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 ventriculomegaly.\(^12\)
Diagnosis of Gynecological & Obstetrical diseases by ultrasonography

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. The detailed fetal ultrasound can be useful for screening the neural tube defects such as spina bifida or anencephaly. In most patients, decreased fetal movement and loss of fetal heart tones suggests fetal demise but death must be confirmed by ultrasonographic examination. Ultrasonography is also helpful in differentiating ectopic pregnancy from many other simulating conditions like; threatened abortion, incomplete abortion, torsion of ovarian cyst, appendicitis, etc.

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. Uterine fibroid is the most common tumor in women of reproductive age group diagnosed by sonography.

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)

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

Fig 1: Seven weeks gestational sac with viable fetus.  
Fig. 2: Threatened abortion with viable fetus.
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%.

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
including in this study are 2.34% which is less than the compared study.\textsuperscript{20}

Post-natal cases in this study with retained POCs due to incomplete abortion with typical ec-
chews of placental tissue, and abscess were 1.65%. This figure is lower as compared to the study by Tuladhara AS et al\textsuperscript{20} which reported 6.3%. Hydاتif-
form mole was diagnosed in 1.48% cases in our study. These figures coincide with the above men-
tioned study i.e. 1.9%.\textsuperscript{20}

Diagnosed cases of ectopic pregnancies were 1.96% in our study as compared to 2.3% in that study.\textsuperscript{20} Cases of ovarian cysts in the study were 0.62%, which is also less as compared to the fig-
ures in other studies.\textsuperscript{21}

CONCLUSION

Ultrasonography is a reliable method for the diagnosis of various gynecological and obstetri-
cal diseases.

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