

OLIGOHYDRAMNIOS CAUSES AND PREGNANCY OUTCOME — THIRD TRIMESTER VERSUS SECOND TRIMESTER AND SIGNIFICANCE OF AMNIOTIC FLUID INDEX (AFI)

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SUMMARY

Oligohydramnios is a complication of high risk pregnancy which is associated with poor perinatal outcome. 50 cases of oligohydramnios were taken at random, 39 were in third trimester and 11 in second trimester. The commonest cause was hypertensive disorders followed by PROM (pre-mature rupture of membranes). Pregnancy outcome was better in the 3rd trimester, resulting in 6 (15%) deaths only as compared to 2nd trimester, where all (100%) pregnancies ended in intra-uterine deaths. No pregnancy could be prolonged beyond two weeks in cases of 2nd trimester.

INTRODUCTION

Oligohydramnios is defined as the deepest vertical pocket of liquor devoid of cord or fetal limbs measuring less than 3 cm, 2 cm, 1 cm according to various definitions indicating moderate to severe oligohydramnios. Alternatively, an Amniotic fluid index (AFI) less than 5th centile for gestational age has more recently been used and introduced by Phelan and colleagues.^{3,4}

It is a serious complication of pregnancy resulting in poor perinatal outcome,⁵ which may affect all the trimesters of pregnancy. Severe oligohydramnios identified in 2nd trimester is an indication that perinatal outcome will be poor. Fetal loss rate of 43–88% have been reported with end trimester oligohydramnios.^{6,7} Perinatal morbidity and mortality is also significantly increased when oligohydramnios is present at the time of delivery.⁸

The aim of this study was to know the causes of oligohydramnios and to compare

the perinatal outcome between 2nd and 3rd trimesters in our local population.

MATERIAL AND METHODS

50 cases of oligohydramnios admitted at Gynae A unit, Postgraduate Medical Institute, Lady Reading Hospital Peshawar during a period of 8 months were selected for study. Fetal ultrasonography with special attention to high risk pregnancies, fetal abnormality scans, growth scans and biophysical profile were performed. While screening all high risk pregnancies, we detected 50 cases of oligohydramnios by using phelan et al³ method of amniotic fluid index measurement with 3.5 MHz transducer. Patients having gestational age more of than 28 weeks were put in group A, while patients having gestational age of 28 weeks or less were put in group B. AFI less than 5 cm was labelled as severe oligohydramnios while between 5–9 cm was taken as borderline. Cases with fetal death at the time of ultrasonography were excluded. These patients were followed by doing serial

TABLE – I
CAUSES OF OLIGOHYDRAMNIOS IN
GROUP A (3RD TRIMESTER)

	n= 39	Percentage
1. Hypertensive disorders	19	48.7%
2. PROM	14	35.3%
3. Placenta previa with bleeding episodes	2	5%
4. Paroxysmal nocturnal hemoglobinuria	1	2.3%
5. Unknown	3	7.6%

ultrasonography weekly. Where the fetuses were found to be compromised, pregnancies were terminated by induction of labour or caesarean section in group A.

RESULTS

The causes and perinatal outcome were compared between group A and B. The causes are summarized in Table-I and Table-II.

Majority of the cases in group A and B were due to either hypertensive disorders (48%, 35%) or PROM (35%, 45%) respec-

TABLE – II
CAUSES IN GROUP B
(2ND TRIMESTER)

Causes	n=11	Percentage
1. Hypertensive disorders	4	36.6%
2. PROM	5	45.4%
3. Placenta previa with bleeding episodes	1	9%
4. Congenital absence of urinary tract (of fetus)	1	9%

tively. There were a few cases of placenta previa with bleeding episodes in both groups which is an unusual finding. It might be due to decreased placental flow which can result in oligohydramnios.

The results in group A were divided into two sub-group according to the severity of oligohydramnios. Cases with severe oligohydramnios (< 5 cm) were associated with high incidence of morbidity and mortality. There were 3 neonatal deaths and 2 still births out of 27 cases. 9 cases ended in caesarean section, while in cases of mild oligohydramnios no neonatal deaths were noted. The overall operative delivery rate

TABLE – III
OUTCOME OF PREGNANCIES WITH MILD AND BORDERLINE
OLIGOHYDRAMNIOS IN GROUP A

AFI=cm	n=39	NVD with induction	C.Section	Birth Weight			NND	S/B
				2.5	2.6-4	>4		
< 5	27	18	9	11	15	1	3	2
5-9	12	6	6	6	6	-	-	-
	100%	61.5%	38.4%	43%	53%	7.6	7.6%	5%

NVD = Normal vaginal delivery

C.Section = Caesarean section

NND = Neonatal death

S/B = Still birth

TABLE - IV
OUTCOME PREGNANCIES IN CASES OF GROUP B

Total No.	Intra-uterine death within one week	Intra-uterine death within 2-3 week	
11	8	3	100%

was high. Most of the indications were for fetal distress.

During 2nd trimester all the cases ended in intra-uterine death within one to three weeks. Not a single case could reach the period of viability i.e 28 weeks.

DISCUSSION

Oligohydramnios is a complication of high risk pregnancy which is associated with poor outcome, specially in the 2nd trimester. The causes of oligohydramnios are¹ Fetal asphyxial diseases,² Rupture of fetal membranes and³ Developmental anomalies involving the genito-urinary system.⁹ In our study the commonest causes in both the trimesters were the same.

There have been several methods to estimate the volume of liquor. Subjective (clinical) method is a rough guide but not a reliable one. Now a days ultrasound estimation of amniotic fluid volume is an important adjunct to the assessment of fetal well being.¹⁰ Single pocket measurement is used as a part of biophysical profile.^{11,12} The second method is AFI introduced by Phelan et al,^{4,13} which is summed vertical pockets in four quadrants of uterus. It has been proposed as a more accurate measure of amniotic fluid. This method was applied to be and found to be effective. Moore TR¹⁰ has found it more accurate than the largest pocket method. Most groups have defined oligohydramnios as an AFI of 5 cm or less.^{11,15,16} It has been shown that AFI less than 5 cm at term is associated with high rate of

meconium staining, fetal distress and caesarean section.

In the present study 15 (36%) out of 39 cases ended in caesarean section and the majority of these were for fetal distress. Decreased amount of amniotic fluid in the 2nd trimester is associated with increased perinatal mortality.^{17,7} This was also confirmed by our study. All cases of 2nd trimester ended in intra-uterine death.

Many complications have been associated with oligohydramnios. The important one is pulmonary hyperplasia. It is found in 13-21% of autopsies.¹⁸ Unfortunately we could not do autopsies in our cases, so we remained unaware of this finding in these babies. The other problems are skeletal deformities and intra-uterine growth retardation.

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