A STUDY OF FETOMATERNAL OUTCOME IN PREGNANCIES WITH POLYHYDRAMNIOS

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ABSTRACT

INTRODUCTION: Definition of polyhydramnios is an AFI >24cm on any linear array real time obstetric ultrasound OR Single amniotic fluid pocket more than equal to 8cm on obstetric ultrasound. Polyhydramnios has been long since recognized as known complication of pregnancy. With the advent of ultrasonography, the diagnosis and management of polyhydramnios has been easy and better.

MATERIAL AND METHODS: The study was conducted in the Department of Obstetrics and Gynaecology, Civil hospital, B.J. medical College, Ahmedabad. It was a prospective observational study of 50 cases of polyhydramnios, carried out between the period of June 2017 to January 2018.

RESULTS: In the present study we found that: Incidence of mild polyhydramnios was 72%, moderate was 18% and severe was 10%. Polyhydramnios was idiopathic in 61% of the cases and 31% cases were due to anomalies, PIH was the most common maternal complication followed by preterm labour and malpresentation. Looking at the neonatal outcome 31% had congenital anomalies.

CONCLUSION: It is hence concluded that polyhydramnios is a common condition complicating pregnancy. It is mostly an idiopathic condition and among known aetiologies most common is congenital foetal malformations. With increase in severity of polyhydramnios the maternal and perinatal outcomes tend to deteriorate. Each patient with sonographically diagnosed polyhydramnios should be completely investigated for anomalous baby and other possible etiological entities.

KEYWORDS

INTRODUCTION

Polyhydramnios, an excess of amniotic fluid in gravid uterus, has been long since recognized as known complication of pregnancy. It has been known to be associated with many maternal and foetal complications. Definition of polyhydramnios is an AFI >24cm on any linear array real time obstetric ultrasound [1] OR Single amniotic fluid pocket more than equal to 8cm on obstetric ultrasound. Polyhydramnios has been long since recognized as known complication of pregnancy. With the advent of ultrasonography, the diagnosis and management of polyhydramnios has been easy and better.

Normally amniotic fluid is approximately 30 ml at 10 weeks, 40ml at 20 weeks, 1000 ml at 35 weeks and 250ml at 43 weeks of gestation and any excess of fluid beyond normal limits is labelled as “Polyhydramnios”. Various maternal and foetal conditions may be etiologically related to polyhydramnios. With the advent of ultrasonography, the diagnosis and management of polyhydramnios has been easy and better. Early diagnosis, screening and management has resulted in better maternal and foetal outcome.

The purpose of this study is to evaluate the demographic factors related to polyhydramnios and to evaluate maternal and foetal outcome.

Amniotic fluid physiology:

Amniotic fluid is probably of mixed maternal and foetal origin. Production:

1. Transudation of maternal serum across the placental membranes.
2. Transudation from foetal circulation through the umbilical cord.
3. Secretion from amniotic epithelium.
4. Transudation of foetal plasma through the highly permeable foetal skin before it is keratinized at 20th week.
5. Fetal urine – daily output at term is about 400-1200 ml.

Removal:

1. Fetes swallows about 500-1000 ml of liquor every day.
2. Intramembranous absorption of water and solutes (200-500ml/day) from the amniotic compartment to foetal circulation through the foetal surface of the placenta.

Various definitions of polyhydramnios:

1. AFI >24cm on any linear array real time obstetric ultrasound.
2. Single amniotic fluid pocket more than equal to 8cm on obstetric ultrasound.
3. AFI >95th percentile for gestational age.

Aetiology:

Polyhydramnios can occur due to excessive production of liquor or defective absorption.[2]

1. Idiopathic: in up to two-thirds of the cases cause could be unknown.
2. Fetal causes: anencephaly, spina bifida, oesophageal and duodenal atresia, facial dysmorphism, cystic hygroma, congenital diaphragmatic hernia, non-immune hydrops, multiple pregnancy, erythroblastosis fetalis etc.

Types of polyhydramnios:

1. Acute polyhydramnios: it is usually a fulminating second trimester process, with fluid accumulating rapidly over a period of a few days usually 3 to 5 days. It is associated with high perinatal mortality and major foetal malformations.
2. Subacute polyhydramnios: increase in AFI occurs over 1-2 weeks.
3. Chronic polyhydramnios: it has a more gradual onset, presenting in the third trimester

<table>
<thead>
<tr>
<th>TABLE 1: Degrees of polyhydramnios:</th>
</tr>
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<tbody>
<tr>
<td>According to AFI</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>MILD</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>MODERATE</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>SEVERE</td>
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Complications of polyhydramnios:

MATERNAL:
1. During pregnancy: increased incidence of preeclampsia, malpresentation, persistence of floating head, premature rupture of membranes, preterm labour, accidental haemorrhage.
2. During labour: early rupture of membranes, cord prolapse, uterine inertia, increased operative delivery due to malpresentation, retained placenta, postpartum haemorrhage and shock.
3. Puerperium: subinvolution, increased puerperal morbidity due to infection resulting from increased operative interference and blood loss.

FETAL: increased perinatal mortality mainly due to prematurity and congenital anomalies. Other contributing factors are hydrops fetalis, cord prolapse, effects of increased operative delivery and accidental haemorrhage.

AIMS AND OBJECTIVES
• To ascertain the influence of demographic factors such as age, parity, if any, on the occurrence and severity of polyhydramnios.
• To evaluate the various maternal and foetal causes of polyhydramnios.
• To study the maternal outcome in terms of time and mode of delivery, intrapartum and postpartum complications and foetal outcome in terms of maturity and occurrence of congenital anomalies in pregnancies complicated with polyhydramnios.

MATERIAL AND METHODS
The study was conducted in the Department of Obstetrics and Gynaecology, Civil hospital, B.J. medical College, Ahmedabad.

STUDY DESIGN: It was a prospective observational study of 50 cases of polyhydramnios, carried out between the period of June 2017 to January 2018 in Civil Hospital, Ahmedabad.

DATA COLLECTION: A detailed history was taken including previous obstetric history. A proforma was filled in every case. The age, gravida status, gestational age, menstrual history, past, family and personal history were all recorded.

General physical examination was done in every case. Obstetric examination included per abdominal, per speculum, and per vaginal examinations. Routine investigations were carried out. Specific investigations were carried out when required.

Ultrasound was done in every case and details of viability, gestational age, presentation, placenta, amniotic fluid index, effective foetal weight, and any gross congenital anomaly were recorded in detail. Doppler was carried out when indicated.

Management protocol was decided considering chief complaints of patient, maternal and foetal condition. Induction if done, mode of delivery, foetal outcomes were all recorded. All neonates were assessed by paediatrician, examined carefully and any congenital anomaly if present were noted. Mother and baby were followed up till discharge and further follow up was advised in babies with any anomaly.

OBSERVATIONS AND DISCUSSION
The present study to determine maternal and foetal outcome in cases of pregnancies with polyhydramnios was conducted in Civil hospital, B.J Medical college, Ahmedabad between June 2017 to January 2018 and the following observations were made.

Table 2: Distribution Of Cases Of Polyhydramnios According To Age

<table>
<thead>
<tr>
<th>AGE IN YEARS</th>
<th>NUMBER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-20</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>21-25</td>
<td>21</td>
<td>52%</td>
</tr>
<tr>
<td>26-30</td>
<td>25</td>
<td>40%</td>
</tr>
<tr>
<td>31-35</td>
<td>1</td>
<td>2%</td>
</tr>
</tbody>
</table>

We observed that maximum cases belonged to the age group of 21 to 25 years.
According to the above chart in 60% of the cases polyhydramnios was idiopathic, 32% cases had congenital anomaly, 2% had Rh isoimmunisation and 6% had gestational diabetes mellitus.

FETAL OUTCOME
Chart1: Distribution According To Neonatal Maturity

Table 5: Distribution According To Fetal Outcome

<table>
<thead>
<tr>
<th>FETAL OUTCOME</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIVE BORN</td>
<td>78%</td>
</tr>
<tr>
<td>CONGENITAL MALFORMATIONS</td>
<td>32%</td>
</tr>
<tr>
<td>STILL BORN</td>
<td>22%</td>
</tr>
<tr>
<td>NEONATAL DEATHS</td>
<td>8%</td>
</tr>
</tbody>
</table>

According to the table 78% babies were born live, 32% babies had congenital anomaly.

Table 6: Distribution According To Type Of Congenital Anomaly

<table>
<thead>
<tr>
<th>System Anomaly</th>
<th>Number</th>
<th>Mild Poly</th>
<th>Moderate Poly</th>
<th>Severe Poly</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNS</td>
<td>8</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>CVS</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Renal</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Skeletal</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>-</td>
</tr>
</tbody>
</table>

According to the above data most common anomaly was that of central nervous system (of which spina bifida was the most common) followed by gastrointestinal system.

SUMMARY AND CONCLUSION
In the present study of 50 cases of polyhydramnios we found that:
- The commonest age group of presentation was 21-25 years accounting for 52% of the cases.
- Polyhydramnios was more common in multigravida accounting for 68% cases.
- The commonest symptom was pain in abdomen and commonest time of presentation was in third trimester.
- Incidence of mild polyhydramnios was 72%, moderate was 18% and severe was 10%.
- 72% patient underwent normal vaginal delivery and 26% underwent LSCS.
- Polyhydramnios was idiopathic in 60% of the cases and 32% cases were due to anomalies, 2% has Rh isoimmunisation and 6% had GDM.
- PIH was the most maternal common complication followed by preterm labour and malpresentation.
- Looking at the neonatal outcome 78% were born live and 32% had congenital anomalies. Most common congenital anomaly was that of central nervous system.

It is hence concluded that polyhydramnios is a common condition complicating pregnancy.[3] It is mostly an idiopathic condition and among known aetiologies most common is congenital foetal malformations. Fetal complications include increased perinatal mortality mainly due to prematurity and congenital anomalies.[4] Mostly patients with polyhydramnios have only mild increase in amniotic fluid and in such cases the maternal and perinatal outcomes are good. With increase in severity of polyhydramnios the maternal and perinatal outcomes tend to deteriorate. Each patient with sonographically diagnosed polyhydramnios should be completely investigated for anomalous baby and other possible etiological entities. Whenever an anomaly is detected it should be communicated to the parents and the prognosis and further management is to be discussed with neonatologist and paediatric surgeons. Each delivered neonate is to be screened thoroughly by the neonatologist as sometimes anomalies may have been missed in ultrasound examination.