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A PROSPECTIVE STUDY OF THE COURSE AND OUTCOME OF NUCHAL CORD IDENTIFIED AT 34 WEEKS OF GESTATION

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ABSTRACT: USS report at 34 weeks of gestation may mention presence of nuchal cord. This may cause anxiety and apprehension in the patient. After a detailed counseling, the scan is repeated at 39 weeks to identify those with persistent nuchal cord. These cases are clinically examined and those with deflexed mobile, unengaged head at term were given option of elective CS. All those who went into labor were closely monitored to detect any features of fetal distress. The mode of delivery and intrapartum and neonatal events were analyzed. It was found that up to 50% of nuchal cords were absent in later USS or at delivery. There was high incidence of fetal distress in those with persistent nuchal cord. An unengaged head at term usually indicated nuchal cord and need close monitoring.

KEYWORDS: MeSH terms- nuchal cord, fetal cord entanglement, ultrasound (USS), caesarean section (CS), pregnancy outcome

INTRODUCTION:

AIM: To study clinical outcome of nuchal cord (34weeks).

SETTINGS AND DESIGN: Antenatal women attending Unit 4 (Thursday OP) of Antenatal Outpatient department of Obstetrics and Gynecology, IMCH, Medical College, Kozhikode were initially studied.

STUDY PERIOD: January 2013-March 2014.

INCLUSION CRITERIA: uncomplicated pregnant ladies (with USS identified nuchal cord) were followed up from 34 weeks onwards till discharge from hospital in postpartum period.

EXCLUSION CRITERIA: complicated pregnancies like IUGR, previous CS, scarred uteri, breech presentation etc. were not included in study.

METHODOLOGY: Antenatal women attending out-patient clinic (Jan 2013-Dec 2013) were advised to undergo an ultrasound (USS) at 34 weeks to assess fetal wellbeing by biometry and biophysical profile. Only uncomplicated pregnancies were included in this study. As a part of this study, it was requested that presence or absence of nuchal cord was also reported (from the USS report). For standardization of cases, a repeat USS was done again at radiology department of Medical College, Kozhikode, and only those cases with nuchal cord again identified were followed up in this study. These women underwent another USS at 39 weeks to see percentage of cases in which cord continued to be nuchal. The number of turns around fetal neck was noted. These

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patients were admitted to ward at 39 weeks and the condition was explained to patient and husband. The patient was clinically examined and those with deflexed mobile head at 39 weeks + were given the option of elective caesarean after detailed discussion with the patient. At CS the apgar score and presence of nuchal cord was recorded. Those patients who opted for vaginal delivery even with mobile head at term were closely monitored with continuous cardiotocography and partogram in labor. Incidence of adverse incidents was noted; like decelerations, meconium stained liquor etc. Outcome of these labors, whether CS or normal delivery; or instrumental delivery; presence of nuchal cord; if so number of loops, apgar scoring; admission to neonatal ICU; perinatal mortality was noted. Same procedures were followed for those who went into labor with well flexed, fixed or engaged head.

MATERIALS AND METHODS: Uncomplicated pregnant women were advised to take an USS at 34 weeks with request of BPP and presence of nuchal cord. Those whose USS detected nuchal cord underwent repeat USS at Radiology Dept, IMCH to confirm nuchal cord. 3.5 MHz abdominal probe using gray scale was used. These ladies were admitted at 39 weeks and USS along with color doppler was done in sagittal and transverse diameter to confirm persistent nuchal cord.

All these patients were counseled regarding the nuchal cord.

The following points were noted and filled in the proforma-

Mode of delivery which depended on,

1- Whether head was mobile, deflexed or well flexed and well fixed/engaged.

2- Number of turns of nuchal cord at 39weeks+

3- Informed choice of patient.

- Adverse intrapartum indications of fetal distress.
- The presence or absence of nuchal cord at birth (CS /Vaginal).
- Whether liquor was meconium stained.
- Instrumental delivery if required.
- Apgar score of neonate/ admission to ICU.

ETHICS: This was a prospective observational study conducted at Department of Obstetrics and Gynecology, Government Medical College, Kozhikode in accordance with the department protocol. Management of cases was not altered for sake of study. This article is prepared in accordance with ethical standards of responsible committee on human experimentation.

RESULTS: 2043 pregnant women attended the OP department of 04 units during one year- Jan 2013 - Dec 2013.

Only uncomplicated cases were included- 673 patients were excluded as they were complicated by conditions as breech presentation, previous CS, placenta previa etc.

1396 Cases were deemed uncomplicated. All these women were advised to get an USS at 34 weeks with special mention of presence or absence of nuchal cord, if present, the number of turns were also noted.

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PRIMI	863	62.98 %
MULTI	533	37.02 %

TABLE I: GRAVIDITY OF PATIENTS IN STUDY

USS detected at 34 weeks 201 out of 1396 cases-14.40%.

Repeat USS done when patient came with report to OP (at Radiology Department of IMCH) showed persistent cord in 176 cases-12.61%.

USS with doppler at 39 weeks revealed that nuchal cord persisted in 89 of these cases. So incidence of nuchal cord was 6.42% (89 out of 1376 patients). This shows that at 39 weeks, in 49.43% cases, nuchal cord did not persist and cord remained around neck in only 50.57% of those reported to have nuchal cord of 34 weeks.

PRESENT	89	50.57%
ABSENT	87	49.43%

TABLE II: PERSISTENT NUCHAL CORD (OUT OF 176 CASES)

1. LOOP	53	59.55%
2. LOOPS	32	35.96%
3. OR >	4	4.49%
Total	89	100%

TABLE III: NUMBER OF LOOPS OF NUCHAL CORD

VAGINAL DELIVERY	55	61.80%
CS	34	38.20%
TOTAL	89	100%

TABLE IV: MODE OF DELIVERY

NORMAL	47	85.45%
INSTRUMENTAL	8	14.55%
TOTAL	55	100%

TABLE V: VAGINAL DELIVERY (OF 55 CASES)

VACUUM	6
FORCEPS	2

TABLE VI: INSTRUMENTAL VAGINAL DELIVERY-(OF 8 CASES)

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MATERNAL REQUEST	6	17.64
DEFLEXED UNENGAGED HEAD AT 40 WEEKS	6	17.64%
MSAF (meconium stained liquor)	6	17.64%
VARIABLE DECELERATION	3	8.82%
FAILED INDUCTION	3	8.82%
LATE DECELERATION	5	14.72%
ARREST OF DESCENT	3	8.82%
ARREST OF DILATATION	2	5.90%
TOTAL	34	100%

TABLE VII: INDICATIONS FOR CS

ELECTIVE	12	35.30%
EMERGENCY	22	64.70%
TOTAL	34	100%

TABLE VIII: TYPE OF CS

ADVERSE PERINATAL OUTCOME

APGAR SCORE < 8 @ 1'	13
ADMITTED IN ICU	18
STILLBIRTH	1
NEONATAL DEATH	2

PRESENT	72	80.90%
ABSENT	17	19.10%
Total	89	100%

TABLE IX: NUCHAL CORD AT BIRTH

Results can be summarized as;

1. Almost 50% of nuchal cord detected at 34 weeks disappears at repeat scan at 39 weeks.
2. Three and more loops identified at 39 weeks USS with Doppler tend to remain so as identified at birth.
3. Tight loops of nuchal cord prevent engagement of head.
4. Close monitoring of patients in labor with partogram and continuous cardiotocography will detect features of fetal distress which need appropriate management.
5. In this study, of those with persistent cord around neck, 80% of patients had nuchal cord at birth.

DISCUSSION: A nuchal cord occurs when the umbilical cord wraps around the fetal neck.⁽¹⁾ Prevalence rates vary from 5-30%. Up to 50% resolve prior to onset of delivery.⁽²⁾ USS was used

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to diagnose nuchal cord in 1982.⁽³⁾ Occasionally, cord can compress and produce fetal hypoxia. Peregrine⁽⁴⁾ concluded that USS diagnosis of nuchal cord is only useful if it can be confirmed and predicted if it can cause fetal jeopardy. A recent review by Wilson of American Academy of Ultrasonography Technicians recommends documentation of umbilical cord issues.⁽⁵⁾ Clapp⁽⁶⁾ attempted to find out course and outcome of nuchal cords. He found that presence of nuchal cord increases linearly with gestational age. Persistent cords identified by Doppler may continue to persist in labor and need to be tackled to permit delivery of baby.

CONCLUSION: The report of nuchal cord causes apprehension in the patient. Patients need to be counseled and repeat USS with Doppler at term will identify persistence of nuchal cord. Many cases do not have cord around neck in later USS. Cords more than 3 or more loops tend to be persistent in this study. Patients are assessed at 40 weeks and those with high mobile, deflexed, unengaged heads are given option of elective CS, after a detailed informed consent. Those patients with well flexed, fixed or engaged head can be permitted to have vaginal delivery. All these women require intense observation in the labor room with close monitoring and partogram. Any features of fetal distress needs appropriate management either by CS or instrumental delivery.

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