



Detection of Abnormalities of Early Pregnancy using Ultrasonography

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Abstract Introduction: Ultrasound is the only method that provides noninvasive diagnosis of early pregnancy complications. Ultrasound plays a very important role in the evaluation of patient's in general medical diagnosis and especially in early pregnancy

Objective: of this study to determine the value of early pregnancy sonography in detecting fetal abnormalities, types of miscarriage and frequency of ectopic pregnancy in an unselected obstetric population.

Materials and Methods: in this prospective cross-sectional study, a total of 100 subjects were investigated. The mean maternal age (28.7) years, range (15 to 42); mean gestational age (12) weeks, range (11-14). This study take place in King Khalid hospital in Saudi Arabia, Hafer Aborting city, in period from August 2015 to July 2017, the total pregnancy in first trimester were (100) pregnancy. The ultrasound machine were used Mindary with 3.5MHs convex probe, and Medison with 3.5MHs convex probe.

Results: The results showed the incidence of anomalous fetuses was 5% including non-cephalic 2%, Hydrocephalus 2% and cystic hygroma 1%. The incidence of miscarriage 12% and including all types, ectopic pregnancy (5%).

Conclusions: The main response of abortion according to age, ages, Genetics, past operation, infections Intra Uterine Contra septic Device, Endocrine diseases and using any drugs during pregnancy.

Keywords Detection of Abnormalities, Early Pregnancy, Ultrasonography

Introduction

Since the introduction of ultrasound (US) in 1942 by the Austrian neurologist Dussik, it has revolutionized obstetric diagnosis and enriched gynecology with a valuable diagnostic method [1]. During the first trimester of pregnancy, a unique and dramatic sequence of events occurs, defining the most critical and tenuous period of human development: the remarkable transformation of a single cell into a recognizable human being.

US has played a significant role in the establishment of early pregnancy, estimation of gestational age (GA), and in the evaluation of many problems of early pregnancy [2-3]. Because of the complex sequence of events that accompany first trimester development, it is not unusual for complications to occur. Approximately 15.0% of clinically recognized pregnancies are spontaneously miscarried; the loss rate is estimated at two to three times higher with very early and often clinically unrecognized pregnancy. Ultrasound plays a very important role in the evaluation of patients with pregnancy less than 20 weeks, with threatened abortion or completed abortion and ectopic pregnancy.

Knowledge of the ultrasound appearances of normal early pregnancy development and a good understanding of its pitfalls are essential for the diagnosis and management of early pregnancy failure [4-8]. The objectives of this study are to determine the value of early pregnancy sonography in detecting fetal abnormalities, types of miscarriage and frequency of ectopic pregnancy in an unselected obstetric population.



Materials and Methods

A total of 100 subjects were investigated in Saudi Arabia, Hafer Albatin city in King Khalid hospital .The study will be carry over duration of 24month from august 2015 to July 2017. The data will be collected from pregnant women with includes Saudi pregnant women aged from (15-42) years. Approximately 100 cases of early pregnancy (6-20) weeks of GA, attending Gynecology and Obstetrics who were referred to the Department of Radio diagnosis for different indications, during a period of 24 months, from August 2015 to July 2017,underwent trans abdominal (TAS) obstetric US. The scans were performed by commercially available real time ultrasound unit with a 3.5 MHz probe (Mindray dp5). Confirmation of intrauterine pregnancy was made on the basis of presence of gestational sac (GS) and/ or product of conception within the uterine cavity. Estimation of GA was done by standardized measurements of Mean Sac Diameter (MSD) of the GS and/ or the Crown-rump Length (CRL) of the embryo. Presence of live embryo was confirmed by detection of cardiac activity in B Mode and was supported by Doppler ultrasounds.

Ultrasound Machine

The scans were performed by commercially available real time ultrasound unit with a 3.5 MHz probe (Nemio 17 Toshiba Medical Systems).

Results

In the study there were (100) of early pregnancy before 13weeks of GA investigated in differentiating normal and abnormal pregnancies (Saudi population) attending Gynecology and Obstetrics who were referred to the Department of Radio diagnosis between the age of (15 to 42) years, there were 78% with in normal fading ultrasound and there were 22% are abnormal early pregnancy fading such anomalous fetuses was including non-cephalic 2% (2/100) , Hydrocephalus 2% (2/100) and cystic hygroma 1% (1/100) . The incidence of miscarriage 12% (12/100) and including all types, ectopic pregnancy (5%) (5/100). (Table 2) Fig 1. 12% from total pregnancy present with vaginal bleeding and lower abdomen pain, so there were 75% from pregnancy with vaginal bleeding and 25% have lower abdomen pain (table 4) Fig 2. The study found according to age group of early abnormal pregnancy which are ranging from (15-42) there were 27% in age group (15-24) , there were 53% in age group(25-33) and 20% there were in age group (34-42) (Table 3). 17% from total of abnormal early pregnancy present with Threatened Abortion , 4% were Inevitable Abortion, 1% were Infected Abortion, 2% were Incomplete abortion, 5 % Complete Abortion, 3 % Missed Abortion, 2 % Repeated Abortion – Habitual (Table 4). 78% from total pregnancy have normal finding in earl pregnancy ,22% were abnormal finding with include 15% abortion and 4% ectopic pregnancy 2% Blighted Ovum 1% molar pregnancy.

Table 1: Normal and Abnormal in Early pregnant

Normal/abnormal	F	Percentage
Normal	78	78%
Abnormal	22	22%
Total	100	100%

Table 2: Pregnancy present with clinical presentation

Clinical presentation	F	Percentage
Vaginal bleeding	9	75%
lower abdominal pain	3	25%
Total	12	100%

Table 3: Age group in (100) investigated for abnormal early pregnant

Age	F	Percentage
15-24	27	27%
25-33	53	53%
34-40	20	20%
Total	100	100%



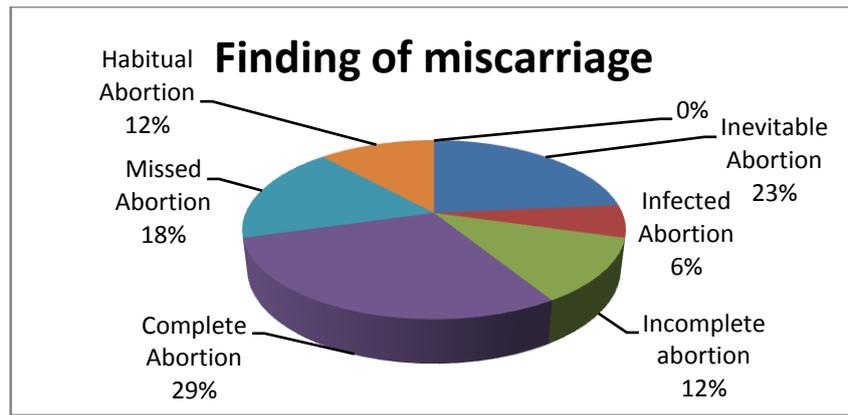


Figure 1: Finding of miscarriage

Table 4: Early pregnancy anomalies Ultrasound finding

Pregnancy	Frequency	Percentage
Normal	78	78%
Abortion	10	10%
Ectopic	4	4%
blighted ovum	2	2%
non-cephalic	2	2%
Hydrocephalus	2	2%
Cystic hygroma	1	1%

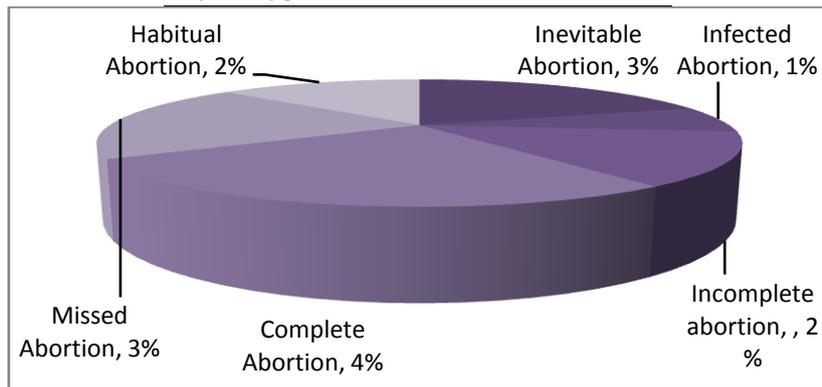


Figure 2: Ultrasound finding

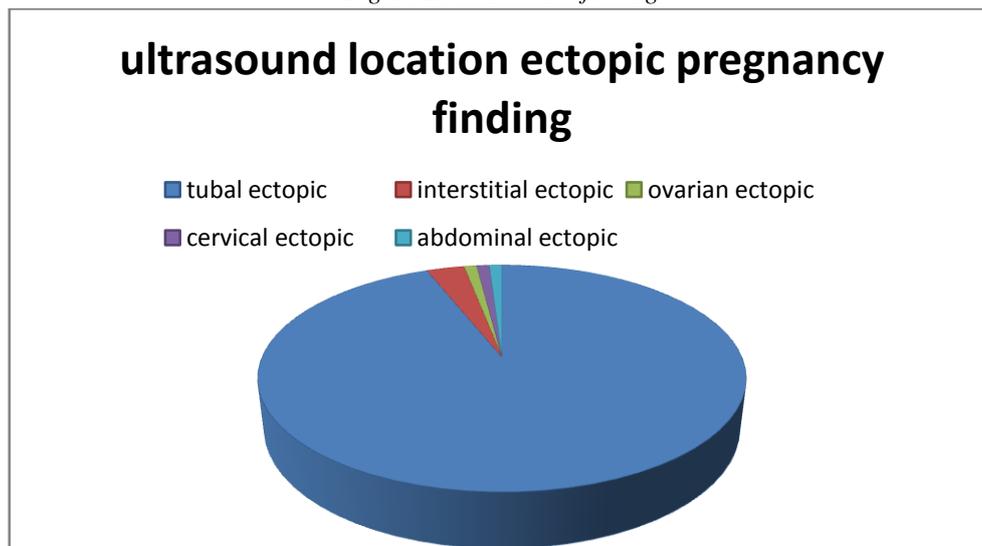


Figure 3 Ultrasound location of ectopic pregnancy finding

Discussion

This study has demonstrate that ultrasound has high accuracy in accuracy of Detection of Abnormalities of Early Pregnancy . In the study there were (100) of early pregnancy (In Saudi Population) attending Gynecology and Obstetrics who were referred to the Department of Radio diagnosis between the age of (15 to 42) years, there 22% are abnormal early pregnancy fading including 5% fetal structural abnormalities such cystic hygroma, anen-cephalic and hydrocephalus , anther wise there were 17% including early pregnant anomalies such as ectopic , abortion and blighted ovum . 78% with in normal fadings. According to Clinical presentation there were 12% from total pregnancy present with vaginal bleeding and lower abdomen pain ,so there were 75% from pregnancy with vaginal bleeding and 25% have lower abdomen pain. The study has shown that the main response of abortion according to age , ages, Genetics, past operation, infections Intra Uterine Contra septic Device , Endocrine diseases and using any drugs during pregnancy. The study found according to age group of early abnormal pregnancy which are ranging from (15-42) there were 27% in age group (15-24) , there were 53% in age group(25-33) and 20% there were in age group (34-40). The study show Ultrasound finding that 78% from total pregnancy have normal finding in earl pregnancy ,22% were abnormal finding with include 10% abortion , 4% ectopic pregnancy, 2% Blighted Ovum ,1% cystic hygroma, 2% anen-cephalic and hydrocephalus and 1% molar pregnancy, In this study we Finding miscarriage 15% from total of abnormal early pregnancy present with Threatened Abortion , 3% were Inevitable Abortion, 1% were Infected Abortion, 2% were Incomplete abortion, 4 % Complete Abortion, 3 % Missed Abortion, 2 % Repeated Abortion – Habitual .

Conclusion

Ultrasound has high accuracy in diagnosis and checkup the Detection of Abnormalities of Early Pregnancy. The incidence of abnormal pregnancy 22% , The sensitivity of detection for fetuses structural was 5% (5/100) , early pregnant anomalies was 17% (17/100) .The threatened abortion more incidence is more than the other abnormality in early pregnancy. The majority of pregnancy come to ultrasound department in first trimester. Most of abnormal early pregnancy is multi – porous subjects. Most of early pregnancy abnormality has lower abdominal pain and vaginal bleeding. Pregnant ladies should advised to monitor themselves carefully and avoid using of intrauterine contraceptive devices (I.U.C.D).

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