ORIGINAL ARTICLE

FREQUENCY, CAUSES AND OUTCOME OF POLYHYDRAMNIOS

Anisa Fawad, Shamshad and Nargis Danish

Department of Gynaecology & Obstetrics, Ayub Hospital Complex, Abbottabad, Pakistan

ABSTRACT

Background: Polyhydramnios is an important obstetric complication. This study was conducted to determine its frequency, common causes and the perinatal outcome.

Material & Methods: It was a cross-sectional study conducted in Gynae B Unit, Women and Children Hospital Abbottabad, conducted from January to December 2001. History, clinical examination and relevant investigations were carried out.

Results: During the study period 3500 patients needed admission in our obstetric ward, among them 70(2%) patients had polyhydramnios. Period of gestation ranged from 30-36 weeks. Age range was 20-35 years (average 27). Among these 15(21.43%) patients were primigravida, 40(57.14%) multigravida and 15(21.43%) grand multigravida. In 35(50%) patients no etiology could be identified. In 20(28.5%) patients there were different congenital abnormalities in the fetus. In 6(8.5%) patients pregnancy was complicated by twin gestation. In 6(8.5%) patients fetuses were hydropic, while gestational diabetes was responsible for 3(4.2%) cases. Total births were 76, among which 56(73.68%) were alive and 20(26.32%) still born. There were 4(5.26%) early neonatal deaths and the main cause for it was prematurity.

Conclusion: Polyhydramnios occurs in 2% of admitted obstetric cases. It is more common in multigravida. In 50% cases the cause could not be identified. Peri-natal mortality occurred in 32% cases.

Key word: Polyhydramnios, Pregnancy, Perinatal mortality.

INTRODUCTION

Amniotic fluid provides the fetus a protective environment suitable for growth and development. Hydramnios is defined as deepest vertical pool of 8 cm or greater or an amniotic fluid index above 95th centile for gestational age.[1]

In older studies the incidence of polyhydramnios was 3.5% but more recent studies give an incidence of 0.2% due to earlier diagnosis and better management of pregnancies with fetal congenital abnormalities.[2]

In past few years polyhydramnios has been extensively studied and it has been found that in majority of the cases the fetus is normal and there is no causative factor in the mother as well. Prognosis for such pregnancies is good.[3]

Now-a-days intrauterine status of the fetus can be readily and confidently assessed by using a wide range of diagnostic facilities including ultrasound examination, doppler study, echo-cardiography, amniocentesis, cordocentesis to check fetal chromosomal pattern and serological studies.[4] With better facilities for detailed investigations of the mother and the fetus, more causative factors can be identified and this helps in the counseling of the parents regarding etiology of polyhydramnios, fetal prognosis, recurrence risks and different management options for the baby if it needs surgical or medical care after birth.

Polyhydramnios is an important obstetric complication. This study was conducted to determine its frequency, common causes and the perinatal outcome in this region.

MATERIAL AND METHODS

This cross-sectional study was conducted in Gynae B Unit of Women and Children Hospital Abbottabad, Pakistan, over a period of one year from January to December 2001.

All admitted patients with polyhydramnios were included in the study. At admission these patients were evaluated according to specially designed proforma which included detailed history, clinical examination and relevant investigations. History included age, parity, diabetic status and history of congenital abnormalities and polyhydramnios in previous pregnancies. Past medical and surgical history was explored in detail. Family history of twins, abnormal babies and blood

dyscrasias was taken. Clinical examination included both detailed general physical examination and per abdomen examination. In labouring patients per vaginal examination was also done.

Investigations included checking of blood group, complete blood picture and TORCH screening (serology for toxoplasma, rubella, cytomegalovirus and herpes simplex virus).

Ultrasound examination was used to assess amniotic fluid index (AFI) for the determination of severity of polyhydramnios as well as to exclude congenital abnormalities in the fetuses.[5,6]

RESULTS

During the study period 3500 patients needed admission in our obstetric ward, among them 70(2%) patients had polyhydramnios.

Period of gestation ranged from 30-36 weeks. Age range was 20-35 years. Table-1

Table-1: Age distribution of patients with Polyhydramnios.

Age of the Patients	Number of the Patients
20 - 25 years	15
26 - 30 years	35
31 - 35 years	20

Among these 15 (21.43%) patients were primigravida, 40 (57.14%) multigravida and 15 (21.43%) grand multigravida. Distribution of mild, moderate, severe polyhydramnios as determined by AFI and its causes are shown in Table-2.

In 40 patients with mild polyhydramnios no definite cause could be identified in 35 (87.50%) patients. While in moderate and severe cases of polyhydramnios all the patients had some underlying cause. Table-2

Total births were 76, among which 56 (73.68%) were alive and 20 (26.32%) still born. There were 4 (5.26%) early neonatal deaths due to prematurity. (Table-3 & 4)

Table-3: Peri-natal Mortality.

Total births	76
Alive births	56
Still births	20
Early neonatal deaths	4

Table-4: Causes of peri-natal mortality.

Causes	Number
Neural tube defects	12
Hydrocephaly	2
Exomphalos	2
Ventricular septal defects	4
Early neonatal deaths	4
Total perinatal mortality	24

Table-2: Causes of Polyhydramnios.

Severity of Polyhydramnios	Total Number of cases	Causes
Mild Polyhydramnios (AFI 25-30 cm)	40	No cause = 35 Hydrocephaly = 2 Duodenal atresia = 2 Esophageal atresia = 1
Moderate Polyhydramnios (AFI 31-35 cm)	18	Twin gestation = 6 Fetal hydrops = 6 (a) ventricular septal defects = 4 (b) rhesus incompatibility = 2 Gestational diabetes = 3 Congenital abnormalities = 3 (a) Exomphalos = 2 (b) Esophageal atresia = 1
Severe Polyhydramnios (AFI > 35 cm)	12	Anencephaly & spina bifida = 10 Encephalocele & spina bifida = 2

All patients with polyhydramnios belonged to poor socio-economic group. Majority were uneducated.

DISCUSSION

Pregnancies complicated by polyhydramnios are high risk and need to be thoroughly investigated. In all those cases in which no cause is found in the mother or in the fetus perinatal outcome is good.[7] In such cases usually polyhydramnios is of mild to moderate degree. While if there are serious congenital abnormalities in the fetus polyhydramnios is severe, resulting in maternal morbidity and perinatal motality.[8,9] Our study shows similar results.

Neural tube defects are easily detectable by ultrasound examination in first and second trimester, similarly serious structural abnormalities like ventricular septal defects and anterior abdominal wall defects can be easily diagnosed by mid trimester scan.[10] If early diagnosis is made maternal morbidity can be reduced by offering termination of pregnancy at an earlier gestation when it is psychologically and physically less traumatic to the mother. This approach also avoids serious presentations of polyhydramnios later on, like excessive abdominal distension, sudden premature rupture of membranes, fetal malpresentation, cord prolapse, placental abruption, premature labour, postpartum hemorrhage and high risk of operative deliveries with consequent risk of emergency anesthesia and surgery, so ultrasound examination at 18-20 weeks is mandatory to exclude major congenital abnormalities and structural defects at this stage.[11,12]

Twin pregnancy is associated with 4-5 fold increase in perinatal mortality than singleton pregnancies mainly due to prematurity, intrauterine growth restriction and congenital abnormalities.[13] Association of polyhydramnios with twin gestation makes it further complicated. In our study 6 sets of twins were included with moderate polyhydramios. There were no gross congenital abnormalities in these fetuses. Five sets of twins were managed conservatively and parinatal outcome was good after delivery at term. One set of twins had twin-twin transfusion syndrome. Mother presented in advanced premature labour at 28 weeks. Both the fetuses had early neonatal deaths due to prematurity.

Fetal hydrops involves the presence of generalized body oedema of the fetus and accumulation of fluid in two or more serous cavities. Fetal hydrops affected 6 of our cases. The main cause found in one study was non-immune hydrops.[14] Due to effectiveness of immuno-prophylaxis against rhesus incompatibility, non-immune hydrops is now more common than immune hydrops.[15,16] Advances in ultrasound make the diagnosis of hydrops easy and early. The main risks of fetal hydrops are fetal death and infant morbidity. Death may be due to underlying pathology, invasive investigations, and treatment. Complications of invasive diagnostic and therapeutic procedures are miscarriages, premature deliveries, fetal trauma and intrauterine fetal death. The short and long term prognosis depends on the underlying diagnosis that is congenital cardiac defects causing cardiac failure or needing cardiac surgery and the presence of chromosomal abnormalities.[17]

Three patients with uncontrolled gestational diabetes presented at 34-36 weeks gestation with moderate polyhydramios and fetal macrosomia. It took us one week to achieve diabetic control with the help of physician. All the patients needed elective caesarean section at 37 weeks due to fetal macrosomia and because their diabetic control got poorer near term. All the babies were saved.

Strict diabetic control in pregnancy with dietary restriction and insulin under the supervision of physician is needed to avoid structural malformations of the fetus in early pregnancy and fetal macrosomia and polyhydramnios later on.[18]

CONCLUSION

Polyhydramnios occurs in 2% of admitted obstetric cases. It is more common in multigravida. In 50% cases the cause could not be identified. Peri-natal mortality occurred in 32% cases.

REFERENCES

1. Moor TR, Cayle JE. The amniotic fluid index in normal human pregnancy. Am J Obstet Gynecol 1990; 162: 1168-73.
2. Hill LM, Breckle R, Thomas ML, Fries JK: Polyhydramnios. Ultrasonographically detected prevalence and neonatal outcome. Obstet Gynecol 1987; 69: 21-25.
3. Chamber lain PF, Manning FA, Morrison L et al. ultrasound evaluation of amniotic fluid volume 11. The relation ship of increased amniotic fluid volume to perinatal outcome. Am J obstet Gynecol 1994; 150: 250-54.
4. Dashe S, Mcintire DD, Ramus RM, et al. Hydramnios anomaly prevalence and sonographic detection. Obs Gynecol 2002; 100: 134-39.
5. Card Well MS. Polyhydramnios : a review obstet Gynecol Surv 1987; 42: 612-17.
6. Moore TR. Superiority of four quadrant sum over the single deepest pocket technique in ultrasonographic identification of abnormal amniotic fluid volume Am J Obstet Gynecol 1990; 163: 762-67.

7. Plating-kemp A, Ngu yen T, Chang E, et al. Idiopathic polydramnios and perinatal outcome. Am J Obstet Gynecol 1999; 181: 1079-82.

8. Ott WJ. Re-evaluation of relation ship between amniotic fluid volume and perinatal outcome. Am J Obstet Gynecol 2005; 192: 1803-9.

9. Magann EF, Sanderson M, Martin JN, Chauhan S. The amniotic fluid index, single deepest pocket and Two Diameter pocket in normal human pregnancy. Am J obstet Gynecol 2000; 182: 1581-8.

10. Biggiro JR Jr, wenstrom KD, Dubard MB, Cliver sp. Hydramnios, prediction of adverse perinatal outcome obstet Gynecol 1999; 94: 773-7.

11. Thompson O, Brown R, Gunnarson G, Harrington K. Prevalence of polyhydramnios in population screened by first and second trimester ultrasonography. J Perinat Med 1998; 26: 375-77.

12. Glantz JC, Abramovicz Js, sherer Dm. Significance of idiopathic mid trimester, polyhydramnios. Am J Perinatal 1994; 11: 305-8.

13. Bronsteem R, Goyert G and Bottoms S. Classification of twins and neonatal morbidity. Obstet Gynecol 89; 74: 98-101.

14. Ryan G and whittle MJ (1995). Immune and non Immune fetal hydrops. In: Reed GB, claireaux AE and Cockburn F. Diseases of the fetus and new born. London: Chapman and Hall, pp. 1257- 66.

15. Bowell PJ, wainscoat JS, Petotea and Gunson HH. Maternal anti D concentration and outcome in rhesus hemolytic disease of new born. Br Med J 82; 285: 327-9.

16. British committee for standards in hematology (1996). Guidelines for blood grouping and red cell antibody testing during pregnancy. Transfusion Med 96; 6: 71-4.

17. Freidman AH, Copel JA and kleinman CS. 1995. Fetal echocardiography in the diagnosis and management of fetal structural heart disease and arrhythmias. In: Reed GB, Claireaux AE and cock burn F (eds). Diseases of fetus and new born. London: Chapman and Hall. PP 1065-70.

18. Steel JM, Johnstone FD, Hep Burn DA and Smith SAF. Can pre-pregnancy care of diabetic women reduce the risk of abnormal babies? Br Med J 1990; 301: 1070-4.

Address for Correspondence:

Dr. Anisa Fawad
Senior Registrar Gynaecology
Ayub Teaching Hospital
Abbottabad, Pakistan