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Role of Ultrasound in Early Diagnosis of Amniotic Fluid Abnormalities in Assessment of Fetal Maturity and Associated Fetal Congenital Anomalies

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ABSTRACT

Amniotic fluid plays a major role in the development of the fetus. Borderline AFI is defined between 5.1-10. Pregnancies with borderline AFI of 5-10 cm have shown outcomes such as non-reactive non-stress tests, fetal heart rate (FHR) deceleration, meconium aspiration, immediate caesarean delivery, low Apgar score, Low body weight, Neonatal intensive care unit admission and small gestational age. There are three types of amniotic fluid abnormalities Polyhydramnios, Oligohydramnios and anhydramnios. Ultrasound assessment of AF has an important implication in obstetric care, and it has become an integral and important component of pregnancy assessment. The sonographic method involves the measurement of the AF index (AFI), single deepest pocket (SDP) (largest vertical or largest transverse pocket). Aim of the work: Ultrasound evaluation of the amniotic fluid abnormalities in assessment of fetal maturity and associated fetal congenital anomalies. Results: there was 43 (64.18%) cases of oligohydramnios cases, 12 (48%) cases of the polyhydramnios cases, and in 2 (25%) case of the less than average cases. Amniotic fluid index ranged from 0.3 to 4.5 with a mean value of 2.58 ± 1.17 in Oligohydramnios cases, ranged from 26 to 35 with a mean value of 30.76 ± 3.47 in polyhydramnios cases, and ranged from 6 to 10 with a mean value of 7.37 ± 1.68 in less than average cases. The most congenital anomalies occurring type was mega cystitis in 12 (21.05%) cases followed by medullary cystic kidney disease in 11 (19.03%) cases in all cases with congenital anomalies. Conclusion: The early diagnosis of pregnancies at risk for preventable perinatal handicap is a primary goal of the obstetric care providers. One of the most consistently used justifications for requesting obstetric ultrasound is early diagnosis of any obstetric abnormality as amniotic fluid abnormalities and any associated fetal anomalies before delivery which can provide a number of management options. In our study we concluded that, oligohydramnios is associated with intrauterine growth retardation (IUGR), fetal congenital anomalies. Also, severe polyhydramnios is associated with congenital malformations.

Keywords: Amniotic fluid, Ultrasound, AFI, SDP.

Introduction

Assessment of fetal well-being is important in timely diagnosis of fetal compromise and management. Amniotic fluid plays a major role in the development of the fetus. It cushions the fetus and protects it against injuries. Abnormalities of the amniotic fluid volume can interfere directly with the fetal development (Lee *et al.,* 2018).

There are three types of amniotic fluid abnormalities. Polyhydramnios, where the amniotic fluid volume is more than expected for gestational age (Amniotic fluid index (AFI) >25 cm) with increased perinatal morbidity and mortality. Common causes of polyhydramnios include gestational diabetes, fetal anomalies with disturbed fetal swallowing of amniotic fluid, fetal infections and other, rarer causes (Hamza *et al.,* 2013).

The diagnosis is obtained by ultrasound. The prognosis of polyhydramnios depends on its cause and severity. Typical symptoms of polyhydramnios include maternal dyspnea, preterm labor, premature rupture of membranes (PPROM), abnormal fetal presentation, cord prolapse and

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postpartum hemorrhage. Due to its common etiology with gestational diabetes, polyhydramnios is often associated with fetal macrosomia (Hamza *et al.,* 2013 and Berezowsky *et al.,* 2019).

Oligohydramnios where the amniotic fluid volume is less than expected for gestational age (often these fetuses have <500 mL of amniotic fluid), decreased amniotic fluid volume due to decreased urine production by the fetal kidney is a reflection of chronic hypoperfusion of the fetus, Oligohydramnios can also occur because the patient's amniotic membrane has ruptured and amniotic fluid is leaking out of the uterus. and anhydramnios where there is a complete or near- complete lack of amniotic fluid (Kehl, 2018).

Borderline AFI is defined between 5.1-10. There are different views about its function and influence on maternal and fetal complications and medical care for fetus health. Pregnancies with borderline AFI of 5-10 cm have shown outcomes such as non-reactive non-stress tests, fetal heart rate (FHR) deceleration, meconium aspiration, immediate caesarean delivery, low Apgar score, Low body weight, Neonatal intensive care unit admission and Small gestational age. Also, the low amniotic index may increase the operative delivery rate. Ultrasound assessment of AF has an important implication in obstetric care, and it has become an integral and important component of pregnancy assessment (Luntsi *et al.,* 2020).

The sonographic method involves the measurement of the AF index (AFI), single deepest pocket (SDP) (largest vertical or largest transverse pocket) (Luntsi *et al.,* 2019).

The AFI is a semi-quantitative analysis of AF volume which involves dividing the maternal abdomen into four quadrants using the linea nigra and an imaginary line running across the maternal umbilicus and perpendicular to the nigra (Luntsi *et al.,* 2020). The technique is simple, acceptable, and readily used. AFI may perhaps appear to be more accurate by measuring all four quadrants. It can actually assess serial changes in fluid volume overtime when compared to the single vertical pocket, which might vary due to fetal positioning (Burai *et al.,* 2016).

The aim of the work is to evaluate ultrasound of the amniotic fluid abnormalities in assessment of fetal maturity and associated fetal congenital anomalies.

1.1. Patients and Methods

Type of Study: A prospective cross-sectional study.

Study Setting: This study was carried out at the Department of Radiology at Tanta University Hospital.

Study Period: From October 2020 till January 2023.

Patients: Among patients attending Tanta University Hospital, 100 pregnant females with aminiotic fluid abnormality were included.

Criteria of patient selection

Inclusion criteria

- Any aged mother
- Singleton or multiple pregnancy.
- From 13 week till the end of pregnancy.
- Aminiotic fluid abnormality.

Exclusion criteria

- Patients refused ultrasound or color Doppler examination.
- Uncooperative patients, and patients with mental or behavioral disorders.

2. Methods

All patients were subjected to the followings:

- Personal (name, age, duration of marriage, occupation, address, parity, special habits, and BMI).
- Maternal Medical History: (maternal illness, preeclampsia or gestational diabetes mellitus, smoking, drug intake, renal disease, and antiphospholipid syndrome (Apls)).
- Obstetric History: (type of conception and AFI
- Fetal gestational age was calculated according to date of last mentrual period (LMP), then US at time of examination by measuring bronchopulmonary dysplasia (BPD), head circumference (HC), femur length (FL) and abdominal circumference (AC).
- Expected fetal weight (EFW) by Hadlock's formula (AC, biparietal diameter, and FL).

Imaging studies

- Trans-abdominal ultrasound.

Each woman in this study was evaluated by ultrasound as following

The diagnosis of aminiotic fluid abnormality was made in the presence of an estimated of four quadrants. All patients underwent a detailed sonographic examination by ultrasound machine with a trans abdominal transducer before administration of any medication (including steroid).

Amniotic fluid was measured using three methods the subjective method, largest pocket (LVP) & the four quadrants AFI, all were used in order to avoid the intra- and inter observer variations.

Regarding the placenta, umbilical cord: the diameter, the structure, presence of cysts or any anomaly (single artery), umbilical artery resistance index (RI) to detect placental insufficiency.

Fetal full anomaly survey according to the gestational age was done for all systems. This anomaly scan was done in every pregnant female, once AFI abnormalities were detected, search for a cause for this AFI abnormality.

- In oligohydramnios & anhydramnios: Maximum vertical pocket < 2 cm, amniotic fluid index (AFI) < 5 cm.
- In less than normal: AFI of 6-8 cm.

The following questions should be answered in sequence:

- Is the UB full or empty?
- And is it distended or not? If kidneys are absent or not? And if present, is it normal in size, echogenicity normal or not? Are they containing cysts or not?
- Are there backpressure changes starting from the renal pelvis down the ureters till the UB?
- To exclude obstructive uropathy. Is IUGR, lung hypoplasia, Potter syndrome (pulmonary hypoplasia, Potter facies, club foot and contractures) present or not?

In polyhydramnios: (AFI) technique: Four pocket ≥ 25-cm.
Single largest pocket ≥ 8 cm.

Fetal maturity

Assessment of fetal maturity by both the traditional five parameters of assessing fetal maturity

- Lung echogenicity compared to the liver echogenicity.
- Ossification centers.
- Colonic haustra.
- Liquor turbidity and the placental grading)
- And the newest ones (the lung volume, the lung perfusion and pulmonary artery RI).

Examination of the baby

Examination of all baby system was done to detect any congenital anomaly. The seven questions of detailed fetal anatomy survey should be answered starting from the head down the fetal body caudally

1. Is there a CNS malformation is present?
2. Is swallowed amniotic fluid obstructed before arriving in the esophagus?
3. Is there heart failure?
4. Is there chest abnormality?
5. Is there a stomach bubble?

6. Is there distal obstruction to cause fetal regurgitation?
7. Is the overall tone being normal or not?

3D & 4D US: for all cases with associated congenital anomalies.

Follow up the patients by the same technique of examination

Every time the fetal biometry is reevaluated [to follow up the growth pattern and if small for date, IUGR, and macrosomia were detected], fetal biophysical profile, AFV is reassessed for volume changes, turbidity, follow up of the maturity and the placental grading.

Fetal outcome

The accuracy of diagnosis of congenital anomalies for completed pregnancies, was documented by post-natal clinical examination done by a neonatologist to detect any congenital anomalies, to manage the survived babies, determine if they need any assisted ventilation, and determine if lung hypoplasia is present or not.

Ethical considerations

The study was approved by the Ethics Committee of Faculty of Medicine Tanta University. There are adequate provisions to maintain privacy of participants and confidentiality of the data are as follows:

1- We put code number to each participate with the name and address kept in a special file.
2- We hide the patients name when we use the research.
3- We used the results of the study only in a scientific manner and not to use it in any other aims.

3. Results

Age of the study participants ranged from 19 to 40 years with a mean value of 29.93 ± 6.52 years. Parity ranged from 1 to 4 live births with a median of 2 live births. BMI ranged from 17 to 29.4 kg/m^2 with a mean value of 25.37 ± 2.91 kg/m^2. Gestational age ranged from 13 to 40 weeks with a mean value of 29.8 ± 8.24 weeks (Table 1).

Regarding medical history of the study participants, 8 (8%) cases had a history of pre-eclampsia, 18 (18%) cases had history of DM, 6 (6%) cases had history of drug intake, and 4 (4%) had a history of renal disease (Figure 1).

Table 1: Baseline characteristics of the study participants

		Study participants (n =100)
Age (years)	**Mean ± SD**	29.93 ± 6.52
	Range	19 - 40
Parity	**Median (IQR)**	2 (1-2)
	Range	1 – 4
BMI (kg/m^2)	**Mean ± SD**	25.37 ± 2.91
	Range	17 -29.4
Gestational age (weeks)	**Mean ± SD**	29.8 ± 8.24
	Range	13 - 40

BMI: Body mass index, SD: Standard deviation

Regarding the amniotic fluid abnormalities in the study participants, 67(67%) patients, were oligohydramnios, 25 (25%) patients were polyhydramnios, and 8 (8%) patients were less than average (Figure 2).

Amniotic fluid index ranged from 0.3 to 4.5 with a mean value of 2.58 ± 1.17 in Oligohydramnios cases, ranged from 26 to 35 with a mean value of 30.76 ± 3.47 in polyhydramnios cases, and ranged from 6 to 10 with a mean value of 7.37 ± 1.68 in less than average cases (Figure 3).

Regarding the incidence of congenital anomalies in the study participants, it occurred in 43 (64.18%) cases of oligohydramnios cases, 12 (48%) cases of the polyhydramnios cases, and in 2 (25%) case of the less than average cases (Table 2).

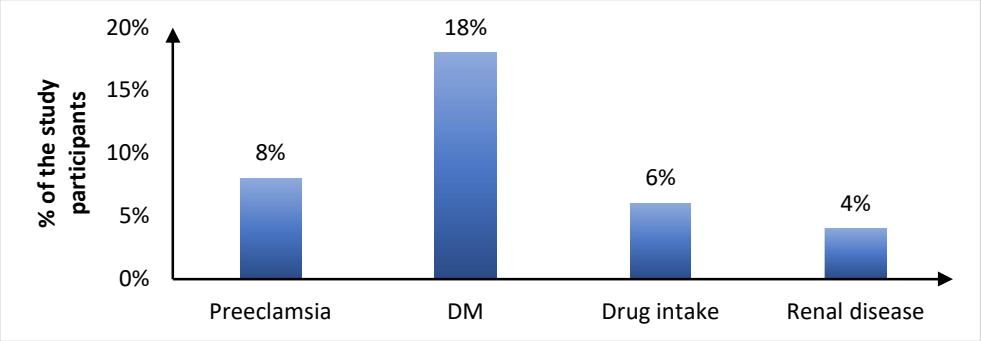


Fig. 1: Medical history of the study participants

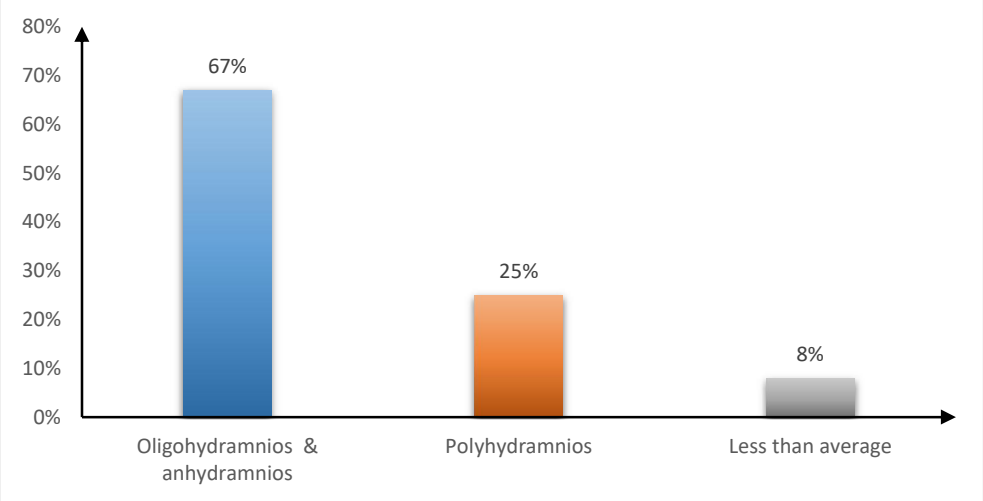


Fig. 2: Amniotic fluid abnormalities in the study participants.

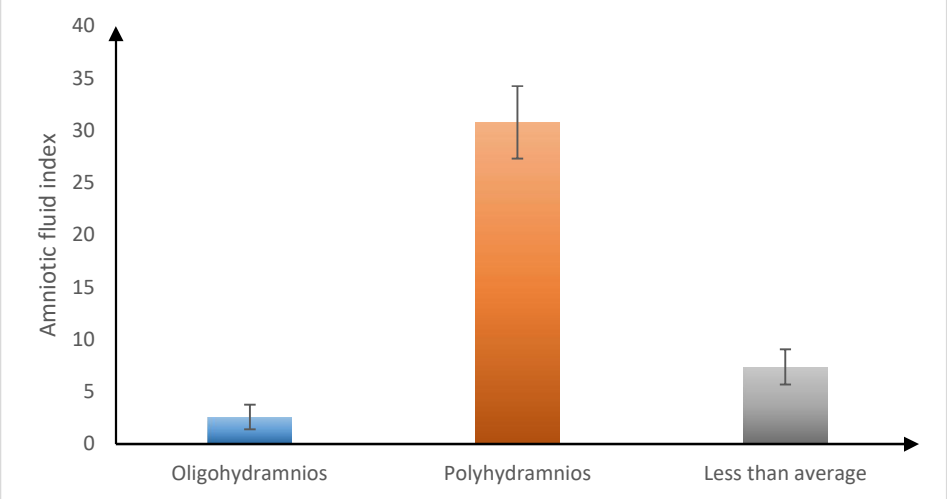


Fig. 3: Amniotic fluid index of the study participants

Table 2: Incidence of congenital anomalies in study participants with amniotic fluid abnormalities

		Oligo-hydramnios (n = 67)	Poly-hydramnios (n = 25)	Less than average (n = 8)
Incidence of congenital anomalies	Without congenital anomalies	24 (35.82%)	13 (52%)	6 (75%)
	With congenital anomalies	43 (64.18%)	12 (48%)	2 (25%)

Regarding growth potentials in oligohydramnios cases, 24 (35.82%) were normal, and 43 (64.18%) were IUGR and none were macrosomia. In polyhydramnios cases 18 (72%) were normal, and 7 (28%) were macrosomia and none were IUGR. In less than average cases, 6 (75%) were normal and 2 (25%) were IUGR (Figure 4).

Regarding type of congenital anomalies, the most occurring type was mega cystitis in 12 (21.05%) cases followed by medullary cystic kidney disease in 11 (19.03%) cases in all cases with congenital anomalies (Figure 5).

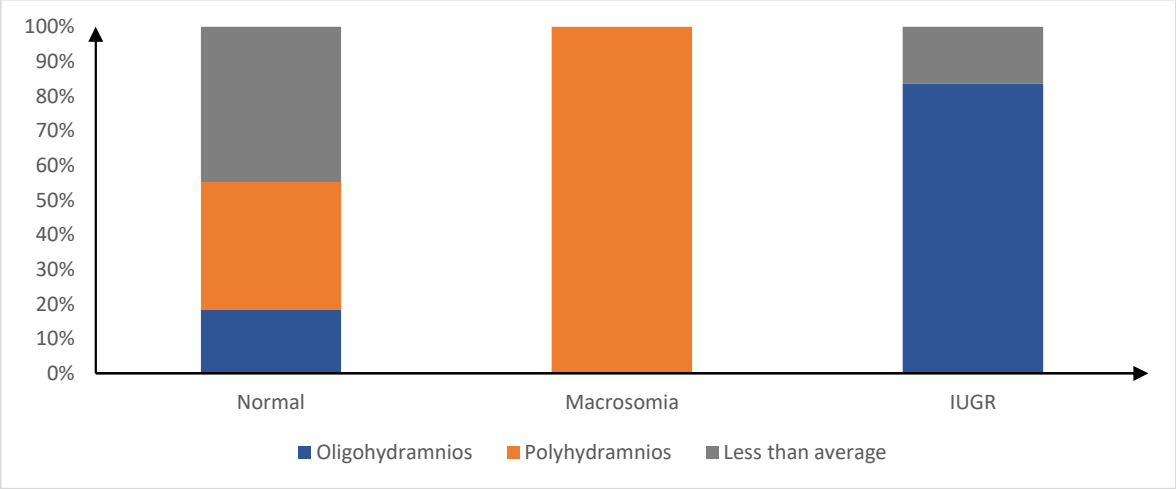


Fig. 4: Growth potentials in study participants with amniotic fluid abnormalities.

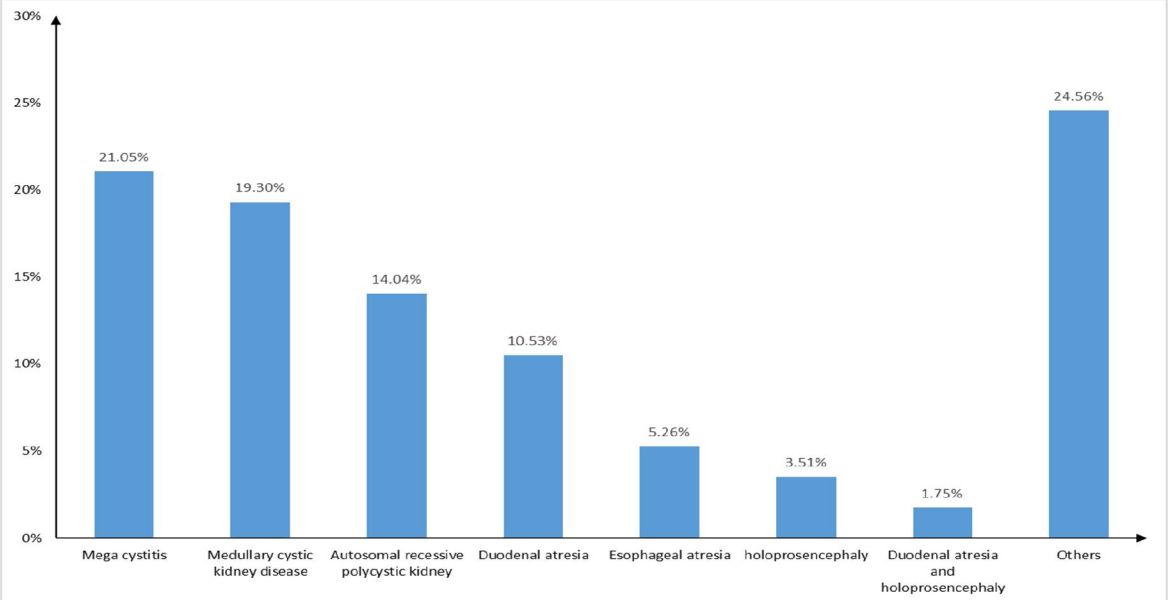
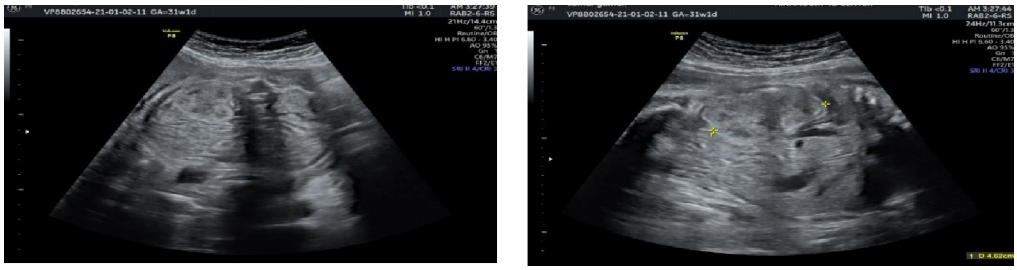


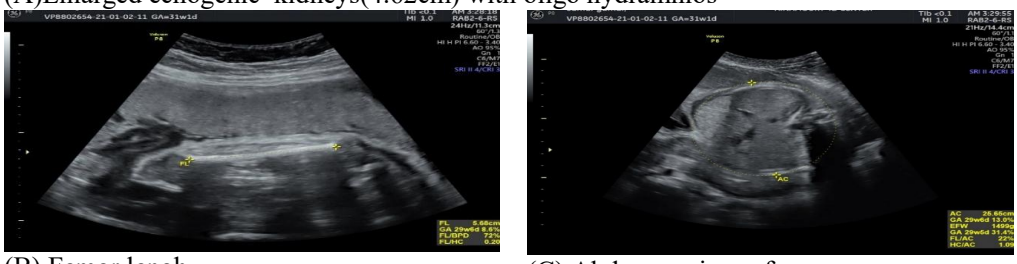
Fig. 5: Congenital anomalies in study participants

Cases:

Case 1: Female patient 30 years old with gestestional age of 31 weeks with autosomal recessive polycystic kidney disease (ARPKD) ultrasound examination was showed that Bilateral symmetrically enlarged (4.62cm) echogenic kidneys without corticomedullary differentiation, oligo hyderomenous (Figure 6).



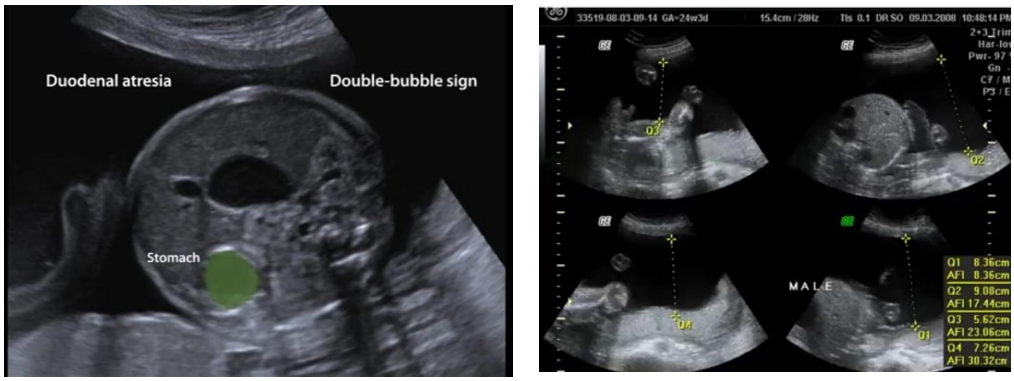
(A)Enlarged echogenic kidneys(4.62cm) with oligo hydramnios



(B) Femor lengh (C) Abdomen circumference

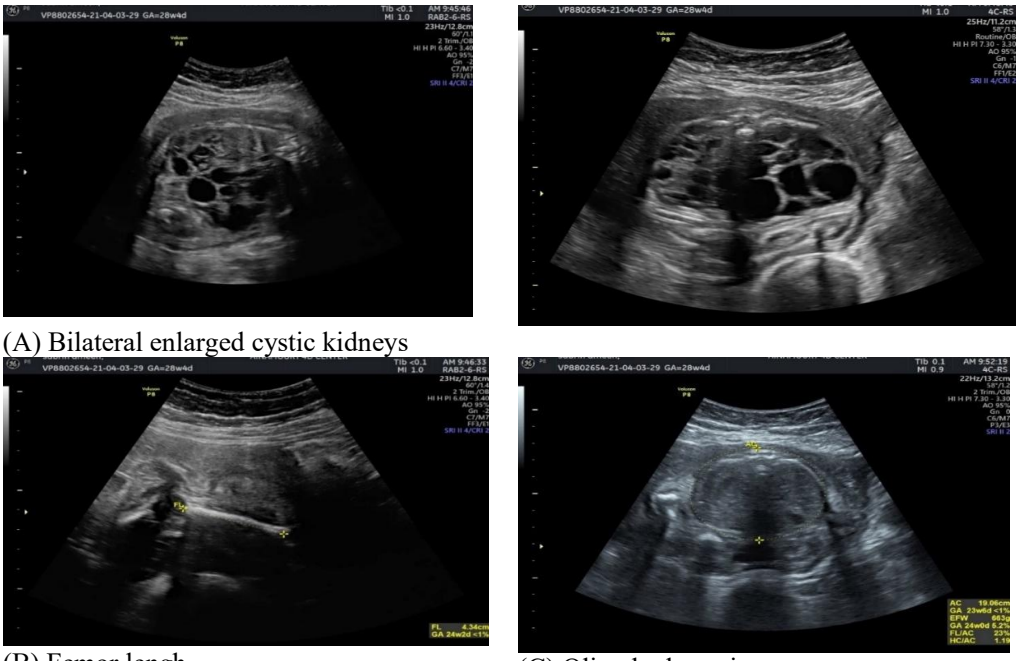
Fig. 6: Autosomal recessive polycystic kidney disease

Case 2: Female patient 34 years old with gestational age of 29 weeks with duodenal atresia ultrasound examination was showed classic sign of duodenal atresia (double bubble) that fluid –filled stomach and fluid-filled duodenum in abdomen, polyhydramnios (AFI=30.3cm) (Figure 8).



(A) Double-bubble sign with polyhydramnios(30.3cm)

Case 3: Female patient 27 years old with gestestional age of 28 weeks and 4 days with multicystic kidney disease (MCKD) ultrasound examination was showed that bilateral enlarged kidneys with numerous (>20) variabley-sized anechoic cysts, multiple simple cysts are also seen in liver, oligo hyderomenous (Figure 7).



(A) Bilateral enlarged cystic kidneys

(B) Femor lengh

(C) Oligo hydramnios

Fig. 7: Multicystic kidney disease MCKD

4. Discussion

The amniotic fluid is a protective liquid present in the amniotic sac. Amniotic fluid measurement is mandatory as the amniotic fluid abnormalities occur in about 7 percent of pregnancies (Ismaeal, 2021).

Amniotic fluid volume (AFV) is an integral part of the assessment of fetal wellbeing. The ultrasound is a simple tool to full anatomy scanning. The ultrasound assessments of the AFV are used daily clinically to determine whether the AFV is low, normal, or high (Hughes *et al.,* 2020).

Amniotic fluid index (AFI) is a quantitative estimate of the amount of amniotic fluid and an indicator of fetal well-being. It is a separate measurement from the biophysical profile. AFI is the score (expressed in cm) given to the amount of amniotic fluid seen on ultrasonography of a pregnant uterus (Mathuriya *et al.,* 2017).

There are three types of amniotic fluid abnormalities Polyhydramnios, Oligohydramnios and anhydramnios (Woodward, 2021). Abnormalities associated with polyhydramnios involving the skeletal, gastrointestinal & central nervous system also can occur (Bakhsh *et al.,* 2021).

Oligohydramnios is considered a feature of chronic hypoxemia. In oligohydramnios, the ultrasound is also a simple tool to perform serial measurements during the pregnancy (Bakhsh *et al.,* 2021).

Therefore, the present study was conducted to evaluate the amniotic fluid abnormalities in assessment of fetal maturity and associated fetal congenital anomalies.

The current prospective study recruited on 100 pregnant women with amniotic fluid abnormalities. All patients in this study subjected to the following: history talking (Personal, Obstetric History and Maternal Medical History) and radiological investigation (trans-abdominal ultrasound and color Doppler which Including umbilical artery, middle cerebral artery and uterine artery). The diagnosis of amniotic fluid abnormality was made in the presence of an estimated of four quadrants amniotic fluid index (AFI) plus abnormal doppler including umbilical artery, middle cerebral artery and uterine artery on admission, all patients underwent a detailed sonographic examination by ultrasound machine with a trans abdominal transducer before administration of any medication (including steroid).

The current study illustrated that the age of the study participants ranged from 19 to 40 years with a mean value of 29.93 ± 6.52 years. Parity ranged from 1 to 4 live births with a median of 2 live

births. BMI ranged from 17 to 29.4 kg/m^2 with a mean value of 25.37 ± 2.91 kg/m^2. Gestational age ranged from 13 to 40 weeks with a mean value of 29.8 ± 8.24 weeks.

Our results are similar to Mubarak, (2018) who conducted his study to determine whether transvaginal cervical length (TVCL), amniotic fluid index (AFI), or a combination of both can predict delivery latency within 7 days in women presenting with preterm premature rupture of membranes (PPROMs). This was a prospective observational study of TVCL measurements in eighty singleton pregnancies with PPROM between 24–34 weeks. Transvaginal ultrasonography was performed to measure the CL and AFI. The results showed that the mean age of women was 24.6 ± 5.9 years (range, 16–40 years). The parity ranged between 0 and 5 and the gestational age ranged from 24-34 week with a mean value 30 ±2.7 weeks.

Similarly, Bakhsh *et al.* (2021) reported similar results in the comparative retrospective cohort study design that conducted to identify the maternal risk factors associated with amniotic fluid disorders, and to assess the effect of amniotic fluid disorders on maternal and fetal outcome with examination the mode of delivery in pregnancy complicated with amniotic fluid disorders. 497 pregnant women were enrolled, and data were collected from electronic medical reports, and was analyzed using descriptive statistics. The results showed that most cases were in the age of 35 year or less with body mass index equal to 30 kg/m^2 or more (obese) and gestational age term ≥37–41 weeks.

In addition, our results showed that regarding medical history of the study participants, 8 (8%) cases had a history of pre-eclampsia, 18 (18%) cases had history of DM, 6 (6%) cases had history of drug intake, and 4 (4%) had a history of renal disease.

These findings are matched with Bakhsh *et al.* (2021) who demonstrated that the participant cases were also getting adequate treatment for their chronic diseases, specifically in cases when there's high risk of pregnancy or mother's health being affected including diabetes mellitus, renal disease and hypothyroidism. The most significant maternal risk factors associated with amniotic fluid disorders include diabetes mellitus.

Moreover, Ding *et al.* (2022) recorded comparable results in the study recruited on 389 preeclamptic and 447 uncomplicated pregnancies to determine the relationship between amniotic fluid index and placental aquaporin 1 (AQP1) (plays an important role in regulation of maternal-fetal fluid exchange and amniotic fluid volume) in terms of preeclampsia, and to reveal possible pathophysiological changes of AQP1 expression under preeclamptic conditions. The results showed that abnormal amniotic fluid index (oligohydramnios) is contributed to a history of pre-eclampsia.

Furthermore, the present study clarified the amniotic fluid abnormalities and showed that 67 (67%) patients were oligohydramnios, 25 (25%) patients were polyhydramnios, and 8 (8%) patients were less than average. Hence, the oligohydramnios is the most abundant among cases.

These findings are against Bakhsh *et al.* (2021) who verified that the majority of the cases i.e., 425 (85.5%) had normal amniotic fluid index (AFI). However, 14 (2.8%) had polyhydramnios, and 58 (11.7%) had oligohydramnios. This difference in percentage might be due to the large sample size enrolled in their study in comparison to the enrolled sample used in this research.

Similarly, our results are different from Mubarak, (2018) who reported that the AF problems occur in 80 pregnancies out of 3220 pregnant females and this represent about 2.48%. Moreover, the results illustrated that 38 cases of polyhydramnios which represent 1.18 percent and 34 cases of oligohydramnios which represent 1.05 percent. Also, the large sample size of their study could be contributed to the different percentage.

Additionally, the current results illustrated that the amniotic fluid index ranged from 0.3 to 4.5 cm with a mean value of 2.58 ± 1.17 cm in oligohydramnios cases, ranged from 26 to 35 cm with a mean value of 30.76 ± 3.47 cm in polyhydramnios cases, and ranged from 6 to 10 cm with a mean value of 7.37 ± 1.68 cm in less than average cases.

Our results are similar to Kornacki *et al.,* (2017) who conducted his study to assess the correlation between the amniotic fluid index (AFI) value and the frequency and type of fetal anomalies. The study included 94 patients at the third trimester of pregnancy, and it demonstrated that polyhydramnios was diagnosed if AFI was > 24 cm and moderate polyhydramnios with AFI between 30–34.9 cm.

In addition, our results are in agreement with Farinelli and Langer, (2011) who determined if the glucose abnormality in gestational diabetes influences amniotic fluid volume throughout pregnancy. Gestational diabetic women with singleton pregnancies were followed prospectively

throughout their pregnancy. Multiple ultrasounds examinations were performed for each ultrasound, the mean glucose level was evaluated for each week prior to that ultrasound (good glycemic control defined as a mean glucose <100 mg/dl). The results exhibited that AFI determined normal as AFI 5 to 25 cm oligohydramnios <5 cm and polyhydramnios >25cm.

Likewise, the recent study found that regarding the incidence of congenital anomalies in the study participants, it occurred in 43 (64.18%) cases of oligohydramnios cases, 12 (48%) cases of the polyhydramnios cases, and in 2 (25%) case of the less than average cases.

Further, Bakhsh *et al.* (2021) reported that the total number of neonates with congenital anomalies were diagnosed in 31(6.3%) of neonates. These results indicated that all cases of abnormal amniotic fluids showed no significant association with congenital malformation. These results are different from ours that revealed that abnormal AFI is contributed to congenital anomalies.

Our results are similar to Ismaeal, (2021) who conducted prospective study to estimate the use of the ultrasonographic early diagnosis and follow up of amniotic fluid abnormalities for evaluation the fetal wellbeing, fetal growth and early warning signs of fetal distress to determine the suitable time for delivery. The study included 80 cases with amniotic fluid abnormalities. All patients were divided into 3 groups; group A(n=34): oligohydramnios & anhydramnios: diagnosed when the AFI is below 5. Group B (n=8): less than average diagnosed when the AFI below the lower normal by one parameter and normal by the other. Group C (n=38): polyhydramnios the AFI is above or equal to 25 cm. They were 38 pregnancies The results illustrated that the incidence of congenital anomalies was 44 cases out of 80 (55%). Lethal anomalies were seen in 20 cases (45.45% of congenital anomalies cases), non-lethal in 24 cases (54.54% of cong. anomalies cases).

Moreover, the findings of the current study revealed that regarding growth potentials in oligohydramnios cases, 24 (35.82%) were normal, and 43 (64.18%) were intrauterine growth restriction (IUGR) and none were macrosomia. In polyhydramnios cases 18 (72%) were normal, and 7 (28%) were macrosomia and none were IUGR. In less than average cases, 6 (75%) were normal and 2 (25%) were IUGR.

In addition, our results are similar to Ding *et al.* (2022) who reported that in oligohydramnios cases 0% were normal and 64.00% exhibited lower birth weight and higher rate of IUGR, indicating that IUGR fetuses were significantly more common among patients with oligohydramnios. Moreover, in polyhydramnios cases 0% were normal and 33.96% had IUGR and in less than average cases 0% were normal and 51.43% had IUGR.

Ismaeal, (2021) demonstrated that according to the fetal biometric results 30% fetuses showed IUGR, 57.5% fetuses showed normal development and 12, 5% were macrosomic. Our results are disagreed with these results as the majority of cases in Ismaeal study exhibited normal neonatal development in all studiedgroups (oligohydramnios, polyhydramnios and less than average groups). While, our results revealed that most cases had IUGR.

Besides, our results indicated that regarding type of congenital anomalies, the most occurring type was mega cystitis (abnormally large urinary bladder) in 12 (21.05%) cases followed by medullary cystic kidney disease in 11 (19.03%) cases in all cases with congenital anomalies.

Our results are in the line with Bakhsh *et al.* (2021) who illustrated that cardiovascular and renal congenital anomalies were diagnosed in neonates with polyhydramnios and oligohydramnios respectively

Additionally, our results are in accordance with Ismaeal, (2021) who classified etiologies of oligohydramnios and anhydramnios group into, fetal congenital anomalies (64.71%) which include renal and non-renal anomalies, idiopathic (35.29%) which most likely represent the placental insufficiency group and others. The results explained that the genitourinary abnormality (bilateral renal anomaly, renal agenesis and ureteropelvic junction obstruction, polycystic kidney disease and bladder outlet obstruction) was associated with oligohydramnios with high significance. The abnormalities associated with polyhydramnios were Hydrops, fetal bowel obstruction, skeletal dysplasia, CNS anomalies, pulmonary airway malformation, unilateral ureteropelvic junction obstruction. The congenital anomalies were common in the three groups.

5. Conclusion

The early diagnosis of pregnancies at risk for preventable perinatal handicap is a primary goal of the obstetric care providers. One of the most consistently used justifications for requesting obstetric

ultrasound is early diagnosis of any obstetric abnormality as amniotic fluid abnormalities and any associated fetal anomalies before delivery which can provide a number of management options. In our study we concluded that, oligohydramnios is associated with intrauterine growth retardation (IUGR), fetal congenital anomalies. Also, severe polyhydramnios is associated with congenital malformations.

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