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POLYHYDRAMNIOS;

FETOMATERNAL OUTCOME OF POLYHYDRAMNIOS; A CLINICAL STUDY IN A TERTIARY CARE INSTITUTE.

Maimoona Qadir[1], Sohail Amir[2]

1. MBBS, FCPS Gynae, Registrar Gynae C Unit Khyber Teaching Hospital, Peshawar.
2. MBBS, MS Neurosurgery, Assistant Professor Neurosurgery Naseer Teaching Hospital, Peshawar.

Correspondence Address:
Dr. Maimoona Qadir
MBBS, FCPS Gynae,
Registrar Gynae C Unit
Khyber Teaching Hospital, Peshawar.
dr.maimoona1983@gmail.com

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ABSTRACT… Background: Polyhydramnios is an obstetrical condition associated with significant perinatal and maternal morbidity and mortality. Although it is uncommon condition but a source of much discomfort to the patient. **Objectives:** To determine the maternal and fetal outcome of Polyhydramnios. **Study Design:** Descriptive cross sectional study. **Setting:** Gynaecology and Obstetrics Department of Khyber Teaching Hospital, Peshawar. **Period:** 1st January 2016 to 31st December 2016. **Methodology:** All the cases diagnosed as polyhydramnios according to amniotic fluid index in four pockets, in women of any age or parity after 20 weeks gestation were included. **Results:** Incidence of polyhydramnios was 1.8%.170(61%) cases were in age range of 31- 40 years and 137(49%) were multigravidas. 162(58%) cases had mild polyhydramnios. Pre ecclampsia was the commonest maternal condition associated in 42(15%) cases followed by anemia in 39(13.97%) and diabetes in 28(10%) cases. Complications that occurred as a result were preterm labor in 33(11.8%), premature rupture of membranes in 28(10%) and malpresentation in 22(7.88%) cases. Commonest fetal congenital anomaly was anencephaly in 36(13%), hydrocephaly in 15(5.3%) and cleft lip and palate in 13(4.6%) cases. Out of 279 feti, 42(15%) were intrauterine deaths and 28(10%) were stillborns. **Conclusion:** Early diagnosis, timely referral, termination if needed and good management in labor to avoid complications are keys to deal with a polyhydramnios patient. Antenatal care should be emphasized amongst the women and families.

Key words: Polyhydramnios, Hydrocephalus, Anencephalus, Congenital Anomaly, Malpresentation, Diaphragmatic Hernia.

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INTRODUCTION

Polyhydramnios is defined as deepest vertical pool more or equal to 8cmor amniotic fluid index of equal or more than 24cm or AFI above the 95th centile for gestational age.[1] The technique of four quadrant method of calculating amniotic fluid index described by Phelan et al[2] in 1987 is accepted as most reliable. Incidence is 0.2% to 3.9%. Maternal disorders like diabetes, intrauterine infections, placental abnormalities, drug use, certain fetal conditions such as congenital and chromosomal abnormalities, Rh incompatibility, and multiple pregnancy are possible etiological factors associated with polyhydramnios.[3] Fetal congenital anolmalies like duodenal, esophageal or intestinal atresia of fetus leading to gastrointestinal obstruction, thus interfering with fetal swallowing results in polyhydramnios. In mild polyhydramnios, the risk of major congenital anomaly is 1%, in moderate polyhydramnios its 2% and in severe polyhydramnios, the risk is 11%.[4]

The normal amount of amniotic fluid is reflection of balance between production and removal of amniotic fluid.[5] It is produced from fetal urine, secretions from fetal urinary tract, oral secretions, and removal is through fetal swallowing.[5] AFI is calculated by adding vertical dimensions of four imaginary cord and limb free quadrants of uterus, whereas deepest vertical pool is largest visible cord and limb free pocket of amniotic fluid.[6] Polyhydramnios can be classified as mild (25 – 29.9cm), moderate (30 – 34.9cm) or severe (>35cm) depending on the AFI .[7]

In the absence of maternal, fetal or placental aetiology, polyhydramnios is termed as idiopathic,

accounting for 50 – 60% of all cases.[8] The perinatal outcome of polyhydramnios can be affected by certain complications like malpresentations, preterm labor, premature rupture of membranes, accidental haemmorhage, cord prolapse, uterine inertia, retained placenta, and postpartum haemmorhage.[9]

Therapeutic amniocentesis is a method to deal with symptomatic polyhydramnios for the relief of respiratory distress.[10] 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.[11]

Our study aims at determining the outcomes, both fetal and maternal in pregnant patients with polyhydramnios so as to provide a database to the clinicians to formulate appropriate strategies to cope with this condition, and understanding of the impact of this condition on the fetus, which can be effectively managed if early detection and regular follow ups are carried out.

MATERIAL AND METHODS

This descriptive cross sectional study was conducted at Gynaecology and Obstetrics, Department of Khyber Teaching Hospital, Peshawar, from 1st January 2016 to 31stDecember 2016. Inclusion criteria were all pregnant women of any age or parity presenting after 20 weeks of gestation with ultrasound diagnosis of any degree of polyhydramnios.

Approval was taken from hospital ethical committee. Written informed consent was taken from all patients and they were informed about the purpose of study. Patients were recruited through Outpatient Department, Antenatal clinic or labor room. Detailed history was taken from all patients followed by meticulous general and abdominal examination. Ultrasound was done to make a diagnosis of polyhydramnios and to detect any congenital anomaly. Polyhydramnios was defined as amniotic fluid index greater than 24cm using four quadrant techniques.

Predesigned proforma was used to record all the details. Routine and specific laboratory investigations if needed were sent to hospital laboratory and followed. Patients were followed through labor. Labor monitored and maternofetal condition assured with the help of partogram. Mode of delivery was decided in accordance with unit protocol. After delivery, neonatal condition was assessed and was sent to Paediatrician for detailed examination whether dead or alive in order to look for any anomaly.

Data collected was analyzed for results and presented in form of tables. Mean and standard deviation was calculated for numerical variables and frequencies and percentages were calculated for categorical variables.

RESULTS

During the study period of one year 15,493 patients came for antenatal checkup, out of these 279 had polyhydramnios, making the rate of 1.8%. We divided the patients into four age groups and it was observed that 25(9%) subjects were less than 20 years age, 56(20%) were 21- 30 years age, 170(61%) belonged to age group of 31 -40 years and 28(10%) were more than 40 years age. 86(31%) were primigravidas, 137(49%) were multigravidas and 56(20%) were grand multigravidas.

It was observed that 162(58%) of our cases had mild polyhydramnios, 92(33%) had moderate and 25(9%) subjects had severe polyhydramnios.

Maternal conditions associated with polyhydramnios like pre ecclampsia, anemia, diabetes, Rh incompatibility and hypothyroidism along with frequencies and percentages are presented in Table-I.

Complications which occurred in mother as a result of polyhydramnios are presented in Table-II.

Fetal congenital anomalies occurred in 31.54% cases n form of anencephaly, hydrocephaly, cleft lip and palate, esophageal atresia, congenital heart disease, duodenal atresia, meningomyelocoele,

and diaphragmatic hernia in descending order are presented in Table-III along with the observed frequency and percentages calculated.

Fetal outcome in the form of alive neonates, Intrauterine deaths and stillborn babies is presented in Table-IV.

Maternal Condition	Frequency	Percentage
Pre ecclampsia	42	15%
Anemia	39	13.97%
Diabetes	28	10%
Rh incompatibility	22	7.88%
Hypothyroidism	14	5%

Table-I. Maternal conditions associated with polyhydramnios.

Maternal Complication	Frequency	Percentage
Preterm Labor	33	11.8%
Premature Rupture of Membranes	28	10%
Malpresentation	22	7.88%
Cord Prolapse	17	6%
Placental Abruption	17	6%
Postpartum Haemmorhage	14	5%

Table-II. Maternal complications associated with polyhydramnios.

Fetal Congenital Anomaly	Frequency	Percentage
Anencephaly	36	13%
Hydrocephaly	15	5.3%
Cleft lip & palate	13	4.6%
Esophageal atresia	6	2%
Congenital Heart Disease	6	2%
Duodenal atresia	6	2%
Meningomyelocoele	3	1%
Diaphragmatic herrnia	3	1%
No anomaly	191	68.45%
Total	279	100%

Table-III. Fetal congenital anomalies associated with polyhydramnios. (n=279)

Fetal Outcome	Frequency	Percentage
Alive	209	75%
Intrauterine Deaths	42	15%
Stillbirths	28	10%
Total	279	100%

Table-IV. Fetal outcome of polyhydramnios. (n=279)

DISCUSSION

The amniotic fluid serves as a medium for growth, motion and development of fetus, protecting the fetus from jerks and serving as a cushion. Metaernal and fetal morbidity and mortality is significantly increased if polyhydramnios is present at delivery. Idiopathic cases with mild to moderate degrees are associated with good outcome.

In our study, the incidence of polyhydramnios in our study population was 1.8%. Tariq S et al in their study at Lahore, Pakistan reported this incidence as 2.1%.[12] Fawad A et al in their study [13] concluded 2% rate of polyhydramnios which is supportive of our study. Rajgiri AA et al in their study at Maharashtra, India in 2017 reported an incidence of 1.5%[9], which is close to our results.

The prevalence of fetal congenital anomalies in polyhydramnios was 31.54% in our study which is comparable to that of Tariq S et al where they observed this figure as 31.7%.[12] The commonest anomaly according to our study was CNS anomalies i.e, anencephaly (13%) and hydrocephaly (5.3%). Neural tube defects can be easily detected in first and second trimester ultrasounds and have advantage of offering termination at an early stage. Chaurasia S et al in their study comprising 14573 cases of polyhydramnios had highest frequency of same anomalies.[14] Anencephaly was the topmost anomaly in a study done at India.[9] Cleft lip and palate was responsible for 4.6% of congenital anomalies in our study whereas 5% of them was present in an International study.[9]

Polyhydramnios was seen most commonly in women in age range 31 – 40 years, followed by 21 – 30 years age group according to our research. Fawad A et al reported highest frequency (53%) of polyhydramnios in age group of 30 – 39 years followed by 30% in 20 – 29 years age range.[13] Similarly Akram H et al noticed 51% cases of 31 -40 years age[15].49% of our cases were multigravidas, whereas 59.9% were multigraviads in another study.[9] Likewise 57% were multigravidas in study by Chaurasia S et al.[14]

Polyhydramnios was common (15%) in patients with pre ecclampsia. This figure was 16.6% in an Indian study[9] but 2.9% in another study.[14] Brian et al also reported high incidence of pre ecclampsia in polyhydramnios[17]Anemia was seen in 13.97% cases in ours and in 11% cases in other study.[14] Mathew et al also reported high incidence of anemia[18] whereas diabetes was seen in 10% cases by us and 8.3% by Rajgiri AA et al.[9] On the contrary, diabetes was seen in 24.4% cases in a study at Jordan by Malas NOM et al.[16]

Regarding the complications during pregnancy and delivery, Preterm labor was most common (11.8%) followed by PROM (10%) and malpresentation in 7.88% cases. Preterm labor was seen in 16.3% and 16.5% cases in other two studies[14,20] followed by PROM in 5% cases and malpresentations in 6.6% subjects.[9] Postpartum haemmorhage was observed in 5% of our cases and was in a same incidence in study by Beloseky R et al.[19]

The fetal outcome of our study compared to that of Rajgiri et al[9] where 5% intrauterine deaths and stillbirths were seen, whereas we observed 15% intrauterine deaths and 10% stillbirths. Akram H et al reported 18% incidence of intrauterine deaths.[15]

There were several limitations in our study. First, only Khyber Teaching Hospital was taken as the study place. Inclusion of other hospitals from same locality could have helped in finding out prevalence and outcome of this condition in this area. Karyotyping being important part of workup could not be done due to affordability issues. Thirdly, the neonates were not followed. Follow up of such babies could have revealed some anomalies which remained undetected at time of delivery.

CONCLUSION

Timely diagnosis of the condition by meticulous clinical examination and ultrasound, early referral for better workup and termination if needed and good labor management at any gestation can reduce significant morbidity and mortality from this condition. Less psychological and physical trauma is faced by the mother then. Awareness amongst the masses regarding good antenatal care should be emphasized.

REFERENCES

1. Pauer HU, Viereek V, Krauss V, Osmers R, Krauss T. **The incidence of fetal malformations in pregnancies complicated by oligo and polyhydramnios.** Arch Gynecol Obstet 2003; 268: 52- 6.
2. Phelan JP, Smith CV, Broussard P, Small M. **Amniotic fluid volume assessment with four quadrant technique at 36- 42 weeks gestation.** J Report Med 1987; 32: 540 -4.
3. Brantberg A, Blaas HG, Salvesan KA, Haugen SE. **Fetal duodenal obstruction; Increaed risk of prenatal sudden death.** Ultrasound Obstet Gynecol 2002; 20: 439- 46.
4. Dashe JS, McIntire DD, Ramus RM, Santos- Ramos R, Twickler DM. **Hydramnios: anomaly prevalence and sonographic detection.** Obstet Gynecol 2002; 100: 134- 9.
5. Nyberg DA, McGahan JP, Pretorius DH, Pilu G. **Diagnostic imaging of fetal anomalies.** 1st Edition. Philadelphia: Lippincott: 2003.
6. Magann EF, Chauhan SP, Doherty DA, Lutgendorf MA, Magann MI. **A review of idiopathic hydramnios and pregnancy outcomes.** Obstet Gynecol Surv 2007; 62: 795- 802.
7. Vink JY, Poggi SH, Ghidini A, Spong CY. **Amniotic fluid index and birth weight; is there a relationship in diabeteswith poor glycemic control?** Am J Obstet Gynecol 2006; 195: 848- 50.
8. Touboul C, Boileau P, Picone O. **Outcome of children born out of pregnancies complicated by unexplained polyhydramnios.** Br J Obstet Gynecol 2007; 114: 489- 92.
9. Rajgiri AA, Borkar KR, Gadge AM. **A clinical study of fetomaternal ouitcome in pregnancy with polyhydramnios.** Int J Rep Contracep Obstet Gynecol 2017; 6(1): 145- 8.
10. Leung WC, Jouannic JM, Hyett I, Rodeck C. **Procedure related complications of rapid amniodrainage in the treatment of polyhydramnios.** Ultrasound Obstet Gynecol 2004; 23: 154- 8.
11. Loudom JA, Groom KM. Benett PR. **Prostaglandin**

inhibitors in preterm labor. Best Prac Res Clin Obstet Gyneco; 2003; 17: 731- 44.

12. Tariq S, Cheema S, Ahmad A, Tarique N. **Polyhydramnios; Study of causes and fetal outcome.** Professiona; Med j 2010; 17(4): 660- 4.

13. Fawad A, Danish N. **Frequency, causes and outcome of polyhydramnios.** J Med Sci 2008; 6(2): 106- 9.

14. Chourasia S, Agarwal J, Badole M. **Clinical study to evaluate the maternal and perinatal outcome of pregnancies with polyhydramnios.** J Evol Med Dent Sci 2013; 2(41): 7972- 7.

15. Akram H, Rana T. **Increasing severity of polyhydramnios; a risk factor for congenital malformation.** Biomedica 2006; 22: 9- 11.

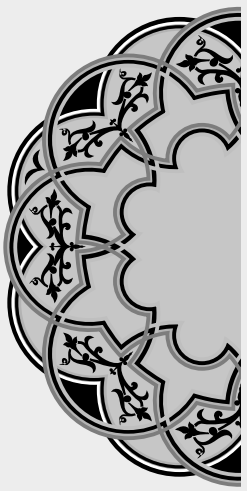
16. Hibbard BM,. **The fetsl membranes and amniotic fluid. Principles of obstetrics, Butter Worth and Co.** (Pub) 1988; 94- 8.

17. Brian et al. **Paediatric polyhydramnios and oligohydramnios updated.** Feb 2008; 1 -3.

18. Matthew M, Saquib S, Rizvi SG. **Polyhydramnios: Risk factors and outcome.** Saudi Med J 2008; 29(2): 256- 60.

19. Bolensky R et al. **Incidence of polyhydramnios on general obstetric population.** Am J Obst Gynecol 2008; 199: 410.

20. Taskin S, Pabuccu EG, Kanmaz AG. **Perinatal outcomes of idiopathic polyhydramnios.** Int Med App Sci 2013; 5(1): 21- 5.



"A lie has many variations,
the truth none."

African Proverb

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Maimoona Qadir	Data analysis & Collection and interpretation, Critical revision	
2	Sohail Amir	Statistical expertise, Drafting of article.	