

To Study the Effect of Oligohydramnios on Maternal and Fetal Outcome in 37 Weeks or More Gestation Period

Dr. Kamlesh Hadiya¹, Dr. Mahima Jain²

¹Third Year Resident & Corresponding Author, Department of Obstetrics and Gynaecology, CIVIL Hospital Ahmedabad

²P. G. Guide, Professor and Head of Unit Department of Obstetrics and Gynaecology, CIVIL Hospital Ahmedabad

Abstract: *Objective: To study effect of oligohydramnios on maternal outcome namely: 1) Incidence of spontaneous labor or induction of labor. 2) Incidence of vaginal delivery, instrumental delivery and LSCS. To study effect of oligohydramnios on Fetal outcome namely: 1) Birth weight <2.5kg and >2.5kg 2) Fetal distress 3) NICU Admission. Method: Study Area: Department of Obstetrics and Gynecology civil hospital Ahmedabad. Study Population: All Pregnant Women with gestation Age 37 week or more coming for delivery to civil hospital Ahmedabad Study Type: Prospective Observational study Result: Out of total 150 cases studied over a period of 6 months, the incidence of oligohydramnios in primipara patients was 54%. Of the total cases induction of labour was done in 44% of the cases. Caesarian section delivery was done in 54% of cases which was mainly due to fetal distress in 26.6% of the cases. Out of which 7.3 % of the cases had history of NICU admission. 26% of the babies had low birth weight (26.6 %). The rate of instrumental delivery was 4.6%. Conclusion: Obstetrics oligohydramnios is easily detected these days by the help of ultrasound examination. The rate of induction of labour and operative deliveries is found to have increased. Caesarian section is mainly indicated due to increased rate of fetal distress and oligohydramnios.*

Keywords: Oligohydramnios, LSCS

1. Introduction

Amniotic fluid is a clear, a little yellowish liquid that surrounds the fetus during pregnancy. It is contained in the amniotic sac¹. While in the uterus, the fetus floats in the amniotic fluid. The amount of amniotic fluid is maximum at 34 weeks of gestation, when it averages 800 mL. About 600 mL of amniotic fluid surrounds the fetus at 40 weeks of gestation. The amniotic fluid constantly moves as the fetus swallows "inhales" the fluid and then discharges it. During second half of pregnancy, amniotic fluid is made up of the fetus urine and lung secretions⁷. This fluid initially came from the mother then flowed through the placenta, to the fetus and excrete through the fetus's bladder. Amniotic Fluid is primarily produced by fetal urine in the latter half of the pregnancy; therefore the absence or reduction of the fetal urine production or blockage in the urinary tract can result in oligohydramnios. However, rupture of the membranes is the most common cause of oligohydramnios.

Amniotic fluid physiology:

Transudation of fetal plasma through the highly permeable fetal skin before it is keratinized at 20th week.

Fetal urine – daily output at term is about 400 - 1200 ml.

Fetus swallows about 500 - 1000 ml of liquor every day.

Intramembranous absorption of water and solutes (200 - 500ml/day) from the amniotic compartment to fetal circulation through the fetal surface of the placenta.

Oligohydramnios is where there is too little fluid surrounding the fetus. This may take place because the fetus

is not thriving appropriately. Decline in the amniotic fluid influences 1 - 5% of term pregnancies.

The majority of obstetricians revealed that isolated oligohydramnios, or little amniotic fluid in an otherwise healthy pregnancy at term, was a risk factor for bad outcome. Oligohydramnios happening in 3rd trimester of pregnancy usually predicts an increasing risk to the pregnancy. Assessment of amniotic fluid pockets with ultrasound is a competent and reasonably reliable method of evaluating amniotic fluid volume and categorizing relative risk of perinatal morbidity. In pregnancies beyond 34 weeks, making use of amniotic fluid index to diagnose oligohydramnios can be expected to reliably identify fetuses at risk for compromised perinatal result.⁴

Oligohydramnios, may place the fetus at major risk. In such cases, delivery is the optimal intervention. Oligohydramnios influences the pregnancy result and the wellbeing of the fetus. Oligohydramnios, in the absence of pre - mature rupture of membranes and fetal anomalies, is considered as a symptom of chronic reduction in placental function, which results in reduction of fetal urinary output⁵. It may be related to uteroplacental insufficiency, viral diseases, cause the fetus to be not capable to turn into the head down position for the birth, or compression of the fetus's umbilical cord, unidentified fetal growth restriction (FGR), premature rupture of the fetal membranes and/ or postmaturity syndrome and malpresentations.

Diminishing amniotic fluid volume has been associated with increased risk of severe birth asphyxia, intrauterine growth retardation, meconium aspiration syndrome, low APGAR scores and congenital anomalies². Some cases of amniotic fluid decline are accompanied by urinary tract obstruction or renal agenesis, fetus growth disorders, chronic leaks from

gaps in the fetal membrane and in 15 - 25% of cases fetal anomalies, fetal urinary tract anomalies, such as renal agenesis, polycystic kidneys, or any urinary obstructive lesion (eg, posterior urethral valves). Maternal problems, including placental vascular insufficiency, premature rupture of membranes or chronic leakage of amniotic fluid. The major maternal complication from this is chorioamnionitis. The incidence of this varies in the literature and has been reported anywhere from 21 - 74%. Postmaturity syndrome in infants when a pregnancy extends beyond 42 - weeks.

Previous research has found that the consequences of reduced fluid index has increased likelihood hazard of caesarean delivery because of fetal distress, diminished Apgar score to lower than seven in the fifth minute, hazard of stillbirth and non - reassuring heart rate, preterm labour, admission to the neonatal intensive care unit and meconium aspiration syndrome³. Fetal hypoxia may also happen as a consequence of umbilical cord prolapse caused by rupture of the water sac, or because of cord compression caused by decrease amniotic fluid resulting in dropped fetal heart rate. Oligohydramnios at term in the lack of maternal and fetal complications produce a problem in management. It is one of the major caution for antenatal surveillance and induction.

Early detection of oligohydramnios and its management may aid in decreased perinatal morbidity and mortality on one side and reduce caesarean deliveries on the other side. Pregnant women who drink more water or had intravenous fluid dripped directly into their bloodstream (Both forms of maternal hydration) increased the volume of the fluid surrounding the fetus. In addition maternal hydration with isotonic solution or water improved the AF index in women with normohydramnios.⁸

2. Methods and Materials

Study setting: - Department of Obstetrics and Gynecology, Civil Hospital, B. J. Medical college, Ahmedabad, Gujarat.

Inclusion criteria

- Patients with gestational age 37 - 41 weeks.
- Singleton gestation with cephalic presentation.
- Patients with no complain of leaking per vaginum.
- AFI<5

Exclusion criteria

- Less than 37 weeks
- Multiple gestation
- Patients with PROM

Sample size: - Total 150 cases of term pregnancy with oligohydramnios and AFI<5 fulfilling inclusion and exclusion criteria, admitted through OPD and emergency of over a period of 6 months.

Method of data collection: - Data was collected from ward, labour room, OT records, neonatal units. Predesigned record sheet was filled up.

Study design: Prospective Observational Study.

3. Results

In the present series there were 150 confirmed cases of term pregnancy with AFI<5 out of 3500 deliveries giving an incidence of 3.2 %.

Table 1: Parity

	No. of cases (n= 150)	Percentage
Primigravida	83	55.3
Multigravida	67	44.6

By parity 55% women were primigravida and 44% were multigravidas. This reflects the increasing age of female to conceive now a days.

Table 2: Mode of delivery

	No. of cases (n= 150)	percentage
Spontaneous vaginal delivery	8	5.3
Cesarean section	70	46
Instrumental delivery	7	4.6
Induction of labor	65	43.3

It was observed in this study that the rate of caesarean sections in cases of oligohydramnios was slightly higher (70%) than normal vaginal deliveries (65%).

Table 3: Neonatal Morbidity

	No. of cases (n= 150)	Percentage
Neonatal sepsis	9	6
Meconium aspiration	8	5.3
Fetal distress	40	26.6
Low birth weight	39	26
Fetal anomaly	16	10.6

It was observed that the incidence of fetal distress (40%) and low birth weight was more in cases of oligohydramnios.

Table 4: By Birth Weight

	No. of cases (n= 150)	percentage
<1000gms	3	2
1000 - 2000gms	36	24
2000 - 3000gms	87	58
>3000gms	22	14

30 out of 150 babies were found to be of low birth weight

Table 5: Perinatal Mortality

	No. of cases (n= 150)	Percentage
Still birth	6	4
Early neonatal death	22	14.6

In our study it was observed that since the rate of neonatal asphyxia and septicaemia was high, the rate of perinatal mortality was increased due to oligohydramnios

4. Discussion

Oligohydramnios is more often detected these days due to routinely performed obstetric ultrasonography⁶. Pregnancy Induced hypertension, Intrauterine growth restriction and anemia are most commonly associated with oligohydramnios in term pregnancy. Induction of labour and operative deliveries are increased. Caesarean section were

mostly indicated in patients with fetal distress and anhydramnios. Babies are relatively more prone to complications like meconium aspiration syndrome, neonatal sepsis and birth asphyxia. Continuous intrapartum fetal monitoring and good antenatal care are necessary for better perinatal outcome. Every case of oligohydramnios needs careful antenatal evaluation, parental counseling, individualized decision regarding timing and mode of delivery. All these efforts can give us better fetomaternal outcome.

References

- [1] D. C. Dutta: Textbook of Obstetrics, 9th edition, 2018; 34.
- [2] Park K. preventive medicine in obstetrics, paediatrics and geriatrics: Park's text book of preventive and social medicine. 20th edition. Jabalpur: M/S Banarasi Das Bhanot, 2009; 479 - 483.
- [3] Bangal VB, Giri PA, Sali BM Incidence of oligohydramnios during pregnancy and its effects on maternal and perinatal outcome. J Pharm Biomed Sci., 2011; 12: 1 - 4.
- [4] Phelan JP, Smith CV, Broussard P, Small M Amniotic fluid volume assessment with the four - quadrant technique at 36 - 42 weeks' gestation. J Reprod Med, 1987; 32: 540 - 542.
- [5] Rebecca, D., 2012. What is the Evidence for induction for Low Amniotic Fluid in a Healthy Pregnancy? Available at: <http://www.scienceandsensibility.org/>
- [6] Shipp TD, Bromley B, Pauker S, Frigoletto FD, Benacerraf BR. Outcome of singleton pregnancies with severe oligohydramnios in the second and third trimesters. Ultrasound Obstet Gynecol. 1996 Feb; 7 (2): 108 - 13.
- [7] Brace RA. Physiology of amniotic fluid volume regulation. Clin Obstet Gynecol. 1997 Jun; 40 (2): 280 - 9.
- [8] Patrelli TS, Gizzo S, Cosmi E, Carpano MG, Di Gangi S, Pedrazzi G, Piantelli G, Modena AB. Maternal hydration therapy improves the quantity of amniotic fluid and the pregnancy outcome in third - trimester isolated oligohydramnios: a controlled randomized institutional trial. J Ultrasound Med. 2012 Feb; 31 (2): 239 - 44.