ORIGINAL ARTICLE

ULTRASONOGRAPHIC EVALUATION OF GYNECOLOGICAL AND OBSTETRICAL DISEASES

Muhammad Asghar
Gomal Medical College, D.I.Khan, Pakistan

ABSTRACT

Background: Ultrasonography is the investigation of choice for the diagnosis of various gynecological and obstetrical diseases. This study was conducted to confirm its investigative role.

Material & Methods: This cross-sectional study was conducted at Radiology Department, DHQ Teaching Hospital, D.I.Khan from January 2009 to December 2009. Female patients with various gynecological and obstetrical problems referred for ultrasonography, were included in the study. Preparation for pelvic ultrasonography especially the full urinary bladder was obtained. Before the procedure, clinical history was also taken.

Results: During the study period ultrasonography of 2899 female patients was performed. Fourteen hundred & thirty-one patients were having findings of normal pregnancies; 205 breech presentation, 15 with breech & oblique lie, and 26 with transverse lying fetuses. Among others, 103 were threatened abortion, 68 missed /blighted ovum, 43 molar pregnancy and 48 post-natal cases with retained products of conception. Cases of placenta previa were 107, pregnancy with polyhydramnios 88, pregnancy with oligohydramnios 51, hydrocephalus 21, anencephaly 23, intrauterine dead fetuses 62, ectopic pregnancies 57, simple ovarian cysts 105, complex masses 18, polycystic ovaries 25, hypogenesis /agenesis of genitalia 13, normal antiverted uterus 245, retroverted uterus 85, uterine fibroids 55.

Conclusion: Ultrasonography is a reliable method for the diagnosis of various gynecological and obstetrical diseases.

Key words: Ultra-sonography, Gynecological diseases, Obstetrical diseases.

INTRODUCTION

Since the introduction of ultrasound (US) in 1942 by the Austrian Neurologist Dussik, it has revolutionized obstetric diagnosis.[1] Obstetric sonography in early pregnancy is to see the intrauterine gestational sac, fetal pole and diagnosis is made once the yolk sac is present in the gestational sac. Ultrasonography is a simple, safe, easily repeatable, low to medium cost technique and plays significant role in the diagnosis of early pregnancy with its complications such as molar pregnancy, blighted ovum, missed abortion and ectopic pregnancy.[1,2] The gestational sac of early pregnancy can be visualized at four & a half weeks, the yolk sac about five weeks of gestation and embryo at about five & a half weeks. The heart beat may be seen at 6-7 weeks.[3]

Ultrasound is currently the only available technique for the differentiation of normal from abnormal early pregnancy.[4] Women who present with threatened abortion, US is often the first and frequently the only study required to sort out the many differential clinical considerations.[5] The diagnosis of blighted ovum is made when there is absence of yolk sac or embryo in the GS having MSD exceeded than 20 mm.[6] Typical ultrasonographic features of hydatidiform moles are combination of hypo and hyper echogenic areas. Ultrasonographically, partial moles are more difficult to diagnose.[7,8] however placenta Praevia can be confirmed with an ultrasound.[9] During pregnancy, amniotic fluid can be measured by ultrasonography by the amniotic fluid index (AFI). To determine AFI uterus is divides into four quadrants and measured the maximum vertical diameter in cm and volume of fluid in each quadrant without an aggregate of cord or fetal extremities.[10] A depth of 0-5 cm as oligohydramnios, 5-20 cm as normal, and greater than 20 cm as polyhydramnios. For the single deepest pocket technique, the depth of largest pocket of AF is measured horizontally at least 1 cm at a right angle to the uterine contour.[11] A depth of 0-2 cm as oligohydramnios, 2-8 cm as normal, and more than 8 cm as polyhydramnios. Congenital hydrocephalus is often associated with macrocephaly and ventriculomegely.[12]

Antenatal ultrasonography is a valuable diagnostic tool in detection of various fetal congenital anomalies, which are common in the region of head, neck and spine.[13] The detailed fetal ultrasound can be useful for screening the neural tube defects such as spina bifida or anencephaly.[14] In most patients, decreased fetal movement and loss of fetal heart tones suggests fetal demise but death must be confirmed by ultrasonographic examination.[15] Ultrasonography is also helpful in differentiating ectopic pregnancy from many other simulating conditions like; threatened abortion, incomplete abortion, torsion of ovarian cyst, appendicitis, etc.[16]

Ultrasonography is valuable diagnostic modality for ovarian tumors. However, the differentiation between various types is sometimes difficult. Ultrasonography is important in diagnosis, in monitoring and determining malignant potential and is cost-effective.[17] Uterine fibroid is the most common tumor in women of reproductive age group diagnosed by sonography.[18,19]

Ultrasonography is used for the diagnosis of various gynecological and obstetrical diseases. This study was conducted to confirm its investigative role.

MATERIAL AND METHODS

This study was carried out in the Radiology Department, DHQ Teaching Hospital, D.I.Khan, from 1st January 2009 to 31st December 2009. Female patients with various gynecological and obstetrical problems referred for ultrasonography, were included in the study. Ultrasonography was performed by Toshiba Famio 8 Unit with 3.5 MHz convex transducer.

RESULTS

During the study period 2899 female patients had their ultrasonography. The results are illustrated in the Table. Some of the representative figures of ultrasonography are given below.

Table : Ultrasonographic findings in female patients. (n=2899)

Ultrasonographic findings	Number	Percent	Ultrasonographic findings	Number	Percent
Normal pregnancy	1431	49.36	Pregnancy with polyhydramnios	88	3.03
Breech with extended knee	82	2.82	Pregnancy with oligohydramnios	51	1.7
Breech with flexed knee	98	3.38	Hydrocephalus	21	0.72
Breech with oblique lie	15	0.51	Anencephaly	23	0.79
Transverse lying fetuses	26	0.89	Intrauterine dead fetuses	62	2.13
Threatened	103	3.55	Ectopic pregnancy	57	1.96
Missed / blighted ovum	68	2.34	Ovarian simple cyst	105	3.62
Molar pregnancy	43	1.48	Ovarian solid / complex masses	18	0.62
Retained POCs	48	1.65	Polycystic ovaries	25	0.86
Placenta previa Grade 1	57	1.96	Hypogenisis / infantile uterus	13	0.44
Placenta previa Grade 2	34	1.17	Normal antiverted pelvis	245	8.45
Placenta previa Grade 3	25	0.86	Retro verted uterus	85	2.93
Placenta previa Grade 4	21	0.72	Fibroid uterus	55	1.89
Normal pregnancy	1431	49.36	**Total**	**2899**	**100**

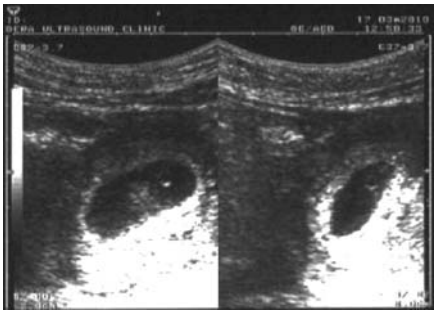

Fig 1: Seven weeks gestational sac with viable fetus.

Fig. 2: Threatened abortion with viable fetus.

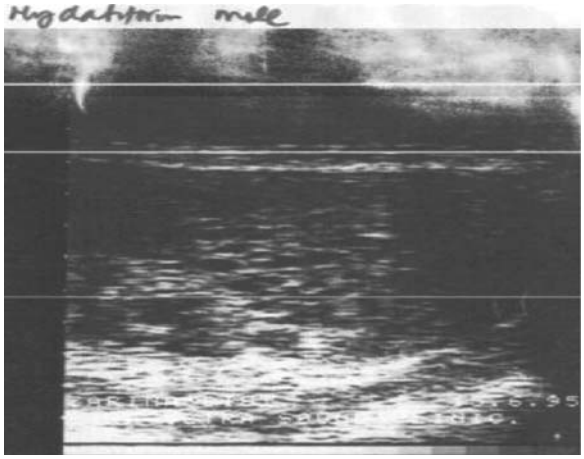

Fig. 3: Molar pregnancy (hydatiform). moles).

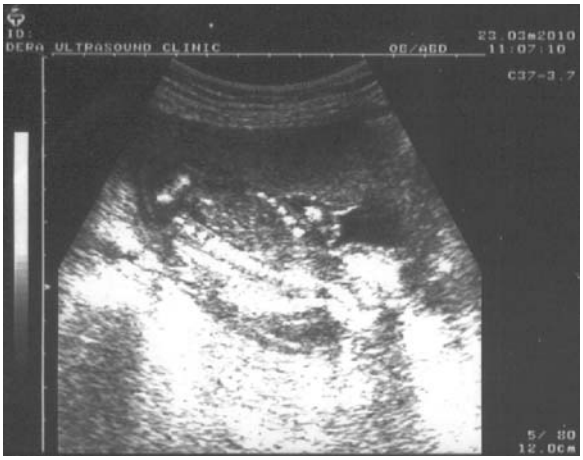

Fig. 4: 16 weeks non alive / anencephalic fetus. nencephaly.

Fig. 5: Twenty-five weeks intrauterine dead fetus with positive Spaulding's signs.

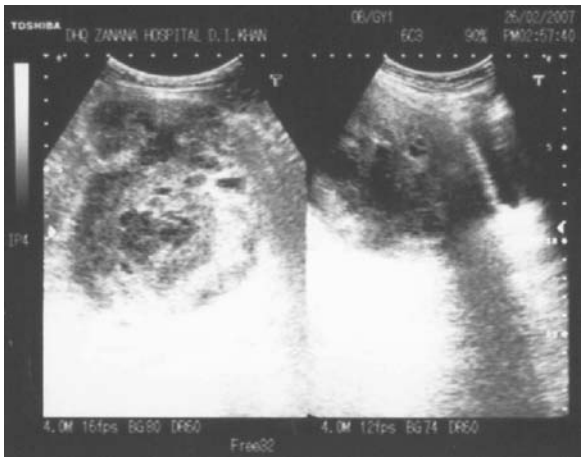

Fig. 6: Complex solid right ovarian mass.

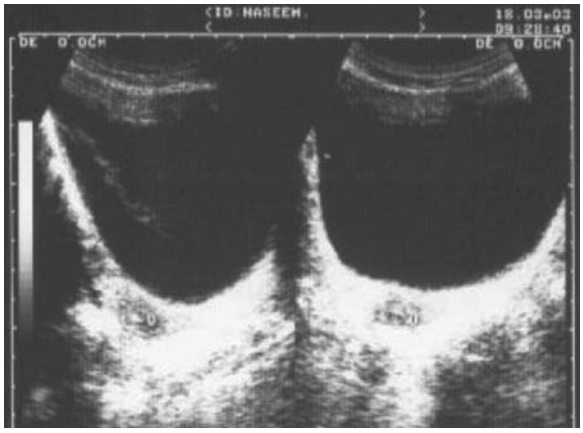

Fig. 7: Seventeen years age with infantile uterus.

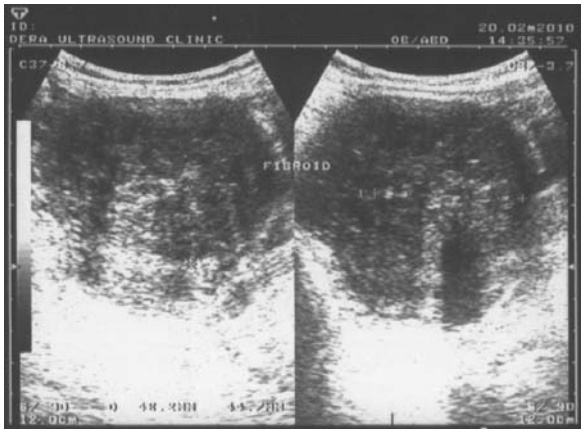

Fig. 8: Large fibroid uterus at fundus

DISCUSSION

About half the total patients 1431 (49.36%) were found to have normal pregnancies with various presentations of fetuses. This figure is lower than the study compared in which it was 66.8%.[20] Ultrasonography at early stage of pregnancy has critical value particularly in patients suspected of having ectopic pregnancy with reliable differentiation between a viable normal and ectopic pregnancy however difficulty remained between missed and blighted ovum at early stage. Diagnosed cases

included in this study are 2.34% which is less than the compared study.[20]

Post-natal cases in this study with retained POCs due to incomplete abortion with typical echoes of placental tissue, and abscess were 1.65%. This figure is lower as compared to the study by Tuladhar AS et al[20] which reported 6.3%. Hydatiform mole was diagnosed in 1.48% cases in our study. These figures coincide with the above mentioned study i.e. 1.9%.[20]

Diagnosed cases of ectopic pregnancies were 1.96% in our study as compared to 2.3% in that study.[20] Cases of ovarian cysts in the study were 0.62%, which is also less as compared to the figures in other studies.[21]

CONCLUSION

Ultrasonography is a reliable method for the diagnosis of various gynecological and obstetrical diseases.

REFERENCES

1 Shrestha BL. Ultrasound in Medicine. J Nepal Med Assoc 1985; 23: 239-46.

2 Crespigny LC, Cooper D, McKenna M. Early detection of intrauterine pregnancy with ultrasound. J Ultrasound Med 1988; 7: 7-10.

3 Joseph W. Why and when is ultrasound used in pregnancy? Obstetric ultrasound: A comprehensive guide. {Online}. 2006 {Retrieved 2007 May 27}; Available from: URL: http:// www.ob-ultrasound.net.

4 Hansmann M, Hackrloer BJ, Staudach A, Wittonan BK, Telger TC. In: Ultrasound diagnosis in obstetrics and gynecology. Springer Verlag, New York, 1986; p.241-66.

5 Sohey R, Woodward P, Zweibel WJ. First trimester ultrasound. The essentials. Semin Ultrasound CT MR 1996; 17: 2-14.

6 Nyber DA, Laurence AM, Laing FC, Harvey D. Value of the yolk sac in evaluation of early pregnancies. J Ultrasound Med 1988; 7: 129-35.

7 Jauniaux E, Nicolaides KH. Early ultrasound diagnosis and follow-up of molar pregnancies. Ultrasound Obstet Gynecol 1997; 9: 17-21

8 Mangili G, Garavaglia E, Cavoretto P, Gentile C, Scarfone G, Rabaiotti E. Clinical presentation of hydatidiform mole in northern Italy: has it changed in the last 20 years? Am J Obstet Gynecol 2008; 302: 1-4.

9 Bhide A, Thilaganathan B. Recent advances in the management of plmacenta previa. Curr Opin Obstet Gynecol 2004; 1613: 447-51.

10 Phelan JP, Smith CV, Broussard P, Small M. Amniotic fluid volume assessment with the four-quadrant technique at 36-42 weeks gestation. J Reprod Med 1987; 32: 540-2.

11 Chamberlain PF, Manning FA, Morrison I, Harman CR, Lange IR. Ultrasound evaluation of amniotic fluid volume. The relationship of marginal and decreased amniotic fluid volumes to perinatal outcome. Am J Obstet Gynecol 1984; 150: 245-9.

12 Garne E, Loane M, Addor MC, Boyd PA, Barisic I, Dolk H. Congenital hydrocephalus - prevalence, prenatal diagnosis and outcome of pregnancy in four European regions. Eur J Paediatr Neurol 2009; 7: 41-47.

13 Chougule S, Desai S, Aironi V. Antenatal ultrasound diagnosis of occipital meningoencephalocele: a case report. Indian J Radiol Imag 2006; 16: 789-91.

14. Joo JG, Beke A, Papp C, Toth-Pal E, Csaba A, Szigeti Z, et al. Neural tube defects in the sample of genetic counseling. Prenat Diagn 2007; 27: 912-21.

15 James L, Lindsey MD. Evaluation of fetal death. {Online} 2008 {Retrieved 2010 March 12}; Available from: URL: http://emedicine.medscape.com/article/259165-overview

16 Nyberg DA, Laing FC, Filly RA. Ultrasonographic differentiation of gestational sac of early pregnancy from the pseudo gestational sac of ectopic pregnancy. Radiology 1998; 146: 755.

17. Chiang G, Levine D. Imaging of adnexal masses in pregnancy. J ultrasound Med 2004; 23: 805-19.

18 Choi JH, Tong SY, Kim MJ, Park JS, Lim YT, Kim JH, Rha SE, et al. Preoperative MR imaging for differentiation of immature from mature ovarian teratomas. Korean J Obstet Gynecol 2006; 49:1547-53.

19 Bruce C. Magnetic resonance image-guided focused ultrasound for uterine fibroids. International procedures consultation documents. National Institute for Health and Clinical Excellence (NICE). London, UK. {Online}. 2007; Available from: URL: www.nice.org.uk/guidance/index.jsp?action=article&o=3179

20. Tuladhar AS, Tuladhar AG, Karki DB, Shrestha1 A, Pradhan S. Role of ultrasound in early pregnancy in differentiating normal and abnormal pregnancies. Nepal Med Coll J 2009; 11: 127-9.

21. eMedicine Specialties>Obstetrics and Gynecology>General Gynecology.

Address for Correspondence:

Dr. Muhammad Asghar

Dera X-Ray Clinic, Faqirni Gate

D.I.Khan, Pakistan

E-mail: radiologistpk@hotmail.com