

## ORIGINAL ARTICLE

**Oligohydramnios: Maternal Complications in 80 patients visiting Jinnah Hospital Lahore Pakistan**Muhammad Zubair<sup>1</sup>, Midrarullah Khan<sup>1,2</sup>, Noraiz Ali<sup>1</sup>, Kashif Siddique<sup>3</sup>, Tariq Khan<sup>1</sup>**ABSTRACT**

**Introduction:** Adequate amniotic fluid level is required for the normal fetal physiology. A decreased level of amniotic fluid is known as Oligohydramnios. Oligohydramnios leads to many complications. Most common complication of Oligohydramnios is premature and stillbirth. This study was designed to determine maternal complications in patients presented with and without Oligohydramnios.

**Material & Methods:** This cross-sectional study was conducted at the department of Radiology Jinnah Hospital Lahore. The duration of study was 4 months (August 2019 to November 2019). A total of 80 females in the 3rd trimester of pregnancy participated in the study. Oligohydramnios and its severity were assessed by measuring amniotic fluid index, using ultrasonography. Relevant information was recorded and analysed statistically.

**Results:** A total of 80 females at the 3rd trimester of pregnancy participated in the study. All participants were adults with age ranges (18-39, average= 27.5 ± 3.0 years). Oligohydramnios patients show a high trend of preterm deliveries and delivery complications like caesarean section.

**Conclusion:** Our study concluded that various obstetric complications occur in Oligohydramnios patients.

**Keywords:** Oligohydramnios, pregnancy, preterm deliveries, ultrasonography

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**INTRODUCTION**

Amniotic fluid is necessary for the normal fetal growth, organ growth and normal delivery. A decrease in the amniotic fluid known as Oligohydramnios leads to many complications both for fetus and bearer. Amniotic fluid assessment during pregnancy and before birth is one of the most important things to avoid complications. Oligohydramnios is assessed by sonography, particularly in the assessment of high-risk pregnancies.<sup>1</sup> Change in the amniotic fluid volume is normal with the gestational age. From the late second trimester if the maximum vertical pocket of less than 2cm is considered, Oligohydramnios and amniotic fluid index of less than 5cm or less than 5th percentile.<sup>2</sup> Protective environment, supplying nutrients, growth, and movement facilitation, cushioning of fetus against mechanical and biological injury are provided by the amniotic fluid. From 10 –20 weeks the amniotic fluid volume increase 25 ml to 400 ml respectively.<sup>3</sup> Chances of abortion, umbilical cord compression, perinatal mortality, meconium aspiration syndrome are some of the increasing risks of adverse perinatal outcomes associated with Oligohydramnios. Caesarean deliveries with Oligohydramnios is mostly due to fetal distress and underline cord compression.<sup>4</sup> Oligohydramnios occurs in 3.9 to 5, 5% of the all the pregnancies. A number of pregnancy related complication includes hypertension due to pregnancy, intra uterine growth retardation, dysmaturity syndrome.<sup>5-7</sup> If a fetus is delivered earlier than the 37 week of

gestational age is considered preterm birth. The fetus may be either extremely premature if delivered less than 28 weeks, severe premature if born at the gestation age of 28-31 weeks, moderate premature if gestational age 32-33 weeks and near term if borne at 34-36 weeks.<sup>9</sup> Some of the reasons for preterm birth included maternal or fetal suggestion for caesarean delivery and labour stimulation, premature rupture of membrane (PPROM), intact membrane with spontaneous labour.<sup>10</sup> Around 75% of the mortality in prenatal is associated with preterm birth and more than half the long-term morbidity. They may survive even after preterm birth but may have high risk of neurodevelopmental impairment, gastrointestinal and respiratory complications.<sup>11</sup> The chances of preterm birth increase if the patient is presenting with Oligohydramnios.<sup>12</sup> Oligohydramnios is confirmed by calculating the Amniotic Fluid Index (AFI) using ultrasonography. If the anterior posterior (AP) diameter of the four quadrants which are free from umbilical cord or fetal parts are added together and the AFI is ≤ 5cm or absence of single vertical pocket that is containing at least 2×1cm, then the patient is Oligohydramnios.<sup>13</sup> Ultrasound is gold standard imaging modality for the confirmation of Oligohydramnios and its associated complication because it is non-invasive, inexpensive and easily available everywhere. This study was designed to assess maternity complications in a hospital in Pakistan.

**MATERIAL AND METHODS**

This cross-sectional study was conducted at the department of radiology Jinnah Hospital Lahore. The duration of study was 4 months (August 2019 to November 2019). The study was approved by institutional review board of Jinnah Hospital Lahore Pakistan and ethical committee of the Institute of Paramedical Sciences, Khyber Medical University Peshawar, Pakistan. Pregnant women at their 3<sup>rd</sup> trimester were invited to participate in the study.

Oligohydramnios and its severity were assessed by ultrasonography using Mindray DP 20, 2.5 to 3.5 megahertz (MHz) convex transducer in a supine position. The transducer was placed on all parts of the uterus till the deepest pocket of amniotic fluid was identified and recorded.

**RESULTS**

A total of 80 females at 3<sup>rd</sup> trimester of pregnancy participated in the study. All participants were adult with age ranges (18-39, Av 27.5 ± 3.0 years) Oligohydramnios was present in 60 (75%) participants while 20 (25%) were presented in adequate liquor. The full-term deliveries were 31 (38.8%) out of which 21 (35.0%) deliveries with Oligohydramnios and 10 (50.0%) were without Oligohydramnios. The preterm were 49 (61.3%), out of which 39 (65.0%) with Oligohydramnios and 10 (50.0%) were without Oligohydramnios. The caesarean deliveries were 42 (52.5%) out of which 34 (56.7%) were with Oligohydramnios and 8 (40.0%) deliveries were without Oligohydramnios. The normal vaginal deliveries count 38 (47.5%) out of these 26 (43.3%) were Oligohydramnios and 12 (60.0%) were without Oligohydramnios (see details in table 1).

**DISCUSSION**

During the 3<sup>rd</sup> trimester of pregnancy, the fetal sonographic examination was performed with the help of convex transducer. At this stage of pregnancy, the fetal vital organs are fully developed and the period of fast growth and maturity continues. A total of 80 patients at 3<sup>rd</sup> trimester of pregnancy were enrolled in this study. The mean age of patients in this study 27.25 ± 3.0 years which is slightly higher than 23.66 years that is recorded in another study carried out on similar topic.<sup>14</sup> Reddy et al reported that early finding and management of Oligohydramnios could decrease its opposing perinatal and maternal outcomes. The occurrence of Oligohydramnios was found to be more in primigravida (60.0%) with mean maternal age 23.96 ± 3.92 years.<sup>15</sup>

A study carried out during the 3<sup>rd</sup> trimester of pregnancy on 145 patients, sonographically diagnosed patients with Oligohydramnios. In these patients, 35.2% of the patient's mode of delivery was done by caesarean section, 17 % of the fetus were having breech presentation. Perinatal mortality was reported in 16% while 10.7% were treated and were successful in delivering the fetus. The caesarean was performed in 42 (52%) of the total patients who were diagnosed as Oligohydramnios which is higher and no perinatal mortality was noted in our study compared to the findings of the mentioned study.<sup>16</sup> The caesarean section was due to fetal distress in which they were having either cord compression or intra uterine growth restrictions. The rate of vaginal deliveries in this study was 38 (47.5%) in

which 26 (43.3 %) and 12 (60%) were with and with Oligohydramnios, respectively. Feto-placental insufficiency was also noted in colour doppler ultrasonography in 7% of the patients.<sup>17</sup> Low birth weight was also reported by Shah et al at the rate of 68% and 25 % cases abnormal doppler changes were noted.<sup>18</sup> Maternal and perinatal morbidity and mortality in majority of the cases were caused by Oligohydramnios. In such cases, 58% of caesarean deliveries were done while in patient with adequate liquor it was recorded as 28%. It was also recorded that in 62% of babies weight was less than 2.5 kg compared to control group 18% which was statistically significant (P < 0.05). Out of which 10% of babies were admitted in neonatal intensive care unit (NICU). Perinatal mortality was recorded as 2% in studies.<sup>19</sup> These findings are not accordance to findings observed in our study. Cultural differences might be one of the reasons between these two studies as these studies were carried out in other part of the world.

**CONCLUSION**

It is concluded that ultrasound can provide all the important information regarding fetal and maternal complication and reduce the risk of abortion or still birth by proper management. It is recommended that follow up study should be conducted in fetus with maternal complication. Apart from this, it is non-invasive, readily available, portable and inexpensive.

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Table1: Maternal complications in Oligohydramnios

Status of Amniotic Fluid	Delivery Status		
	Full term Delivery	Preterm Delivery	Total
Oligohydramnios	21(35%)	39(65%)	60(75%)
Adequate Liquor	10(50%)	10(50%)	20(25%)
Total	31(38.75%)	49(61.25%)	80
Delivery Mode			
Caesarean	8(19.04%)	34(80.95%)	42(52.5%)
Normal Vaginal Delivery	12(31.57%)	26(68.42%)	38(47.5%)
Total	20(25%)	60(75%)	80