

Clinical Study to Evaluate the Maternal Outcome of Pregnancies with Polyhydramnios in Tertiary Care Center

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Abstract

Objectives: To find out associated risk factors, maternal outcome of pregnancies with polyhydramnios.

Methods: This is retrospective study carried out at ACPMMC Dhule. 100 pregnant women who were diagnosed with polyhydramnios by USG from 24 weeks onwards till 40 weeks, were followed for associated risk factors, complications, severity of polyhydramnios, mode of delivery.

Result: Study showed that the incidence was higher in 20-30 years of age group. 83% were multi and 17% were primi. It was mild in 78%, moderate in 16% and severe in 6% cases. 14% were associated with diabetes, 12% with PIH, 7% with multiple gestation, 2% with Rh negative pregnancy. 65% were delivered at term, 35% were preterm labour, 25% by PROM, 10% by fetal malposition and malpresentation, 4% by PPH and 2% by cord prolapse. 63% patients delivered vaginally and 37% by c-section.

Conclusion: The study gives the understanding of impact of polyhydramnios on the maternal outcome. Careful maternal assessment must be performed when polyhydramnios is diagnosed, as it is associated with various maternal and perinatal complications and congenital anomalies. Early diagnosis of polyhydramnios and intervention will improve the outcome.

Keywords: Polyhydramnios; Maternal outcome; Preterm labour; PPH.

Introduction

Pregnancy is a unique experience in every woman's life. The thought of growing foetus with adequate volume of amniotic fluid in mother's womb is a nature's way of expressing the attributes of womanhood [1]. Amniotic fluid has an integral role in normal development of fetal musculoskeletal, pulmonary and gastrointestinal system [2]. It also protects it from trauma and infection. The volume of amniotic fluid is controlled by dynamic interactions among the foetal, placental and maternal components [3]. In polyhydramnios, equilibrium shifts so that net transfer of water is into the amniotic sac [4]. Early in pregnancy, the amniotic cavity is filled with fluid, very similar in composition to extracellular fluid. During the first half of pregnancy, transfer of water and other small molecules takes place not only across the amnion but also through the fetal skin. During the second trimester, foetus begins to urinate, swallow and inspire the amniotic fluid [5]. These processes have a modulating role in the control of fluid volume. Although the major source of amniotic fluid in hydramnios is amniotic epithelium, no histological changes in amnion or chemical changes in amniotic fluid have been found [6]. The etiology of polyhydramnios

is diverse and involves many maternal and fetal conditions including diabetes, congenital anomalies, RH isoimmunization. If none of these causes can be identified then a diagnosis of idiopathic polyhydramnios is made. It consistently has been documented that perinatal morbidity and mortality rates increased in Association with polyhydramnios related to specific cause [7,8]. Polyhydramnios is defined as the amniotic fluid index of 25 cm or more or deepest vertical pull of 8 cm or greater or an amniotic fluid index above 95th percentile for gestational age [9].

<i>Maternal Complications Associated With Polyhydramnios</i>	
During Pregnancy	Malpresentation. Pre-eclampsia. Persistence of floating head. Premature rupture of membranes. Preterm labour. Accidental haemorrhage.
During Labour	Early rupture of membranes. Uterine inertia. Increased operative delivery. Retained placenta. PPH. Shock.
During Puerperium	Subinvolution. Puerperal sepsis.

In chronic polyhydramnios, the accumulation of fluid takes place gradually and women may tolerate the excessive abdominal distension with relatively little discomfort. In acute hydramnios however, distension may lead to disturbances sufficiently serious to be threatening. Acute polyhydramnios tends to develop early in pregnancy than does the chronic form. Chronic polyhydramnios has to be distinguished from multiple pregnancy especially as polyhydramnios may complicate multiple pregnancy. If pregnancy coexist with a large ovarian cyst, the diagnosis from polyhydramnios can be difficult. Acute polyhydramnios may simulate placental abruption with concealed hemorrhage but in later condition the uterus is hard and tense and FHS may be absent [10]. With better facilities for detailed investigation of mother and foetus, more causative factors can be identified. This helps to counsel the parents regarding the etiology of polyhydramnios, fetal prognosis, recurrence risk and different management options for the baby and mother if medical or surgical care needed.

Aims and objectives

To determine the relationship between amniotic fluid volume and maternal outcome of pregnancies complicated by polyhydramnios.

Material and methods

Present study was retrospectively conducted in the Department of obstetrics and gynaecology at JMF's ACPM Medical College Dhule from June 2016 to June 2018. Pregnant women attending outpatient department as well as women admitted to obstetric ward and labour room were enrolled in the study after taking written informed consent. A thorough obstetric ultrasound examination was done using a curvilinear array transducer of 3.5 mhz. Assessment of amniotic fluid volume was done by using ultrasound. Polyhydramnios was diagnosed when AFI was more than 95th percentile for gestational age. Standard fetal biometric data was obtained. Fetal lie, presentation, position, assessment of gestational age and placental site were determined. A systemic fetal organ review was performed to detect any gross congenital anomaly. Pregnancy outcome was recorded for patient who were classified as having polyhydramnios. Careful history was taken from all women particularly age, previous obstetric history, obstetric complications, last menstrual period and previous history of congenital abnormality. A thorough clinical examination including blood pressure and presence of pedal edema was done. Obstetric examination for gestational age, presentation, amount of liquor was done and FHS was auscultated. Baseline investigations like hemoglobin, blood grouping and typing, complete Urine examination, blood sugar fasting and postprandial, HBsAg, HIV were done.

Inclusion criteria

1. Registered patients.
2. Women with singleton pregnancy or multiple gestation with reliable dates and ultrasound.
3. Pregnancies with AFI more than 25 cm.
4. Women with gestational age between 24 and 40 weeks of gestation.
5. Pregnant women of any age and parity were taken into consideration.

Exclusion criteria

1. Pregnancy with unknown LMP.

- Pregnancy with over distended abdomen other than polyhydramnios.
- Pregnant women with diagnosed uterine anomaly.

Outcome measures recorded are

- Severity of polyhydramnios.
- Maternal outcome.
 - Mode of delivery.
 - Maternal complications like preterm labour PROM, PPH.

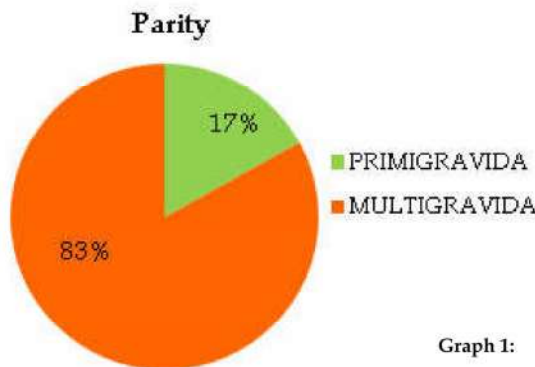
Results

The study of polyhydramnios was conducted on 100 cases diagnosed as polyhydramnios on the basis of amniotic fluid index.

Table 1:

Age Group	Percentage of Cases
<20	10%
20-24	40%
25-29	40%
30-35	5%
>35	5%

In the present study 80% of the patients were in the age group of 20-30 years. 10% cases were below the age of 20 years (Table 1).



Graph 1:

With respect to gravidity, 83% cases were multigravida and 17% were primigravida.

Table 2:

Severity of Polyhydramnios	Percentage of Cases
Mild (25-30 cm)	78%
Moderate (30-35 cm)	16%
Severe (>35 cm)	6%

In the present study 78% had mild polyhydramnios (AFI 25-30 cm), 16% had mild polyhydramnios (AFI 30-35 cm), and 6% had severe polyhydramnios (AFI >35 cm) (Table 2).

Table 3:

Period of Gestation	Percentage of Cases
24-27 weeks	6%
28-32 weeks	10%
33-37 weeks	37%
>37 weeks	47%

Out of 100 cases of polyhydramnios, 6% cases were between 24-27 weeks, 10 were between 28-32, 37 cases were between 33-37 weeks and 47 cases were above 37 weeks (Table 3).

Table 4:

Maternal Factors Associated with Polyhydramnios	Percentage of Cases
Gestational diabetes mellitus	14%
PIH	12%
Multiple gestation	7%
Rh negative pregnancy	2%
Idiopathic	65%

Out of total cases of polyhydramnios, 14% cases were associated with gestational diabetes mellitus, 12% with PIH, 7% with multiple gestation 2% with RH negative pregnancy, 65% had no associated maternal condition (Table 4).

Table 5:

Complications Associated with Polyhydramnios	Percentage of Cases
Preterm labour	35%
PROM	25%
Malpresentation	10%
PPH	4%
Cord prolapsed	1%
Abruptio placentae	1%
No complication	24%

Thirty five (35)% of patients were complicated by preterm delivery, 25% by PROM, 10% by malpresentation and malposition, 14% by PPH, 1% by cord prolapse, 1% by abruptio placenta and 24% had no complications (Table 5).

Table 6:

Fetal Malposition and Malpresentation	Number of Cases
Face	3
Breech	3
Compound presentation	2
Occiput posterior position	2

Out of 10 cases of fetal malposition and malpresentation, 3 cases were with face presentation, out of which two were associated with anencephaly and all 3 were delivered vaginally. There were 3 cases with breech presentation, 2 delivered vaginally and 1 underwent C section for existent CPD (Table 6).

Table 7:

Mode of Delivery	Percentage of Cases
Vaginal delivery	63%
Cesarean section	37%

Out of 100 cases of polyhydramnios 37% delivered by C section and 63% delivered vaginally.

Out of total cases 35% were preterm deliveries and 65% were term deliveries (Table 7).

Discussion

Recognition of polyhydramnios is of benefit, as it allows identification of pregnancies that may be at increased risk of adverse outcome. Once polyhydramnios is diagnosed, patient needs a thorough evaluation as it is associated with increased frequency of both maternal and fetal complications [11]. For every case of polyhydramnios a diagnostic workup is crucial to identify etiological factors, associated conditions like pre-eclampsia and diabetes should be promptly treated. When no fetal abnormality is detected and expectant management fails to relieve discomfort a slow decompression therapeutic amniocentesis is indicated. An alternative medical treatment is use of prostaglandin synthetase inhibitors. Indomethacin has been proven effective in reducing the quantity of amniotic fluid [12]. Our study revealed the severity of polyhydramnios as mild 78%, moderate 16%, and severe 6%. this is comparable to other studies by Anisa fawad (2001) [13] and Hill et al. and Goodena Samyukta et al.

Table 8:

Severity of polyhydramnios	Anisa fawad et al.	Hill et al.	Goodena Samayukta et al.	Present study
Mild (AFI 25-30 cm)	57%	88%	70%	78%
Moderate (AFI 30-35 cm)	26%	12%	20%	16%
Severe (>35 cm)	12%		10%	6%

In study conducted by Singh Richa et al (2013) [14], 64.06% delivered vaginally and 35.94% had cesarean section, which is comparable to our study where 63% women delivered vaginally and 37%

patient had cesarean section. The incidence of PROM in our study is 25%, comparable to studies by Shruti sariya et al where it is 24%. 35% deliveries were preterm in our studies compatible to 18% in the study by Shruti Sariya et al. In our study 10% cases were complicated by fetal malpresentations and malpositions which is comparable to 16% and 13.75% in study conducted by Shruti sariya et al and Gudena samayukta et al. respectively. 4% pts were complicated by PPH, comparable to 1.25% with the studies by gudena samayukta. The incidence of cord prolapse in our study is 2% where it is 4% in the studies by Shruti saariya et al. [15] (Table 9).

Table 9:

Complication	Incidence		
	Shruti Sariya et al.	Gudena Samayukta et al.	Present study
PROM	24%	-	25%
Preterm labour	18%	5%	35%
Fetal malposition and malpresentaion	16%	13.75%	10%
PPH	-	1.25%	4%
Cord prolapsed	4%	-	2%

The incidence of PIH in our study is 12%, comparable to 14% in studies by gudena samayukta et al. The incidence of gestational diabetes mellitus in our study is 14%, multiple gestation 7%, Rh negative pregnancy 2% 23% and idiopathic which is comparable to the study conducted by gudena samayukta et al. [16] (Table 10).

Table 10:

Maternal Factors	Goodena Samayukta et al.	Present study
PIH	14%	12%
Diabetes Mellitus	5%	14%
Multiple gestation	2.5%	7%
Rh negative pregnancy	1%	2%
Idiopathic	23%	23%

Multidisciplinary approach

A specialist in fetal medicine should be consulted when there is significant polyhydramnios, especially when the condition is unexplained, involves hydrops fetalis or is associated with congenital malformation. Genetic counselling may be helpful in cases in which congenital anomalies are identified. Consulting a neonatologist, pediatric surgeon may be necessary for the care of infant [12].

Conclusion

Aim of this study was to compare maternal

outcome of pregnancy with polyhydramnios. Polyhydramnios can be detected by routine obstetric ultrasound and it is very useful to screen high risk cases. Majority of cases of polyhydramnios in present study were categorized as mild. Our study revealed that preterm labour and PROM are the most common complications with polyhydramnios. In absence of anomalies the pregnancy continues till term if no maternal complication. A complete evaluation of mother and fetus is needed if polyhydramnios is detected. Timely detection and management of polyhydramnios decreases the impact on mother and fetus.

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