



OLIGOHYDROAMNIOS- THE AA SIGN (ASHOK ANAND SIGN)

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ABSTRACT

Objective- To study the correlation of Oligohydroamnios with loop of cord around neck and its fetal maternal outcome. **Methods-** Observational (retrospective and prospective) study of cases of Oligohydroamnios (AFI <5cm) antenatally on USG and with loop of cord around neck detected at the time of cesarean section without any condition for placental insufficiency like PIH, calcifications and infarcts due to various reasons without leaking and without any congenital malformations in fetus like absent kidneys or any renal or bladder abnormalities from January 2023 to March 2024.

Inclusion Criteria-

All cases of Oligohydroamnios in the third trimester

Exclusion Criteria-

- 1) History of leaking
- 2) PIH
- 3) IUGR
- 4) Congenital renal malformations in fetus
- 5) Twins
- 6) Patients on Indomethacin

Outcome- A total of 400 cases were studied and it was found that 322 babies were delivered by emergency LSCS and 78 by vaginal delivery, out of which 392 were live births and 8 were stillbirths. **Conclusion-** In our observational studies we found that when there is a normal growth of the baby till the third trimester and when there are no other risk factors like PIH or infarcts and calcification in placenta with normal blood flow to the placenta and no intrauterine growth restriction indicating placental sufficiency, if these patients suddenly have reduced liquor, in majority of the cases cord around neck was found to be present antenatally on USG or during the labour or vaginal delivery. So our AA sign (Ashok Anand sign) is that in absence of placental pathology or congenital malformations in the fetus like absent kidneys, Oligohydroamnios is caused by cord around neck. The clinical implications are that when the amniotic fluid is adequate and the loop of cord around neck is an incidental finding, these patients require only observation antenatally and even during labour. If there is mild Oligohydroamnios then careful monitoring during labour for fetal distress is required and if there is severe Oligohydroamnios, vaginal delivery can be fatal for the fetus as fetus is likely to develop fetal distress and therefore C section is advised.

KEYWORDS : oligohydroamnios, AA sign, loop of cord around neck, cord compression

INTRODUCTION**Functions of Amniotic Fluid:**

During Pregnancy, amniotic fluid allows normal musculoskeletal development of foetus without restriction or distortion by adjacent structures by acting like a cushion around the foetus. It maintains an even temperature providing a thermally stable environment, acts as a shock absorber, allows free movement of fetus and provides nutrition and growth factors to fetus. It also has antibacterial properties.(1)

Oligohydramnios is defined as AFI below the 5th percentile for the gestational age. (2)

Polyhydramnios is defined as AFI > 95th percentile for gestational age.

Thus amniotic fluid volume assessment is an important useful method to identify the foetus at risk and prevent adverse obstetric and perinatal outcome.

METHODS

This is a retrospective observational study conducted at Sir JJ group of hospitals and grant government medical college,

Mumbai, India, over January 2023 to May 2024. Participants (n=400) were patients with nine months of gestational age with their antenatal USG suggestive of loop of cord around neck with presence of oligohydroamnios (less than 5cm) without any placental, fetal or maternal factors.

Full term USG obstetrics Doppler and targeted amniotic fluid index with comment on presence or absence of loop of cord around neck was done for all patients on admission. Patients with any fetal, placental or maternal implications which could be the cause of oligohydroamnios were not included in the study.

During the process of labour, these patients were kept on constant fetal heart rate monitor and close monitoring was done to watch for any signs of fetal distress and fetal heart rate drops. Progression of labour was strictly monitored along with colour of liquor post rupture of membranes.

Post delivery presence or absence of loop of cord was noted.

Results

Table No.1: Mode Of Delivery

Total cases	Vaginal Delivery	Emergency LSCS
400	78	322

Table No.2: Fetal Outcome

Total cases	live Births	Stillbirths
400	392	8

**(PICTURES SHOWING POSITIVE AA SIGN DURING A C-SECTION)****Table No.3: Outcome Of Live Births**

Total cases	Baby with mother	NICU admissions	Neonatal deaths
392	302	90	5

Table No.4: Progression Of Labour

Total cases	Induction of labour	failure of induction	Trial not given	Spontaneous labour
400	46	242	80	32

Out of 400 cases that were studied, 322 babies were delivered by emergency LSCS and 78 by vaginal delivery, out of which 392 were live births and 8 were stillbirths.

The 8 stillbirths (macerated still births) were found to have atleast one loop of cord around neck upon delivery with minimal liquor.

Out of the 392 live births, 90 were NICU admissions out of which 5 were later declared as neonatal deaths. 302 babies were kept in PNC ward with their mothers.

As for mode of delivery, 80 patients were taken up for emergency LSCS without trial of labour for the following reasons :

Table no.5: Indications of LSCS without Trial of Labour

Indication for LSCS	Total number
Severe oligohydroamnios (AFI <3cm)	32
Non reassuring NST	40
Previous LSCS (>2)	8

288 patients were induced for labour with mechanico-pharmacological methods out of which 46 patients delivered vaginally and 242 patients were taken up for emergency LSCS post vaginal trial of labour in view of :

Table no.6: Indications of LSCS After Trial of Labour

Indication	Total number
Fetal distress	189
Non descent of fetal head	46
Failure of induction	7

Meconium stained liquor was associated with 324 deliveries out of 400.

DISCUSSION

A study was conducted by Guy Shrem in May 2016 to investigate whether isolated oligohydramnios at term is associated with increased rates of perinatal morbidity and mortality and whether induction of labor in term pregnancies with isolated oligohydramnios is superior to conservative management in reducing perinatal morbidity and mortality. Twelve studies were included with 35,999 women: 2,414 (6.7%) with isolated oligohydramnios and 33,585 (93.29%) with normal amniotic fluid index. Patients with isolated oligohydramnios had significantly higher rates of labor induction [odds ratio (OR) 7.56, confidence interval (CI) 4.58-12.48] and Cesarean sections (OR 2.07, CI 1.77-2.41). There were higher rates of an Apgar score <7 at 1 and 5 min (OR 1.53, CI 1.03-2.26, and OR 2.01, CI 1.3-3.09, respectively) and admission to the neonatal intensive care unit (OR 1.47, CI 1.17-1.84). There were no significant differences in cord pH <7.1 and meconium-stained amniotic fluid. In the single randomized trial comparing induction of labor with expectant management, no differences were found in any significant maternal or neonatal outcomes. Conclusion: Isolated oligohydramnios at term is associated with significantly higher rates of labor induction, Cesarean sections, and short-term neonatal morbidity. (3)

Oligohydroamnios in itself can lead to reduced APGAR scores at 1 and 5 minutes. When oligohydroamnios is associated with loop of cord around neck, the rate of distress increases significantly due to fetal hypoxia. It was observed that full term

patients with positive AA sign when taken up for LSCS had better APGAR scores at 1 and 5 minutes compared to the ones delivered vaginally, lesser symptoms and signs of distress, normal cord blood pH, lesser chances of NICU admission and overall better prognosis.



(PICTURES SHOWING STILLBIRTHS WITH MORE THAN ONE LOOP OF CORD AROUND NECK)

Oligohydramnios, i.e. low amniotic fluid volume, carries significant risks for mother and baby. Factors like post-term pregnancy, placental insufficiency, and fetal anomalies contribute, and may result in complications of meconium passage, fetal distress, low APGAR at 5 minutes and increased NICU admissions causing increased perinatal morbidity and mortality.(4)

Strict fetal monitoring is crucial, and early delivery may be necessary. Cord around neck ("Positive AA sign") requires swift intervention. Oligohydramnios often leads to increased maternal interventions, like inductions or cesarean deliveries.

The AA Sign proposes that when other potential explanations like placental issues, fetal malformations, or maternal health issues are absent, oligohydramnios might be linked to umbilical cord compression. This compression around the baby's neck can restrict blood flow and oxygen delivery, potentially leading to fetal distress. Prompt intervention is vital in such situations, often necessitating cesarean delivery to relieve the pressure on the baby.

The AA sign is a medical observation that suggests cord compression as the potential cause of oligohydramnios in certain situations. It essentially states that if oligohydramnios is present without any other identifiable cause, such as placental issues, fetal malformations, membrane rupture, or maternal health factors, and the umbilical cord is found wrapped around the baby's neck, then cord compression is the likely culprit.

The AA sign is crucial because cord compression can restrict blood flow to the baby, leading to fetal distress, generally indicated by passage of meconium. It may also lead to non descent of fetal head. Overstretching of cord may also cause tightening of loop around fetal neck leading to fetal asphyxia causing respiratory distress, hypoxic ischaemic encephalopathy, fresh still birth. Hence, full term scan indicative of oligohydroamnios with loop of cord around neck must be considered as a positive AA sign and considered for either a short trial of labour or a lower segment cesarean section to prevent increased risks of fetomaternal mortality and morbidity.

What is AA Sign ?

In absence of placental insufficiency and congenital renal malformations in the fetus, sudden Oligohydroamnios in the third trimester is caused by cord around neck.

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