسة التي تغطي شريحة معينة من الفئات اذ تألفت من جميع النساء فوق سن ال 35 قمن بمراجعة مركز رعاية الأمومة والطفولة بالشارقة وذلك لشكواهم من وجود كتلة ملموسة تم فحصها من خلال أشعة الثدي و الموجات فوق الصوتية وأكدت تشريحا بأنها كتلة صلبة.

كان عدد السيدات اللاتي خضعن لهذه الدراسة خمسة وستين عدا ، تراوحت أعمارهن بين 35 و 63 سنة . صنفت نتائج فحص تقييم الموجات الفوق صوتية للكتل كالتالي : احتمالية انها كتلة حميدة او كتلة مشكوك فيها أو كتلة خبيثة .

تمت مقارنة هذه النتائج مع نتيجة فحص الأنسجة التأكيدي . كانت غالبية المرضى (68.6 %) في العقدين الثالث والرابع . وكشفت نتائج الموجات فوق الصوتية عن 27 كتلة خبيثة (41.53 %) من أصل 30 من الآفات أو الكتل الخبيثة . وقد تم التأكد تشريحا من خباثة جميع الكتل المكتشفة ولم يتم اكتشاف أي كتلة خبيثة تشريحا كانت نتيجة تقييم الموجات الفوق صوتية بأنها حميدة . وبذلك كانت مدى حساسية فحص الموجات الفوق صوتية عالية 100%، وخصائصه الفحص 46.66 %، والقيمة التنبؤية الإيجابية 69 %، والقيمة التنبؤية السلبية 100 % ودقة الموجات لتمييز الكتلة الخبيثة الصلبة وتمييزها من الحميدة 75 %.

كانت المعايير الرئيسية للكتل الحميدة : شكل واضح المعالم ، منتظم الكثافة ، متجانسة اللمس ، وذات اتجاه أفقي في النمو . في حين أن الشكل الغير منتظم للكتلة ذات الهوامش غير واضحة ، والتوجه الرأسي في النمو و تشويه الأنسجة القريبة من المؤشرات القوية لتمييز الكتل الخبيثة.

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LIST OF ABBREVIATIONS

US	Ultrasound
CA	Cancer
PB	Probably Benign
TN	True Negative
TP	True Positive
FN	False Negative
FP	False Positive
BIRADS	Breast Imaging-Reporting and Data System