

CLINICAL STUDY TO EVALUATE THE MATERNAL AND PERINATAL OUTCOME OF PREGNANCIES WITH POLYHYDRAMNIOS

Sudha Chourasia¹, Juhi Agarwal², Mahendra Badole³

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ABSTRACT: BACKGROUND: Due to active involvement of fetal system in regulation of amniotic fluid volume, AFI has been identified as indicator of intrauterine fetal status. USG has revolutionized the process of assessment of amniotic fluid thus becoming an integral part of fetal surveillance. Polyhydramnios is an obstetrical condition associated with significant perinatal and maternal morbidity and mortality. In a low resource health facility as India with poor coverage of antenatal care and malnutrition it still becomes more important to screen pregnancies for such high risk factors. **AIMS:** 1. To study incidence of polyhydramnios. 2. To identify major etiological factors of polyhydramnios. 3. To study perinatal outcome. **SETTINGS AND DESIGN:** A hospital based cross section study for duration from 1st May 2009 to 31st October 2010. **MATERIAL & METHOD:** All the cases identified as polyhydramnios according to AFI in four pocket were included in the study. The cases identified as having polyhydramnios but not delivered at the facility were excluded. **OBSERVATION:** Incidence of polyhydramnios is 0.72% of the total antenatal cases, multiparous ie, 52% more than primiparous cases. Majority were unbooked (77.3%) 63% were from rural set up. 76% belonged to low socio economic status. Majority 66% of the cases had their 1st antenatal visit at term. Increased incidence of operative delivery was seen in the study. Associated maternal factors found with polyhydramnios were gestation hypertension (8.4%), preeclampsia (2.9%), eclampsia (2.9%), anaemia (11%), twins (8.4%), malpresentation (5%), RH negative factor (3.7%), and diabetes (1.9%). Fetal complication include prematurity 21.6%, IUFT 20.7%, congenital malformation 21.6%, cord prolapse 3.7%, birth asphyxia 1.9%. Most common congenital anomaly was anencephaly i.e., 11%. **CONCLUSION:** The study gives us the understanding of the impact of polyhydramnios on the maternal and fetal outcome. Our study demonstrates that careful fetal examination has to be performed when polyhydramnios is diagnosed as congenital malformations are often associated with this condition. These anomalies if detected early timely termination of pregnancy can be done hence less physical and psychological trauma to mother. Also antenatal visits play important role in early diagnosis of high risk pregnancy like polyhydramnios.

KEY WORDS: Polyhydramnios, perinatal mortality, neural tube defects

INTRODUCTION: The aquatic environment of the fetus has long remained enigma to the patient and obstetricians. The probable systems which regulate quantity of amniotic fluid are still incompletely understood due to complexities inherent in the amniotic fluid dynamics. The various studies show its fetal as well as maternal system involvement. Due to active involvement of fetal system in regulation of amniotic fluid volume, it has been identified as indicator of fetal status. Polyhydramnios clinically defined the excessive accumulation of liquor amnii causing discomfort to the patient and are when an imaging help is needed to substantiate the clinical diagnosis of the lie and presentation of the fetus¹

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Amniotic fluid volume assessment done by USG is relatively accurate than other methods of assessment. The technique of four quadrant method of calculating amniotic fluid index (AFI) described by Phelan et al.² in 1987 is accepted as the most reliable. Keeping in mind significance of AFI, both excessive and less amount of liquor affect fetal well being. We are concentrating on the former aspect i.e. polyhydramnios.

AIMS AND OBJECTIVES:

1. To study the incidence of polyhydramnios in given populations.
2. To identify major etiological factors of polyhydramnios.
3. To study the perinatal outcome.
4. To study maternal complications associated with polyhydramnios.

MATERIAL & METHODS: A cross sectional clinical study to evaluate the maternal and perinatal outcome of pregnancies with polyhydramnios in the Department of Obstetrics and Gynaecology, Sultania Zanana Hospital, Gandhi Medical College, Bhopal from 1st May 2009 to 31st October 2010. A review of all polyhydramnios cases presenting to the Department of Obstetrics and Gynaecology were included in the study. All the cases were assessed both clinically and by USG. Patient Diagnosed but did not deliver in the facility were not included in the study.

OBSERVATIONS: During the study period of 1½ year from May 2009 to Oct. 2010 there were 14573 incidences of polyhydramnios (0.72%) and majority were unbooked i.e. 77.3%. Our setup is a tertiary care centre catering low socioeconomic group who are not aware of antenatal care. 63 % were from rural population. Most of the patients belong to Class III 63 (59.4%) and class IV 18 (16.9%) of the modified Prasad Classification. 66% reported at term. 15% underwent caesarian section most common indication being fetal distress other indication being cephalopelvic disproportion, malpresentation, cord prolapse etc. 44 (41.5%) babies were having wt. >2.5 kg while 71 (66.9%) were <2.5 kg. Out of 71 low birth wt. babies, 14 were very low birth babies and 5 (4.7) babies were incredibly low. 23 (27.6%) cases were premature 22 (20.7%) were IUFD, 20 (18.8%) were congenital malformed. Total perinatal mortality were 41, 22 (20.7) cases were still birth 19 (17.92) cases were early neonatal death.

Maternal Factors	No .of Cases	Percentage (%)
PIH	13	12%
- Gestational Hypertension	9	8.4
- Preeclampsia	3	2.9
- Eclampsia	1	0.9
Anemia	12	11%
Twins	9	8.4
Malpresentation	6	5
Rh	04	3.7%
Diabetes	2	1.9

TABLE NO. 1: MATERNAL FACTORS ASSOCIATED WITH POLYHYDRAMNIOS

The table shows various maternal factors associated with Polyhydramnios. The maximum incidence is of PIH 13(12%) followed by anemia 12 (11%); twins 9 (8.4%), malpresentation 6 (5%), RH 4 (3.7%) followed by diabetes 2 (1.9%).

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Preterm Labour	17	16.3
PROM	6	5.6
Abruptio Placentae	5	4.7
PPH	3	2.9

**TABLE NO. 2: COMPLICATIONS
ASSOCIATED WITH POLYHYDRAMNIOS**

Table (2) shows various risk factors associated with Polyhydramnios. Maximum 17 (16.3%) is associated by preterm followed by PROM followed by 4 (3.7%) followed by abruption placentae 3 (2.9%) followed by PPH 3 (2.9%).

	No .of Cases	Percentage
Anencephaly	12	11
Hydrocephalus	02	1.8
Multiple Congenital Anomaly	02	1.8
Spina Bifida	01	0.9
Meningomyelocele	01	0.9
Oesophageal Atresia	01	0.9
Diaphragmatic Hernia	01	0.9
Cleft lip and palate	01	0.9
Cleft lip	1	0.9

**TABLE NO. 3: FETAL CONGENITAL
ANOMALY & PERINATAL OUTCOME**

Majority of Congenital Anomaly were Central Nervous System 12 (11%). Fetus had Anencephaly followed by Hydrocephalus 2 (1.8%), Multiple Congenital Anomaly 2 (1.8%), Spina Bifida 1 (0.9%), Meningomyelocele 1 (0.9%), Oesophageal Atresia 1 (0.9%), Diaphragmatic Hernia 1 (0.9%), Cleft lip and palate 1 (0.9%) & Cleft lip 1 (0.9%).

DISCUSSION: Incidence of polyhydramnios was 0.7%. Ron Beloseky et al (2008)³ reported incidence 0.7% similar to our study Incidence of polyhydramnios was 2% when done by Anisa Fawad and colleagues (2008)⁴ which is more in comparison to our study. The highest number of patient of polyhydramnios 50 (47%) were in the age group of 21-25 years. The incidence was more in age group <20 years it could be due to teenage pregnancy with malnutrition. In our study there were 12 cases of neural tube defect. Humaria and colleagues (2006)⁵ reported 51% cases between 30-39 yr and 10% > 40 yr. Anisa Fawad (2008)⁴ in colleagues reported higher incidence in age group 26-30 years. Saadia and colleagues (2010)⁶ reported 30% in 20-29 yr, 53% in 30-39 yr and 5% in > 40%. In our study maximum cases 72 (68%) found in multipara followed by primi 31 (29.2%) cases. Grand multigravida constituted 3 (2.8%). Anisa Fawad (2008)⁴ also reported 21.43% in primigravida 57% in multigravida, 21% in grandmultigravida. In our study maximum patients 84 (82%) cases were unbooked as ours is a tertiary care centre catering low socioeconomic group of population who are unaware of antenatal care. It denotes that prevailing health services may not be sufficient enough so as to cater need of population. Humaria Akram et al. (2006)⁵ also reported higher incidence 77% in unbooked and 23% in booked patients. Due to lack of proper antenatal care patient usually presented at term 70ie. (66%) who could have been diagnosed earlier and could be managed conservatively or terminated. In Humaria Akram & Colloquies (2006)⁵ the percentage of cases at term was 83 as compared to 66% in our study. 63% patient in our study were referred because ours is a tertiary care centre which also deals with high risk patients referred from Bhopal & nearby places. In our study maximum no of patients 81% were from low socio-economic status in which malnutrition is also prevalent. Ours is a Govt. Hospital where various promotional schemes are implemented like Janani Suraksha Yojna, NRHM, RCH, and Emergency Ambulance 108. This represent the fact that maximum numbers of these populations are dependent upon the aid

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provided by government hospital otherwise they would not even had reported to hospital. Incidence of emergency cesarean section is more i.e., 69% as compared to elective. Anne et al. (2007) reported similar incidence 19% in emergency and 11% elective cases. Methew et al. (2008)⁷ reported 27.9% of cesarean section which is higher compare to our study. Majority of cases were associated with hypertensive disorders of pregnancy (12%). Brian and colleagues (2008)⁸ also reported higher incidence of PIH in polyhydramnios. Anemia was associated with 17.9% of cases with polyhydramnios. As the rate of anemia is high in pregnancy in developing countries so was the association. Methew et al. (2008)⁷ also reported higher incidence of anemia in polyhydramnios. (8.4%) of cases with Polyhydramnios had multiple pregnancy. Naeye and Blanc (1972) concluded that increased urine output was responsible for polyhydramnios. (5.6%) in our study out of which 3 were in Breech. two was transverse lie and another one was compound presentation. Many & Colleagues (1995), Anisha Fawad and colleagues (2008)⁴ also reported higher incidence.

In our study there were four patients (3.7%) who had the negative Rh factor. In Sadia Tariq et al (2010)⁶ study, there were 82 cases of polyhydramnios and the incidence of Rh isoimmunization was 2.4%. In our study we had two cases of diabetes. Hydramnios that commonly develops with maternal diabetes in the third trimester remains unexplained, however it may be due to maternal hyperglycemia causing foetal hyperglycemia that results in osmotic diuresis. Barhava and associates (1994) have provided evidence that third-trimester amniotic fluid volume in 399 gestational diabetes reflected recent glycemic status. Yasuhi and Coworkers (1994) reported increased fetal urine, production in fasted diabetic women compared with non-diabetic controls. Of interest, fetal urine production increased in non-diabetic women after eating but this was no observed in diabetic women. Sadia Tariq and Colleague (2010)⁶ reported 2 (2.4%) cases which is corresponded to our study. In the present study total cases of preterm labour were 70 (16.3%). Perinatal mortality increased further by preterm delivery even with normal fetus. May and colleagues (1195) reported that 20 percent of 275 women with an amniotic fluid index of at least 25 cm delivered preterm. Moreover, preterm delivery was more common in women with an anomalous fetus (40%). Brian et al. (2008)⁸ also reported higher incidence i.e. 26% preterm labour and delivery. Which is again supportive to this study? The incidence of PROM in the case of Polyhydramnios in the present study is 3%. The total cases were 4. Anisha Fawad (2008)⁴ Brian & colleagues (2008)⁸ also reported higher incidence of PROM. In our study the incidence of Abruptio Placentae in the cases of Polyhydramnios is 2.9 (3 cases). It is seen that sudden decompression of the distended uterus results in Abruptio. Dafallah & colleagues⁹ reported higher incidence 6.5% when compare to our study. In our study the incidence of PPH was 3 (2.9%) cases. Bryon & Hibbard (1998), Ron Beloseky (2008)³ also reported higher incidence of PPH with polyhydramnios. In the present study of 106 cases of Polyhydramnios we had 20 (18.8%) congenital malformation. Most common anomaly was neural tube defect (table 3) Using definitions similar to those described by Hill and associates (1987)¹⁰. These investigators observed that almost 65% of the 105 pregnancies were abnormal. There were 47 singleton with one or more anomalies gastrointestinal (15), non-immune hydrops (12), central nervous system (12), thoracic (9), skeletal (8), chromosomal (7) and cardiac (4). Among 19 twin pregnancies, only two were normal. Twelve of the remaining 17 had twin-twin transfusion. Humaria Akram (2006)⁵ and colleagues reported 33 (55%) anomalies fetus with severe polyhydramnios. Sadia et al. (2010)⁶ reported congenital anomaly in (31.7%) comparable to our study. (20%) fetuses were still born and

19 (17.9%) were neonatal deaths. Humaria Akram and colleagues (2006)⁵ reported similar outcome i.e. 18% intrauterine death. Sadia Tariq et al. (2010)⁶ give outcome 20 (24.3%) still birth & 6 (7.3%) compared to our study.

CONCLUSION: Pregnancy complicated by polyhydramnios is high and need to be through investigated. Incidence was high among patient in rural areas perinatal morbidity and mortality are significantly increased when polyhydramnios is present at labour. Conditions associated with Polyhydramnios are pre-eclampsia, PROM, preterm labour, abruptio placenta and Malpresentation. Neural tube defect and other serious structural abnormalities are easily detectable by ultrasound. Amniotic fluid is methods easily identified by current diagnostic ultrasound (AFI). If early diagnosis aided by good antenatal care, timely referral to higher centres, use of sophisticated technology like USG are made then maternal morbidity and perinatal mortality can be reduced by offering termination of pregnancy at an earlier gestation in cases of congenital anomalies and labour management in these high risk cases of polyhydramnios. It is psychologically and physically less traumatic to mother then. The study gives us the understanding of the impact of polyhydramnios on the mother and fetus which can be effectively managed if earlier detection and follow-ups are carried out.

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AUTHORS:

1. Sudha Chourasia
2. Juhi Agarwal
3. Mahendra Badole

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Obstetrics and Gynaecology, Gandhi Medical College.
2. Assistant Professor, Department of Obstetrics and Gynaecology, Gandhi Medical College.
3. Resident 3rd Year, Department of Obstetrics and Gynaecology, Gandhi Medical College.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Juhi Agarwal,
109, Old Safia College Road,
Ballabh Hospital, Bhopal.
Email – drjuhiagarwal@gmail.com

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