

**Maternal and Fetal Outcomes in Oligohydramnios: A Prospective Study****Prakash B. Prajapati<sup>1</sup>, Akash J. Patel<sup>2</sup>, Jayneel V. Shah<sup>3\*</sup>, Hemangini S. Chaudhari<sup>4</sup>, Ikshita G. Chhabda<sup>5</sup>**<sup>1</sup>Associate Professor, Dept. of Obstetrics and Gynecology, Narendra Modi Medical College, Maninagar, Ahmedabad – 380008, India<sup>2</sup>Senior Resident, Dept. of Obstetrics and Gynecology, Narendra Modi Medical College, Maninagar, Ahmedabad – 380008, India<sup>3</sup>Assistant Professor, Dept. of Obstetrics and Gynecology, Narendra Modi Medical College, Maninagar, Ahmedabad – 380008, India<sup>4</sup>Junior Resident, Dept. of Obstetrics and Gynecology, Narendra Modi Medical College, Maninagar, Ahmedabad – 380008, India<sup>5</sup>Junior Resident, Dept. of Obstetrics and Gynecology, Narendra Modi Medical College, Maninagar, Ahmedabad – 380008, India

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**Abstract:****Introduction:** Oligohydramnios, a condition characterized by a decreased volume of amniotic fluid in the gestational sac, poses significant risks to both maternal and fetal well-being.**Aims and Objectives:** This prospective study conducted over one year aimed to investigate the impact of oligohydramnios on perinatal morbidity and maternal outcomes. The study included antenatal patients in their third trimester with intact membranes, excluding cases with heart diseases, polyhydramnios, premature rupture of membranes, and multiple pregnancies.**Results:** The incidence of oligohydramnios was more prevalent among primiparous women. Common causes of oligohydramnios included idiopathic factors and preeclampsia, with the latter associated with higher rates of operative morbidity. Fetal distress and meconium-stained liquor were common indications for emergency cesarean section, contributing to rising cesarean rates. The study further highlighted the increased risk of low birth weight, respiratory distress, meconium aspiration syndrome, congenital anomalies, and intrauterine fetal death in cases of oligohydramnios.**Conclusion:** This study underscores the significance of early detection and management of oligohydramnios to improve both maternal and perinatal outcomes. As the rates of cesarean sections rise, a balanced approach is crucial to minimize maternal morbidity while ensuring timely interventions to reduce perinatal morbidity and mortality.**Keywords:** Oligohydramnios, amniotic fluid, perinatal morbidity, maternal outcomes, cesarean section, fetal distress, low birth weight, congenital anomalies, preeclampsia, meconium aspiration syndrome.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Nature has made floating bed in foam of amniotic fluid cavity filled with liquor amnii for the requirement of fetus, for its existence and growth in sterile environment, regulation of temperature, avoidance of external injury and reduction of impact of uterine contractions.

Decrease in amniotic fluid volume or Oligohydramnios[1] has been correlated with increased risk of intrauterine growth restriction, meconium aspiration syndrome, severe birth asphyxia, low APGAR scores and congenital abnormalities.[2] The average amniotic fluid volume in 3rd trimester is 700-800 ml. Clinical assessment of amniotic fluid volume including bimanual

palpation, symphysio-fundal height is unreliable. Diagnosis is usually done by ultrasound. Definition of increased or decreased amniotic fluid volume are based on sonographic criteria.[3]

Usually the degree of Oligohydramnios is proportional to the severity of placental hypoperfusion and IUGR (Intra Uterine Growth Restriction). The most likely cause of oligohydramnios in IUGR babies is decreased urine output. [4] Increased induction of labour and elective caesarean deliveries are currently practiced for better perinatal outcome. Early detection of oligohydramnios and its management may help in reduction of perinatal morbidity and mortality one

side and decreased caesarean deliveries on the other side. Since Oligo- hydramnios has got significant impact on neonatal outcome and material morbidity, it prompted us to study the condition as our subject.

### Materials and Methods:

This prospective study was conducted over a period of one year from September 2022 to September 2023. All cases coming to labour room with oligohydramnios were included in the study after satisfying inclusion and exclusion criteria.

**Inclusion Criteria:** Antenatal patients in their third trimester with intact membranes.

**Exclusion Criteria:** Antenatal patients having heart diseases, Polyhydramnios, premature rupture of membranes, twins and multiple pregnancies.

Study was conducted to observe outcome of labour in form of perinatal morbidity and maternal outcome in form of induction and deliveries: (1) To study affects Oligohydramnios on fetal outcome in form of – (a) Fetal distress, (b) Growth restriction, (c) NICU admission; (2) To study APGAR scores of new-born

babies in relation to Oligohydramnios; (3) To study incidence of congenital malformation; (4) To study early neonatal morbidity and mortality; (5) To study maternal morbidity in form of operative delivery and induced labour.

General and systemic examination was performed of all cases. Obstetric examination included-symphysio-fundal height, presentation and size of baby and fetal heart sound. Per abdomen and per vaginal examination were done. Baseline investigations were done. Ultrasonography was done to determine gestation age, presentation, placental grading and localization, fetal weight, amniotic fluid index and to detect any major congenital anomalies.

The data was analysed and then presented in simple descriptive statistics using tables after collection. The results were presented as numbers and percentages. The analysed data was compared with different studies and discussed.

### Results

**Table 1: Age and Maternal Outcome of Labour**

Age (Years)	Normal Vaginal Delivery	Assisted Vaginal Delivery	Cesarean	Total
< 20 Years	6 (75%)	0	2 (25%)	8
20-25	78 (58.2%)	2 (1.5%)	54 (40.3%)	134
26-30	20 (43.48%)	0	26 (56.52%)	46
> 30	10 (83.3%)	0	2 (16.66%)	12

67% of patients were in 20-25 years age group and 23% patients were in 26-30 years age group. Thus, maximum patients were in 20-30 years age group. Rate of caesarean was highest in 26-30 years and lowest in patients of >39 years of age. Mean maternal age was 23.66 years.

**Table 2: Parity and Maternal Outcome of Labour**

Parity	Normal Vaginal Delivery	Assisted Vaginal Delivery	Cesarean	Total
Primipara	44 (42.3%)	2 (1.92%)	58 (55.78%)	104
Multipara	70 (72.91%)	0	26 (27.09%)	96

Incidence of oligohydramnios was more in primipara (52%) in our study.

**Table 3: Associated Condition and Maternal Outcome of Labour**

	Normal Vaginal Delivery	Assisted Vaginal Delivery	Cesarean	Total
Preeclampsia	20 (40%)	0	30 (60%)	50
Postdatism	26 (65%)	0	14 (35%)	40
Fever	6 (100%)	0	0	6
Idiopathic	62 (59.61%)	2 (1.92%)	40 (38.47%)	104

Most common cause of Oligohydramnios is idiopathic (52%). Second commonest cause is preeclampsia (25%). Operative morbidity is highest in preeclampsia (60%).

**Table 4: Indication for Lower Segment Cesarean Section**

Indication	Cases (%)
Fetal Distress	21%
Fetal Growth Restriction/ Insufficiency	8%
Breech	9%
Idiopathic Oligohydramnios	2%
Other	2%

**Table 5: Perinatal Outcome**

Outcome	Cases
Meconium Aspiration Syndrome	16 (12%)

Congenital Anomaly	16 (12%)
Low Birth Weight	52 (39%)
Respiratory Distress	40 (30%)
Intrauterine Fetal Death	10 (7%)

Above table shows fetal outcome in oligohydramnios. Among 200 cases, fetal morbidity was seen in 134 babies (67%). Out of 134 babies intra uterine fetal death was seen in 10 cases. 52 (39%) babies were low birth weight and 40 (30%) suffered from respiratory distress. Meconium aspiration was found in (12%) 16 cases and congenital anomalies also in (12%) 16 cases.

### Discussion

In Casey et al [5], the mean maternal age was 23.9 years which is comparable to the present study. In Donald D et al [6], the incidence of oligohydramnios was 60% in primigravida which is comparable to present study as it was 52%. Sir Gangaram Hospital study [7] shows 68% vaginal deliveries in induced patients of Oligohydramnios and 32% by caesarean section which is comparable to our study. Manzanares S et al [8] shows 84% vaginal deliveries in induced patients of Oligohydramnios and 16% by caesarean section.

In the present study, fetal distress and meconium stained liquor were the common indications for emergency Lower segment caesarean section in 45% of cases. Similar observations were made by Umber et al [11] (32%), Jandial et al [9] (42%), Nazlima et al [12] (58%) and in radhamani et al [13] it was 31%. 52% of the babies were low birth weight compared to 64% in study done by Bachhav et al [14] and 65.3% in study done by Nazlima et al.[12] NICU admission was seen in 6.9% of babies, comparable to study done by Umber et al [11] (8.1%). Perinatal mortality was 5% in our study which was similar to study done by Nazlima et al [12] (2.4%), Radhamani et al [13] (3.07%).

There was also increase in perinatal morbidity in form of meconium aspiration syndrome (8%) and congenital anomalies (8%). Among congenital anomalies, posterior urethral valve had highest incidence (50%) followed by renal agenesis (25%).

### Limitation

In this study majority of cases with oligohydramnios were present in which cause was not found.

### Conclusion:

Oligohydramnios is frequent occurrence and demands intensive fetal surveillance and proper antepartum and intrapartum care. Oligo- hydramnios is a frequent finding in pregnancy involving IUGR, PIH, and pregnancy beyond 40 weeks of gestation.

Amniotic fluid index is an important component of biophysical profile scoring and its assessment in

early third trimester helps to identify women who need more ante partum surveillance so that proper management can be done for the improvement of maternal and perinatal outcome.

Amniotic fluid volume is a predictor of fetal tolerance in labour and its decrease is associated with increased risk of abnormal heart rate and meconium stained fluid. Due to intrapartum complication and high rate of perinatal morbidity and mortality, rates of caesarean section are rising, but decision between vaginal delivery and caesarean section should be well balanced so that unnecessary maternal morbidity prevented and other side timely intervention can reduce perinatal morbidity and mortality.

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