MODE OF DELIVERY IN LOOP OF CORD AROUND THE FETAL NECK

Rehana Ambreen Hadi, Noor ul Hadi, Bushra Khan, Iqbal Anwar

ABSTRACT

Objectives: To assess the factors affecting the safe mode of delivery in cases with cord of loop around fetal neck.

Material and Methods: 124 cases of loop of cord around the fetal neck were followed over a period of fifteen months using 1,700 aloka ultrasound machine.

Results: These patients included 63.69% multigravidas, with 85.50% being in 38-40 weeks period of gestation. 63.70% had a single loop of cord. 91 (73.40%) patients had a vaginal delivery. 33 (26.60%) patients had cesarean section.

Conclusion: Loop of cord around the fetal neck does not influence clinical management at delivery and neonatal primary adaptation is not impaired.

Key Words: Loop of Cord, Perinatal Outcome, Doppler Ultrasound.

INTRODUCTION

In 1962, Selwyn Crawford defined nuchal cord as 360 degrees around fetal neck. Type a is wrapped arround fetal neck upto 360 degrees. Type b pattern is described as a hitch which cannot be undone and ends up as a true knot . These occurs in 1% pregnancies[3].

The impact of nuchal cord on the fetus is unknown. Ultrasound diagnosis of a cord arround neck was first described in 1982[5]. These coils occur in about 25% cases, ordinarily do not cause harm but occasionaly may be so tight that constriction of umbilical vessels and consequent hypoxia may occur[3,4] retrospective data of over 182,000 births, with statistical power, to determine even mild association, suggests that a single or multiple loops of nuchal cord at time of delivery is not associated with adverse perinatal outcomes[9,10,11] and is asociated with higher birth weight and fewer cesarean section at birth. Although some studies have found that a tight nuchal cord is associated with short term morbidity, it is unclear whether such outcomes are a result of presence of nuchal cord itself or a result of cutting or clamping cord[12].

METHODS AND MATERIAL

This is an observational(analytical) study where 124 diagnosed cases loop of cord were colloected over a period of 15 months (February 2010 – July 2011). The factors modifying or affecting the safe mode of delivery in these cases were analysed. The cases were collected from the obstetrics unit of Kuwait Teaching Hospital. The parity, period of gestation, weight of the baby, number of loops around the fetal neck and associated obstetric factors affecting the mode of delivery were analysed. The radiology department of the hospital was involved to help us confirm the presence/absence of the loop of cord around the fetal neck. Aloka 1700 ultrasound machine with 3.5mhz abdominal probe using gray scale and colour doppler imaging was employed. Presence of cord was sought in transverse and sagital plane of neck. A nuchal cord was diagnosed if the cord was visualized lying around atleast 3 of the 4 sides of neck. It was not possible to detect if the loop was tight or loose. Nuchal cord can be detected using colour dopler ultrasound with a sensitivity and specificity of about 90%[11]. The patients had an ultrasound at first antenatal visit and was repeated in the last trimester and prelabour if loop of cord around the neck was detected.

RESULTS

Total number of patients was 129. Of these 91(73.4%) had a vaginal delivery while 33(26.6%) underwent a cesarean section and 5 were excluded from the statistics as they had no loop of cord at delivery. Of these patients 45(36.31%) were primigravidas while 79(63.69%) were multigravidas. 106(85.50%) had a period of gestation 38-40 weeks. Majority patients i.e 79(63.7%) had a single loop of cord. Of this group 59 patients had a vaginal delivery and 20 cesarean section. 35 patients had 2 loop of cords around the neck. Of these 25 patients had a vaginal delivery and 10 ended in a cesarean section. 10(8.00%) had three loops of cord around the neck. Of these 7 patients had a vaginal delivery while 3 had a cesarean section. Of these babies 82(66.1%) were in 2.6-3.0kg weight group. 5 patients had a non reassuring fetal heart rate patern and 5 patients with meconium staining of liquor underwent cesarean section. In our study fetal distress is 8.06% while in another study[14] it is 10%. 3 patients with prolonged

Kuwait Teaching Hospital, Peshawar - Pakistan

Address for correspondence
Dr. Rehana Ambreen Hadi
Professor
Gynae Unit
Kuwait Teaching Hospital, Peshawar - Pakistan
Contact: 0301-8954147
Email: rehanambreen@gmail.com

Table 1: Status of Parity

Parity	Vaginal delivery	Caesarean section	Total
P1	28(31%)	17(51%)	45(36%)
P2-P3	28(31%)	9(27%)	37(30%)
P4-P6	22(24%)	6(18%)	28(23%)
P7-P8	10(11%)	1(3%)	11(9%)
P9-P12	3(3%)	0	3(2%)
Total	91	33	124

Chi Square test was applied in which P value was 0.187

Table 2: Period of Gestation

POG	Vaginal delivery	Caesarean section	Total
36-37 weeks	3(3%)	2(6%)	5(4%)
38-40 weeks	82(90%)	24(73%)	106(85%)
41-42 weeks	6(7%)	7(21%)	13(11%)
Total	91	33	124

Chi Square test was applied in which P value was 0.000

Table 3: Frequency of Loops

Loops	Vaginal delivery	Caesarean section	Total
1	59(65%)	20(61%)	79(64%)
2	25(27%)	10(30%)	35(28%)
3	7(8%)	3(9%)	10(8%)
Total	91	33	124

Chi Square test was applied in which P value was 0.907

Table 4: Weight of the baby

Loops	Vaginal delivery	Caesarean section	Total
2.1-2.5 Kg	28(31%)	4(12%)	32(26%)
2.6-3.0 Kg	58(64%)	24(73%)	82(66%)
3.1-4.0 Kg	5(5%)	5(15%)	10(8%)
Total	91	33	124

Chi Square test was applied in which P value was 0.907

Table 5: Compications and risk factors

Complications during labour	No of patients	Undergoing c/section
Fetal distress	10	—
Prolonged labour	3	—
Face presentation	2	—
Breech presentation	2	—
Precious pregnancy	1	—
Bad obstetrical history	1	—
Previous (1) c/section	1	—
Oligohydramnios	2	—
Failed induction	1	—
Patient choice	10	Elective c/sections 10

labour had cesarean section. 2 patients with loop of cord around the fetal neck came with face presentation also had cesarean section. 10 patients opted for an elective cesarean section mostly primigravida reluctant to take any risk. In our study 74% had a vaginal delivery while 26% patients had a cesarean section while in another study[14] vaginal delivery was 75% and cesarean section rate was 24%. In cases of vaginal delivery 5 patients had a vaccuum assisted delivery, 7 babies had low apgar score and were shifted to nursery. No significant acute or long term morbidity occured. No fetal mortality occured in this group irrespective of mode of delivery.

DISCUSSION

In our study 13 cases had additional risk factors in addition to loop of cord around the neck that required cesarean delivery. 10 patients opted for elective cesarean delivery, as they were not prepared to take any risk, once they knew the ultrasound report. Jauniaux et al found a doubling in rate of ceserean deliveries in multiple nuchal cords from 5.3% to 12.5%. Association of fetal weight, and umbilical cords has been reported variably[2,6,7]. In contrast to our data another data reveal fetal weight decrease associated with post- term pregnancies and multiple loops especialy in tight or multiple loops at delivery[1,4,8], resulting in atleast subclinical deficit in nuerodevelopmental performance at 1 year of age[16-18]. While another study[1,13] reveals its associated with higher birth weight. Nuchal cords at term can be identified ultrasonographically with high sensitivity and specificity especially using color flow doppler imaging[2,9,10]. Clapp found that the incidence has been shown to rise linearly with advancing gestation[6,7] larson found this to be true[10]. Our data also depicts the same trend.

CONCLUSION

There is no significant difference in its incidence among primipara and multi para. The incidence increases with increasing gestation being highest among 38 to 40 weeks period of gestation and weight group 3.1 -4kg. Incidence of single loop was highest in our data[1,3]. Meconium staining was increased only in multiple loop of cord in post term deliveries[1], yet data comparison in large studies show no statistical significance. Mode of delivery was unchanged in all nuchal cord groups[5]. Nuchal cords do not influence clinical managment at delivery and neonatal primary adaptation is not impaired[9]. Our data show that ultrasonographic nuchal cord assesment is not necessary at the time of admission or delivery[5]. The cesarean delivery rate was significantly different among three groups (infants with 0, 1, 2 or more loops) and was highest among the group of women whose fetus had no nuchal cords[4]. Nuchal cord is not associated with any adverse perinatal outcome[9]. Thus labour induction in such cases is probably unnecessar[3]. Pergerine[11], concludes that ultrasound diagnosis of nuchal cords will only be useful if doctors are able to do so reliably and can predict which of those fetuses are likely to have problem[5].

REFERENCES

1. Schaffer I,Burkhardt , Zimmarman R, nuchal cord in term and post term deliveries-do we need to know? 2005.
2. Miser WFC 1992. Outcome of infants born with nuchal cord. Journal of family practice 34(4).
3. Rhoades DA latza U, Mueller BA, risk factors and outcome associated with nuchal cord: a population based study. J reprod med 1999.
4. Sornes T, umbilical cord encirclement s and fetal growth restiction. Obst gynecol 1995: 86: 725-8.
5. Qin. Y, Wang CC, Lau TK, Rogers .MS. Colour ultrasonography, a useful technique in the identification of nuchal cord during labour. Ultrasound obst gynecol 2000: 15: 413-7.
6. Clapp JF 3rd, stephanchak W, Hashimoto K, Lopez B, the natural history of ante-natal nuchal cords. am j obstet gynecol 2003: 189: 488: 93.
7. Clapp JF 3rrd, Lopez, B, Simorean S. Nuchal cord and neurodevelopmental performance at 1 year. J SOC gynecol investig 1999: 6: 268:72.
8. Mastrobattista JM et al. Effects of nuchal cord on birth weight and immediate neonatal outcomes. Am j perinatal 2005: 22(2) 83-5.
9. Nuchal cord is not associated with adverse perinatal outcome. Arch gynecol obstet. 2006 may 274(2) 81-3.
10. Larson JD, Rayburn WF, Harlan VL, nuchal cord entanglement and gestational age. Am j perinatal 1997.
11. Pergrine E, O Brien , P Jauniaux E. (2005) ultrasound detection of cord prior to induction and risk of ceserean section.
12. Begum AA, Sultana H, Hassan R, Ahmed M. Conditions behind fetal distress JAFMC Bangladesh 2011 7(1): 25-7.
13. Farrukh Bashir, Zilli-e-Huma, Pakeeza Aslam. Cord around the neck and its Fetal outcomes. PJMH Jan-Mar 2013.
14. Meenakshi Kashyap MS. Pragati Meena . Feto-maternal outcome in primigravida having single loop of cord around the neck. Vol1 No6, 4-14 Nov 2013 ISSN: 2336-0046.