

# Foetal and Maternal Outcome in Pregnant Women with Polyhydramnios

Dr Vimla Choudhary<sup>1</sup>, Dr Mangal Chand Yadav<sup>2</sup>

<sup>1</sup>Department of Obstetrics & Gynaecology, MDM Hospital, Dr. S N Medical College, Jodhpur

<sup>2</sup>Department of Obstetrics & Gynaecology, MDM Hospital, Dr. S N Medical College, Jodhpur, Corresponding author

**Abstract:** *Background:* Polyhydramnios is defined as excessive accumulation of amniotic fluid of more than 2000ml. The reasons of polyhydramnios are either due to impaired foetal swallowing or foetal polyuria or increased placental secretion. Foetal and maternal causes account for 30-40% of cases, and 60-70% are idiopathic. An abnormal increase in amniotic fluid volume has been associated with increased frequency of both maternal and fetal complications. *Objective:* To study foetal and maternal outcome in pregnant women with polyhydramnios. *Material and Methods:* This study was conducted in obstetrics and gynaecology department in Mathura Das Mathur Hospital, Dr S N Medical College, Jodhpur, a tertiary care hospital, over a period of one year from January 2019 to December 2019. The diagnosis of all cases was made on the basis of history, clinical examination and ultrasonography. *Results:* During the study period of one year 9693 deliveries, out of these 134 had polyhydramnios, incidence being 1.38%. Majority of cases 92.5% were in the gestational age group from 37 weeks to 42 weeks and only 2.9 % cases were in gestational age group of 20 to 27 weeks and majority of cases 44.1% are >gravidia2 followed by 2<sup>nd</sup> gravida was 32.8%. Maternal conditions associated with polyhydramnios – Pre-eclampsia (17.2%) most commonly associated followed by anemia (14.2%) and diabetes mellitus (11.9%) and various maternal complications, out of which 10.4% cases were of preterm labor, 7.5% were of PROM, and 5.9% were of malpresentation. 73.1% patient delivered vaginally and 26.9% patients had LSCS. Perinatal complications are preterm birth (23.1%) was the most common complication followed by 19.4% infants had respiratory distress syndrome, 8.2% infants develop hypothermia and 5.9% infants develop jaundice. 88.1% of the babies of polyhydramnios were alive were of 6.7% IUD and 5.2% perinatal death. 23.9% cases of polyhydramnios delivered babies with congenital anomaly. *Conclusion:* A good clinical examination can usually identify subjects with abnormal liquor volume. An increased liquor volume, inappropriate for gestational age is associated with an increased incidence of complications in labour, caesarean section and adverse perinatal outcome.

**Keywords:** Congenital anomalies, Polyhydramnios

## 1. Introduction

Polyhydramnios is defined as excessive accumulation of amniotic fluid of more than 2000ml. and it complicates 1 to 2 percent of singleton pregnancies. [1,2]

Ultrasonographic ally, it is defined as the deepest vertical pool of 8cm or greater or an amniotic fluid index above 95th centile for gestational age or AFI> 25cm.[3]

The reasons of polyhydramnios are either due to impaired foetal swallowing or foetal polyuria or increased placental secretion. Foetal and maternal causes account for 30-40% of cases, and 60-70% are idiopathic.[4]

Polyhydramnios can be classified as mild (25 – 29.9cm), moderate (30 – 34.9cm) or severe (>35cm) depending on the AFI.[5]

An abnormal increase in amniotic fluid volume has been associated with increased frequency of both maternal and fetal complications.

In mild polyhydramnios, the risk of major congenital anomaly is 1%, in moderate polyhydramnios its 2% and in severe polyhydramnios, the risk is 11%.[6]

Perinatal morbidity and mortality are significantly increased when polyhydramnios is present at delivery. Fetal conditions that are associated with polyhydramnios include major congenital anomalies (open neural tube defects, upper

gastrointestinal tract obstruction or malformation etc.) and both the immunologic and nonimmunologic forms of hydrops fetalis. Maternal medical conditions are also known to be associated with polyhydramnios and subsequent altered perinatal outcome (e.g. diabetes mellitus, pre-eclampsia, malpresentation, premature rupture of membrane, preterm labour and accidental hemorrhage are the very well-known complications of polyhydramnios during pregnancy and cord prolapse, uterine inertia, retained placenta and postpartum hemorrhage are the expected complications of polyhydramnios during labour.[7]So, by diagnosing these cases as early as possible, we can prevent these maternal complications and do the proper prenatal counselling in the relevant cases.

Therapeutic amniocentesis is a method to deal with symptomatic polyhydramnios for the relief of respiratory distress.[8] Prostaglandin synthetase inhibitors like indomethacin and sulindac have been used in management of polyhydramnios as they reduce amniotic fluid volume by decreasing fetal urine output and enhancing resorption of lung fluid.[9]

So, we planned to study maternal and perinatal outcome in Polyhydramnios at a tertiary care hospital in Western Rajasthan.

## 2. Material and Methods

This study was conducted in obstetrics and gynaecology department in Mathura Das Mathur Hospital, Dr S N

Medical College, Jodhpur, a tertiary care hospital, over a period of one year from January 2019 to December 2019. There was a total of 9693 deliveries during this period and 134 women had Polyhydramnios.

After a thorough physical examination and detailed history of the patients, clinical diagnosis of polyhydramnios was confirmed by ultrasound after which they were included in the study and proforma was filled.

Routine lab investigation was done. Complete labour record was made along with mode of delivery and duration. Complete physical examination of baby by obstetrician and paediatrician with recording of Apgar score and any anomalies found. Data thus collected was analysed for results and compared with international as well as local studies.

#### Inclusion Criteria

- Singleton Pregnancy associated with excess of amniotic fluid ie. if the largest pocket diameter (LPD) greater than or equal to 8 cm or if the amniotic fluid index (AFI) is greater than the 95th percentile for the gestational age.
- Irrespective of age and parity.
- Second and third trimester pregnancy (from 20th weeks of gestation onwards).

#### Exclusion Criteria

- Multiple pregnancy
- Pregnancy associated with over distended abdomen other than hydramnios.

### 3. Results

During the study period of one year 9693 deliveries, out of these 134 had polyhydramnios, incidence being 1.38%. The diagnosis of polyhydramnios was confirmed using ultrasonological criteria, using single vertical pocket and/ or amniotic fluid index. A detailed ultrasonographic evaluation of the fetus for structural anomalies was done. These patients were followed up during pregnancy and labour.

Majority of cases 92.5% were in the gestational age group from 37 weeks to 42 weeks and only 2.9 % cases were in gestational age group of 20 to 27 weeks. (Table no 1)

In our study majority of cases 44.1% are >gravida2 followed by 2<sup>nd</sup> gravida was 32.8%. (Table no 2)

In our study there were various maternal conditions associated with polyhydramnios – Pre -eclampsia (17.2%) most commonly associated followed by anemia (14.2%) and diabetes mellitus (11.9%). (Table no 3)

In our study there were various maternal complications, out of which 10.4% cases were of preterm labor, 7.5% were of PROM, and 5.9% were of malpresentation. (Table no 4)

In our study there were 73.1% patient delivered vaginally and 26.9% patients had LSCS. (Table no 5)

In our study there were many perinatal complications. Out of them preterm birth (23.1%) was the most common

complication. 19.4% infants respiratory distress syndrome, 8.2% infants develop hypothermia and 5.9% infants develop jaundice (Table 6). 88.1% of the babies of polyhydramnios were alive were of 6.7% IUD and 5.2% perinatal death. (Table 7)

23.9% cases of polyhydramnios delivered babies with congenital anomaly, commonest congenital anomaly noted was cleft lip and cleft palate 6.7%% cases, followed by congenital heart defect(5.2%), anencephaly (4.5%), esophageal atresia and hydrops fetalis 2.9% each. Least common being hydrocephalus (1.5%). (Table no 8)

**Table 1:** Gestational age associated with polyhydramnios

Gestational age (in weeks)	No. of cases of polyhydramnios	%
20 - 27 weeks	4	2.9%
28 - 36 weeks	6	4.5%
37 – 42 weeks	124	92.5%

**Table 2:** Distribution of Cases according to Parity

Parity	No of cases	%
Primigravida	31	23.1%
2 <sup>nd</sup> Gravida	44	32.8%
>2 <sup>nd</sup> Gravida	59	44.1%
Total	134	100%

**Table 3:** Maternal conditions associated with polyhydramnios

Maternal Condition	Frequency	Percentage
Pre-eclampsia	23	17.2%
Anaemia	19	14.2%
Diabetes mellitus	16	11.9%
Hypothyroidism	9	6.7%
Rh incompatibility	6	4.5%
No associated condition	61	45.5%

**Table 4:** Maternal outcome/complication associated with polyhydramnios

Maternal complications	Frequency	Percentage
Preterm labour	14	10.4%
Premature rupture of membranes	10	7.5%
Cord prolapse	4	2.9%
Malpresentation	8	5.9%
Placental Abruption	7	5.2%
Postpartum Haemorrhage	6	4.5%

**Table 5:** Percentage distribution of cases according to the mode of delivery

Mode of delivery	No of cases	%
Vaginal delivery	98	73.1%
LSCS	36	26.9%
Total	134	100%

**Table 6:** Distribution of cases according to the perinatal outcome

Foetal complications	Frequency	Percentage
Respiratory distress syndrome	26	19.4%
Preterm birth	31	23.1%
Jaundice	8	5.9%
Hypothermia	11	8.2%
Shoulder dystocia	1	0.7%
Sepsis	5	3.7%

**Table 7:** Foetal outcome in cases of polyhydramnios

Foetal outcome	Frequency	Percentage
Alive	118	88.1%
Perinatal death	7	5.2%
IUD	9	6.7%

**Table 8:** Fetal congenital anomalies associated with polyhydramnios

Foetal congenital anomalies	Frequency	Percentage
Anencephaly	6	4.5%
Cleft Lip + cleft palate	9	6.7%
Congenital heart disease	7	5.2%
Hydrocephalus	2	1.5%
Oesophageal atresia	4	2.9%
Hydrops fetalis	4	2.9%
No anomaly	102	76.1%

#### 4. Discussion

In polyhydramnios abnormal increase in amniotic fluid volume has been associated with increased frequency of both maternal and fetal complications. Once polyhydramnios is identified, patients need a thorough evaluation as it is associated with an increased frequency of both maternal and fetal complications.[10]

In the present study, the incidence of polyhydramnios in singleton pregnancy during the study period was 1.34 %. Comparable to our study, Biggio J. R et al [11] studied 370 patients with singleton pregnancies and found the incidence of polyhydramnios to be 1%. Rajgire AA et al[7] and Tashfeen K et al[12] found the incidence of to be 1.5% and 1.8% respectively.

Majority of cases 92.5% were presented in the gestational age 37 to 42 weeks, 4.6% cases in 28 to 36 weeks and only 2.9 % cases were in gestational age of 20 to 27 weeks comparable to study done by Rajgire AA et al Presented with cases presented in 20-27 weeks of gestation were 3.3%, 28-36 weeks 6.6% and 37 - 42 weeks 90%.

In our study majority of cases 44.1% are >gravidia2 followed by 2<sup>nd</sup> gravida was 32.8% and 23.1% primigravida comparable to study by Rathis et al[13] (2018) majority of cases 78% had multiparity and 25.3% cases were primigravida and study conducted by Anisa Fawad[14] (2008) reported 21.43% in primigravida, 57% in multigravida, 21% in grand multigravida. Rajgire AA et al in January 2017 published an article "A clinical study of fetomaternal outcome in pregnancy with polyhydramnios" with the results that polyhydramnios is commoner in primigravida.

Polyhydramnios was common in patients with Pre-eclampsia (17.2%) similar to study done by Qadir M et al[15] pre-eclampsia was in 15% patients and 16.6% in study by Rajgiri AA et al. Anemia was seen in 14.2% cases in our study similar to study by Qadir M et al anemia 13.97% and diabetes mellitus was seen in 11.9% cases in our study comparable to study by Qadir M et al -10% and 8.3% by Rajgire AA et al.

In our study there were various maternal complications, out of which 10.4% cases were of preterm labor, 7.5% were of PROM, and 5.9% were of malpresentation comparable to study by Qadir M et al where Preterm labor was most common (11.8%) followed by PROM (10%) and malpresentation in 7.88% cases and Postpartum hemorrhage was observed in 4.5% of our cases and was in a similar incidence in study by Beloseky R et al (5%).[16]

In our study there were 73.1% patient delivered vaginally and 26.9% patients had LSCS, similar to study done by Rathi S et al 73% patient delivered vaginally and 27% patients had LSCS.

In our study 88.1% of the babies of polyhydramnios were live and 6.7% IUD and 5.2% perinatal death comparable to study done by Rajgire AA et al where 90% live babies and 5% both IUD and perinatal deaths.

In our study incidence of congenital anomaly was 23.9%, commonest congenital anomaly noted was cleft lip and cleft palate in 6.7% cases, followed by congenital heart defect (5.2%), anencephaly (4.5%), esophageal atresia and hydrops fetalis 2.9% each, Least common being hydrocephalus (1.5%) comparable to study by Rajgire AA et al where incidence of congenital anomaly was 27% and commonest congenital anomaly was cleft lip and cleft palate 5% cases, followed by congenital heart defect (5%) and anencephaly (3.3%), and incidence of congenital anomaly comparable to our study by Qadir M et al 31.54% and Tariq S et al[17] 31.7%.

#### 5. Conclusion

A good clinical examination can usually identify subjects with abnormal liquor volume. An increased liquor volume, inappropriate for gestational age is associated with an increased incidence of complications in labour, caesarean section and adverse perinatal outcome.

Ultrasonography is the best means for early detection of polyhydramnios. Diagnosis of polyhydramnios is useful means for identification of high-risk cases and may often lead to a successful search for congenital anomalies

A careful study must be done for detection of etiological factors in all cases of polyhydramnios, careful screening, prenatal and antenatal counselling will help to improve the foetal outcome as well as to prevent the maternal complication.

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