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UMBILICAL CORD PROLAPSE IN KADUNA, NORTHERN NIGERIA: A STUDY OF INCIDENCE

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ABSTRACT

Context: Prolapse of the umbilical cord is a live threatening obstetric emergency for the fetus-infant.

Objective: To determine, the incidence of cord prolapse in the hospital.

Methods and Materials: A-12 ½ year retrospective study of all women who presented with cord prolapse in labour at a university teaching hospital.

Results: During the period there were 16633 deliveries and 34 women presented with cord prolapse, giving an incidence of 2.0 per 1000 (1 in 504 deliveries). Highest incidence occurred in women of 35 years and above (5.0 per 1000); in the 25-29 years group 2.3 per 1000 and in those less than 20 years old 1.3 per 1000. The highest incidence of cord prolapse was in the para 5 and over, 2.4 per 1000; para 0, 2.0 per 1000 and paras 1, 4, 1.9 per 1000. The incidence of cord prolapse in the unregistered women was 5.2 per 1000, and in the registered 1.5 per 1000. The highest incidence was in the Hausa/ Fulani ethnic group 3.4 per 1000; the Yoruba ethnic group, 2.1 per 1000; the Northern minority ethnic group, 2.0 per 1000; the Ibo ethnic group, 1.0 per 1000. No case of cord prolapse was recorded among women of Southern minority ethnic group. The incidence of cord prolapse among preterm births was, 62.7 per 1000, breech, 32.5 per 1000; shoulder, 133.3 per 1000, twin births, 16.8 per 1000 and cesarean births, 11.4 per 1000.

Conclusion: Cord prolapse is an uncommon obstetric complication, the incidence of which is determined by the influence of various factors acting individually or in synergy.

Key Words: Cord Prolapse, Incidence, Kaduna, Nigeria.

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INTRODUCTION

Prolapse of the umbilical cord is a rare obstetric complication with reported incidence varying between 1 in 162 to 1 in 714 births.^{1,2} It is said to occur when the fetal membranes rupture, and at physical examination the umbilical cord is found to be situated in advance of the presenting part of the fetus. It can result in feto-infant mortality or morbidity and increases maternal risk.

An important instrument for improving quality of obstetric care is clinical information gathering and management that will enable service auditing. This is known to be expensive. This has continued to pose significant problems, most especially for developing countries especially, where institutional data are often used as national figures for many obstetric events. There is the hope however, that one day, all these different institutions with all their diversity will harmonise their method of data gathering and eventually form the nuclei for wider national surveys.

It is these authors' belief that meaningful progress in maternity care can only be made when accurate data is available. Much has not been achieved in the fight to reduce maternity mortality for example, in Nigeria because the operators of the various programs that seek to address it, do not even know the extent of the problem.

The objective of this study therefore, is not only to determine the incidence of cord prolapse in the hospital, but also to bring the attention of those that care, about the urgent need for a National Maternity Audit Group that will begin to address the issue of record keeping and auditing in maternity care in Nigeria.

MATERIALS AND METHODS

This is a retrospective study of 34 women who presented with cord prolapse in labor at Ahmadu Bello University Teaching Hospital (ABUTHK), from January 1st 1990 to June 30th, 2002. ABUTHK is a tertiary institution situated in Kaduna former capital of Northern, Nigeria but now capital of Kaduna State. Using Case Record Forms, the following variables

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were extracted for each woman from the respective case notes: year of delivery, age, parity, ethnic group, booking status, duration of pregnancy, fetal presentation and mode of delivery. For the purposes of this study, pregnancy is said to be term when it has completed 37 weeks in duration. Furthermore, a woman is said to be booked for antenatal care, if she had attended the ABUTHK antenatal clinic at least once before admission to the labour suite.

The Southern and Northern minority ethnic groups here mean a grouping for the numerous ethnic groups in both North and South of Nigeria that are neither Ibo, Yoruba nor Hausa/Fulani. The diagnosis of umbilical cord was accepted if the umbilical cord was palpated below the presenting part on physical examination with membranes already ruptured. Statistical analysis was done using The- EPI. INFO 6 Version-July 1996 Software (C.D.C., USA; WHO Geneva, Switzerland). A probability value of < 0.05 was taken as significant.

RESULTS

During the period there were 16633 deliveries. Two thousand eight hundred and seven (287) were preterm, 493 breech, 4 shoulder, 476 twins and 1228 cesarean deliveries, Thirty four (34) women presented with cord prolapse, giving an incidence of 2.0 per 1000 (1 in 504 deliveries). The average of the women was 29.4 years with standard deviation of 6.04 and a range of 18-40 years; their mean parity was 3 with a standard deviation of 3, 07 and a range of 0- 11.

Highest incidence occurred in women of 35 years and above (5.0 per 1000); in the 25-29 years group 2.3 per 1000 and in those less than 20 years old 1.3 per 1000. The highest incidence of cord prolapse was in the para 5 and over, 2.4 per 1000; para 0, 2.0 per 1000 and paras 1-4, 1.9 per 1000. (Table I)

Table I: Incidence of Cord Prolapse by Age Group and Parity of Mothers

Age Group	No. of Deliveries	No. of Cases of Cord Prolapse	Incidence /1000	Proportion (%)
<20	1515	2	1.3	0.13
20 – 24	3648	5	1.4	0.14
25 – 29	5740	13	2.3	0.23
30 – 34	3915	5	1.3	0.13
>=35	1815	9	5.0	0.50*
**Parity				
0	3984	8	2.0	0.20
1 – 4	8956	17	1.9	0.19
>=5	3693	9	2.4	0.24
TOTAL	16633	34	2.0	0.20

* $X^2 = 10.02$, P value = 0.040019 ; ** $X^2 = 3.04$, P

Table 2: Incidence of Cord Prolapse by Booking Status

Booking Status	No. of Deliveries	No. of Cases of Cord Prolapse	Incidence /1000	Proportion (%)
Yes	14324	22	1.5	0.15
No	2309	12	5.2	0.52*
TOTAL	16633	34	2.0	0.20

* $X^2 = 10.2$, P value = 0.0014045.

Table 3: Incidence of Cord Prolapse by Ethnic Group

Ethnic Group	No. of Deliveries	No. of Cases of Cord Prolapse	Incidence /1000	Proportion (%)
Hausa	3811	13	3.4	0.34
Ibo	2046	2	1.0	0.10
Northern Minority	5521	11	2.0	0.20
Yoruba	3802	8	2.1	0.21
Southern minority *	1453	0	0.0	0.00
TOTAL	16633	34	2.0	0.20

$X^2 = 3.98$, P value = 0.263501. * Not included in this analysis.

The incidence of cord prolapse in the unregistered women was 5.2 per 1000, and in the registered, 1.5 per 1000. (Table 2)

The highest incidence was in the Hausa/ Fulani ethnic group, 3.4 per 1000; the Yoruba ethnic group, 2.1 per 1000 ; the Northern minority ethnic group 2.0 per 1000; the Ibo ethnic group, 1.0 per 1000. No case of cord prolapse was recorded among women of Southern minority ethnic group. (Table 3)

The incidence of cord prolapse (18) among preterm births was, 62.7 per 1000; Breech (16), 32.5 per 1000; Transverse lie (4), 133.3 per thousand; twin births (8).16.8 per 1000 and cesarean births(14), 11.4 per 1000.

DISCUSSION

The incidence of cord prolapse is lower than was reported from Ile Ife³ But within the range of figures reported from other parts of the world.^{4,5,6,7} The high incidence of cord prolapse recorded in the first two years of the study, could be explained by the high number of unregistered women attending the unit at that time and other yet to be determined reasons. However fore the rest of the study period, the yearly incidence remained stable as was the finding of Yeap et al⁸ and Dufour et al.⁹

The greatest contribution was in the age group 25-29 years. That is not surprising though since

that appears to be the group with highest reproductive activity, so cases are bound to be more in this group. The higher incidence in women of 35 years and above is in agreement with findings from other studies.^{10,11} The older woman has been associated with poor reproductive performance since of old^{12,13} and cord prolapse may just be one the hazards of being old.

Cord prolapse has been reported to occur more in the multiparae¹⁴⁻¹⁶ but in this study rather, the extremes of parity not only contributed the largest number of cases but also the highest incidence of cord prolapse. Some of the reasons adduced for the high incidence of cord prolapse among multiparae include, increased incidence of malpresentations and malpositions, polyhydramnios, pregnancies complicated by multiple fetuses and preterm births. It is important to also remember the importance of none engagement of the presenting part until late in the birth process in the multipara. Furthermore, the length of the umbilical cord, a known factor for prolapse has been reported to be longer also in the multipara thereby enhancing occurrence of cord prolapse.^{17,18}

The unbooked woman is often a high risk individual for many obstetric complications according to Ekwempu.¹⁹ The educational and screening opportunities offered by Prenatal care are not received by the unbooked woman. The high risk nature of the unbooked woman is manifest in this study, where the difference of about three times exists in favor of the booked. This finding is similar to the findings of Dare et al³ and, Twizer et al.²⁰

In this study, women of the old Northern Nigeria and more especially the Hausa /Fulani ethnic group had a greater incidence than those of the old South. Ethnic disparities in the incidence of cord prolapse exist between different ethnic groups. According to Savage et al¹⁰ cord prolapse is more common among the Negroes than in whites and also Kahana et al¹¹ found a difference of incidence between the Bedouins Arabs and the ethnic Israelis of southern Israel

This ethnic disparity in the incidence of cord prolapse in Nigeria cannot be explained only on the basis of biological differences but very likely also differences in socio-economic status and obstetric practices, which complete the cycle for either good or poor obstetric performance.

Note worthy also is the fact that no woman from the so-called South- South geopolitical region presented with cord prolapse. It is not unlikely that though the indigenous South- south women may be indeed poorest as a result of utter neglect from the government until very recently, these women now

resident in Kaduna, may have achieved a greater level of socio-economic prosperity and imbibed informed obstetric practices than the women of the other ethnic groups. Perhaps a larger ethnic survey of this condition will elucidate the ethnic vagaries of this rare obstetric complication.

Cord prolapse is an uncommon obstetric complication, the incidence of which appears to be determined by the influence of various factors acting individually or in synergy with each other.

REFERENCE

1. **Ritchie JWK.** Malpositions of the Occiput and Malpresentations. In: Whitfield C.W. editor. Dewhurst's Textbook of Obstetrics and Gynaecology for Postgraduates. 4th ed. Blackwell Sci. Pub 1986; 27: 405-407.
2. **Murphy DJ, MacKenzie IZ.** The mortality and morbidity associated with umbilical cord prolapse. Br J Obstet Gynaecol. 1995; 102:826-830.
3. **Dare FO, Owolabi AT, Fasubaa OB, Ezechi OC.** Umbilical cord prolapse: a clinical study of 69 cases seen at Obafemi Awolowo University Teaching Hospital Ile-Ife. East Afr Med J. 1998;75(5): 308-10.
4. **Koonings PP, Paul RH, Campbell K.** Umbilical cord prolapse. J Reprod Med. 1990; 35: 690-692.
5. **Faiza SA, Habib FA, Sporrang BG, Khalil NA.** Results of delivery in umbilical cord prolapse. Saudi Med J. 2003; 24(7):754-757.
6. **Yla-Outinen A, Heinonen PK, Tuimala R.** Predisposing and risk factors of umbilical cord prolapse. Acta Obstet Gynecol Scand. 1985; 64(7): 567-570.
7. **Tan WA, Tan LK, Tan HK, Tan AS.** Audit of 'crash' emergency caesarean sections due to cord prolapse in terms of response time and perinatal outcome. Ann Acad Med Singapore. 2003; 32(5): 638-641.
8. **Yeap ML, Kenneth K, Tee CS, Yeo GHS.** Umbilical cord prolapse and Emergency Caesarean Section- A Review of 25 cases. The Internet Journal of Gynecology and Obstetrics. 2001; (1): 1.
9. **Dufour P, Vinatier D, Bennani S, Tordjeman N, Fondras C, Monnier JC et al.** Cord prolapse. Review of the literature. A series of 50

- Cases. *J Gynaecology Obstet Biol Reprod (Paris)* 1996; 25(8): 841-845.
10. **Savage EE, Khol S G, Wynn RH.** Prolapse of the umbilical cord. *Obstet Gynecol.* 1970; 36(4):502-509.
 11. **Kahana B, Sheiner E, Levy A, Lazer S, Mazor M.** Umbilical cord prolapse and perinatal outcomes. *Int J Gynecol Obstet.* 2004; 84(2):127-132.
 12. **Feeney JK.** Greene AT. The problems of high parity. *Brit J. Hosp. Med.* 1970; 4(9): 351-358.
 13. **Levy H, Meier PR, Makowski EL.** Umbilical cord prolapse. *Obstet Gynecol.* 1984; 64:499-502.
 14. **Critchlow CW, Lee TL, Benedetti TI, Daling IR.** Risk factors and infant outcomes associated with umbilical cord prolapse, a population based case-control study among births in Washington State. *Am J Obstet Gynecol.* 1994; 170: 613-618.
 15. **Walreven G, van Roosmalen J.** Umbilical Cord Prolapse in Rural Africa. *Lancet.* 1996, 16; 347(9003): 773.
 16. **Uyqur D, Kis S, Tuncer Ozcan FS, Erkava S.** Risk factors and infant outcomes associated with umbilical cord prolapse. *Int J Obstet Gynecol* 2002; 78(2): 127- 130.
 17. **Dilbaz B, Ozturkoglu E, Dilbaz S, Ozturk N, Sivaslioglu AA, Haberal A.** Risk factors and perinatal outcomes associated with umbilical cord prolapse. *Arch Gynecol Obstet.* 2006 May; 274(2):104-107.
 18. **Rayburn WF, Antoinette B, Brinkman DL.** Umbilical Cord length and Intrapartum Complications. *Obstet Gynecol.* 1981; 57:450-452.
 19. **Ekwempu CC.** The influence of antenatal care on pregnancy outcome. *Trop J Obstet Gynaecol* 1988; 1(1): 67-71.
 20. **Twizer I, Sheirer E, Hallak M, Mazor M, Katz M, Shoham Z, Vardi I.** Lack of prenatal care in a traditional society. Is it an obstetric hazard? *J Reprod Med.* 2004; 46: 662-668.