

DOI: <http://dx.doi.org/10.4314/gjms.v10i1-2.2>

GLOBAL JOURNAL OF MEDICAL SCIENCES VOL 10, NO. 1&2, 2011: 9-12  
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## **PATTERN OF ULTRASOUND SCANNING IN OWERRI SOUTH EASTERN NIGERIA**

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### **ABSTRACT**

**BACKGROUND:** The gynaecologist is called upon daily to diagnose pelvic pathologies. Ultrasound is a useful, safe and widely used method of investigation of such problems.

**OBJECTIVE:** To determine the indications and findings of pelvic ultrasound in Owerri, South Eastern Nigeria.

**METHOD:** Two hundred and fifty consecutive women referred for pelvic ultrasound in Owerri South Eastern Nigeria were examined by abdominal and transvaginal ultrasound.

**RESULTS:** Most 148(59.2%) of the patients were nulliparous and majority 108(43.2%) were in the 30-39year age group. Doctors referred most 164(64%) of the patients, while 74(29.6%) were self referred. The most common indication was 'to check the womb' in 89(35.6%) of cases followed by threatened abortion in 30(12%) of patients. The most common post ultrasound diagnosis was 'normal uterus' in 111(44.4%) while fibromyoma was second with 41(16.4%) of patients. On the whole abnormalities were picked up in 36.4% of patients.

**CONCLUSION:** We conclude that pelvic ultrasound even when not originating from the doctor should be encouraged because of the significant number of abnormalities detected. These could then be treated with greater success while they are still small.

**KEYWORDS:** Pelvic ultrasound, Pattern, Owerri, South Eastern Nigeria.

### **INTRODUCTION**

Ultrasound waves are sound waves travelling beyond 20,000 cycles per second. At this frequency they are inaudible to the human ear. The evolution of ultrasound dates back to the second world war when the study of radar and sonar led directly to its development. They are generated by a piezo electric crystal housed in a transducer. The waves are insonated into the tissue of interest where they are reflected back at various tissue interfaces into the transducer which now converts the returning waves into electrical energy which is displayed by a cathode ray tube as a picture showing the structure of the tissue. The first published report on ultrasound was by KT Dussik of Austria<sup>1</sup> who worked on the transmission of ultrasound in the brain. However

it was to fall on Prof Ian Donald<sup>2</sup> of Scotland to popularize its use first in obstetrics and gynaecology in the fifties. Since then ultrasound has been applied in the diagnosis and treatment of many medical and surgical conditions. In obstetrics it has been used for dating pregnancies, diagnosing complications like blighted ovum, multiple pregnancies, placenta praevia, intrauterine growth restriction etc<sup>3,4</sup>. In gynaecology ultrasound has been used for diagnosing pelvic masses, ectopic pregnancies, missing intra uterine contraceptive devices etc<sup>5,6</sup>. Ultrasound has also been applied in other spheres of medicine, cardiology, neurology, urology and paediatrics. Its versatility has been due to the fact that it is relatively inexpensive, and harmless<sup>7</sup> when properly used. It also produces real time images, is widely available,

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and causes no discomfort. Computerized Axial Tomography scans (CAT Scans) and X-Rays unlike ultrasound use potentially harmful radioactive rays for diagnosis. Moreover Magnetic Resonance Imaging (MRI) and CAT scans are bulky and unaffordable to most people and institutions in developing countries. Ultrasound however has the disadvantages of poor penetration of bone, gas and ability to image deep structures. Its results are also highly dependent on the skills and experience of the operator<sup>8</sup>. This paper seeks to find out the indications and findings in pelvic ultrasound in Owerri, south eastern Nigeria.

### MATERIALS AND METHODS

This study was a prospective cross sectional study carried out between January 1<sup>st</sup> 2010 and June 30<sup>th</sup> 2010 of two hundred and fifty consecutive patients who were referred for pelvic ultrasound to the St Elizabeth ultrasound centre Owerri. Using a Siemens SL1 machine, trans vaginal and abdominal ultrasound examinations were performed on all the patients. The indications, diagnoses and biodata of the patients were recorded and the results were analysed by simple percentages. Approval for the study was obtained from the ethical committee of the hospital.

### RESULTS

The socio demographic details are shown in Table 1. The age range was between 14 and 60 years with a mean of 31.74 +/-7.25 (SEM) and the largest number 108(43.2%) being in the 30-39 age group. The patients were predominantly Christians 248 (99.2%) with only two muslims. Most 140(56%) had tertiary education. Married women constituted the majority 220(88%) of patients while the majority 148(59.2%) of patients were nulliparous. Regarding their occupation civil servants made up 85(34%) of the patients while traders 62(24.8%) were the next most common. About 160(64%) of the requests were from doctors while 74(29.6%) were self referred. Table 2 shows that the most common reason for referral was "to check the womb" 89(35.6%), followed by threatened abortion 30(12.0%) and "to check if pregnant" 23(9.2%). Post ultrasound the most common diagnosis (Table 3) was "normal uterus" 111(44.4%) with multiple uterine fibroids 41(16.4%) and ongoing cyesis 29(11.6%) being second and third most common respectively.

### DISCUSSION

The most common post ultrasound diagnoses were normal uterus, multiple fibroids and ongoing cyesis. In our society most women marry early and have children before the age of 30years. It is thus not surprising that those who came for pelvic scan "to check the womb" were married (88%), nulliparous (59.2%) and 30-39 years old (43%). These were most likely women who were worried about infertility.

Doctors referred the majority of patients with self referral coming next. Self referral is not surprising given the awareness about ultrasound in most urban areas<sup>9</sup>. It is fueled by the wrong notion of the diagnostic capabilities of ultrasound<sup>10</sup>. In fact it was often thought of as an equipment that could replace the doctor, with the ability to diagnose all ailments. Most patients expected that after the investigation the specific cause of their infertility would be determined. 'Ultrasound is harmless'<sup>7</sup> and this allows sonologists to accept self referrals and those from traditional medical practitioners and other health practitioners.

On the whole the abnormality rate in this study was 36.4%. This is higher than the 25% seen in a study from Britain<sup>11</sup>. This may be because the better healthcare services in Britain allows for detection and treatment of problems much earlier than in Nigeria. In our environment problems tend to accumulate over time, only to be discovered at the first visit to the hospital.

Multiple uterine fibroids is the most common gynaecological tumour and is particularly common in blacks<sup>3</sup>. It is thus not surprising that it was the most common pathology seen. The 41(16.4%) seen in this study is less than 29.9% seen in London<sup>12</sup>. This could be because most (45.7% of the fibroids seen in our environment are often huge and abdomino-pelvic masses rather than pelvic masses<sup>13</sup>. Fibroids attain such large sizes because of the aversion of our patients to surgery and sometimes inability to afford the cost of surgery. Another reason may be because a fair percentage of our patients 74(29.6%) were self referred and so were just suffering from anxiety rather than any real gynaecological pathology. In the North London study<sup>12</sup> the most common indication was vaginal bleeding in women with uteri while pelvic pain was the most common indication for those without a uterus. In our study vaginal bleeding 30(12%) was the second, while pelvic pain

19(7.6%) was the fourth most common indication for ultrasound scan.

Because there is presently no current permanent cure for fibroids and because of its possible negative effects on pregnancy the trend of patient initiated pelvic scanning should be encouraged as it would allow earlier detection of fibroids. Ongoing cyesis and threatened abortion were the next most common diagnoses after fibroids in our study. This is expected as problems of pregnancy are quite common in the first three months of pregnancy.

The major limitation of this study is that it is from a commercial private ultrasound centre and this may have limited access to the lower social classes who patronize cheaper public hospitals. However it still gives us an insight into the indications and findings in pelvic ultrasound in this environment.

## CONCLUSION

There was a high (36.4%) pathological yield from pelvic ultrasound so pelvic ultrasound scans should be encouraged even when initiated by the patient or non doctors. More studies particularly from heavily patronized lower cost centres in government hospitals need to be done to determine the pathological profile of pelvic ultrasounds in our environment.

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**Table 1:**  
**Socio-demographic characteristics**

VARIABLES	N0 (%)
<b>AGE</b> (years)	
20	5 (2)
20-29	94(37.6)
30-39	108(43.2)
=>40	43(17.2)
<b>PARITY</b>	
0	148(59.2)
1-4	89(35.6)
=>5	13(5.2)
<b>MARITAL STATUS</b>	
Single	26(10.4)
Married	220(88.0)
Separated	1 (0.4)
Not stated	3(1.2)
<b>EDUCATION</b>	
Nil	15(15)
PRIMARY	15(6.0)
SECONDARY	80(32.0)
TERTIARY	140(56.0)
<b>OCCUPATION</b>	
Civil servants	85(34.0)
Students	62(24.8)
Traders	26(10.4)
House wives	25(10.0)
Unemployed	9(3.6)
Self employed	2(0.8)
Artisans	41(16.4)
<b>REFERRED BY</b>	
Doctor	160(64.0)
Self	74(29.6)
Nurse	8(3.2)
Husband	1(0.4)
Herbal doctor	2(0.8)
Others	5(2.0)

**Table 2:**  
**Indications for referral**

INDICATION	No (%)
"To check womb "	89 (35.6)
Threatened abortion	30(12.0)
To check pregnancy	23(9.2)
Lower abdominal pain	19(7.6)
Routine fetal wellbeing	14(5.6)
Fibroid	3(5.2)
Follicular scan	9(3.6)
Viability check	7(2.8)
Dysfunctional Bleeding	6(2.4)
Dating	5(2.0)
Incomplete abortion	7(2.8)
Infertility	5(2.0)
Miscellaneous	23(9.2)

**Table 3:**  
**Post Ultrasound diagnosis**

DIAGNOSIS	No (%)
Normal uterus	111(44.4)
Fibroid	41(16.4)
Ongoing Cyesis	29(11.6)
Incomplete Abortion	13(5.2)
Missed abortion	15(6.0)
Complete Abortion	2(0.8)
Ovarian cyst	8(3.2)
Ovulatory follicle	6(0.4)
Chronic PID	5(2.0)
Adnexal mass	4(1.6)
Others	16(6.4)