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RESEARCH ARTICLE

PROGNOSIS OF DELIVERY FROM BELOW WITH UMBILICAL CORD CIRCULAR: 456 CASE REPORTS AT THE GYNECOLOGY AND OBSTETRICS DEPARTMENT OF THE TEACHING HOSPITAL OF COCODY

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ABSTRACT

Objective: The objective of our study was to analyze fetal prognosis during delivery from below in the presence of a cord circular in a country with bad medical care. **Methodology:** This was a cross-sectional study with descriptive and analytical aims relating to delivery from below with an umbilical cord circular. The study covered a period of 3 years from January 2016 to December 2018 and took place at the Teaching Hospital of Cocody. **Results:** the frequency of deliveries from below with a circular cord was 3.3%. The average age of the population was 28 with extremes of 17 and 42 patients were evacuated in 69.3% of the cases and, the presence of the cord circular was specified in 41.7% of the cases. Our patients were nulliparous in 39.9% of the cases. Among them, 63.8% had performed at least 4 ANCs. In 57.7% of cases (263/456), an emergency caesarean section had been decided before delivery. At birth, the umbilical cords were short (<50cm) in 2.6% of the cases, normal (50 to 70 cm) in 94.8% of the cases and long (> 90cm) in 2.6% of the cases. 19 neonatal deaths were observed (4.2% of cases). Neither fetal weight nor hours of labor were found as determinants of stillbirth in this association. **Conclusion:** Delivery from below is possible when the umbilical cord circular is unique, as long as there is rigorous monitoring of the labor of delivery and that emergency caesareans section once decided, are performed within a reasonable time.

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INTRODUCTION

The umbilical cord carries vessels, connects the fetal side of the placenta to the umbilicus of the fetus. The compression of the cord considered as a funicular accident by its 360 ° winding around the neck leads to a more or less brutal alteration of the foeto-placental circulation leading during pregnancy and more particularly during labor to anoxia or even fetal death (Konan, 2012 ; Misbah *et al.,* 2018). With the rise of doppler coupled with ultrasound and electrocardiography data, the circular cord is very often diagnosed during the antenatal period or during parturition (Robert *et al.,* 2003; Fournié *et al.,* 2001). The choice of route of delivery is the subject of controversy in countries with bad medical care. Through this study, the aim was to analyse the fetal prognosis for deliveries from below with circular of cord in a service of tertiary level such as the service of gynecology-obstetrics of the Teaching Hospital of Cocody and identify factors associated with stillbirth.

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PATIENTS AND METHODS

It was a retrospective cross-sectional study with descriptive and analytical aims which extended from January 2016 to December 2018, i.e. a period of three years (36 months). The cases were defined by all patients with a gestational age greater than or equal to 28 weeks and whose newborns presented with an umbilical cord circular and gave birth at the maternity ward Cocody's Teaching Hospital during the study period. Not all patients who gave birth to a stillborn or malformed fetus were retained. Based on these criteria 456 cases of umbilical cord circular were selected. The sampling method used was non-probability. The statistical tests used to study the statistical links between the different variants were, the X^2 test. Odds ratios were calculated and their 95% confidence intervals to determine the association forces between the variables.

Data monitoring and analysis was carried out using CSPRO 7.1 and statistics 20 software. The variables studied were age, parity, prenatal follow-up, gestational age, reason for admission and fetal prognosis.

RESULTS

Frequencies: At the end of our study we recorded 2448 cases of funicular pathologies for 22.128 deliveries including 13951 by vaginal route, that is to say an overall frequency of 11.06% with a clear predominance of umbilical cord circular cases or 2376 cases. The umbilical cord circulars represented a frequency of 97.06% of funicular pathologies and a frequency of occurrence of 10.74% related to the number of deliveries. During the three years of study, our selection criteria made it possible to recruit 456 cases of cord circular for 13,951 deliveries from below, a frequency of 3.3%.

Epidemiological characteristics: The age group 20 to 30 is the most frequent with more than 37% of the total population. The average age of the population is 28. Patients were evacuated in 69.3% of the cases, and 41.7% of the cases indicated the presence of the cord circular. Our patients were nulliparous in 39.9% of cases, primiparous in 26.3%, pauciparous in 23.9% and multiparous in 9.4% of cases. Among them, 63.8% had performed at least 4 ANCs.

Clinical data: In 57.7% of cases (263/456), an emergency caesarean section was decided before delivery. At birth, the umbilical cords were short (<50cm) in 2.6% of the cases, normal (50 to 70 cm) in 94.8% of the cases and long (> 90cm) in 2.6% of the cases. 19 neonatal deaths (4.2%) were noted, the Apgar score at the 5th minute is exposed in the Table 1. Analysis of stillbirth factors The supposed factors that may impact stillbirths are listed in Tables 2 and 3.

DISCUSSION

Frequency: Umbilical cord circulars would be favoured by many factors: length of the cord, high maternal age, multiparity, male fetuses, hydramnios and chronic hypertension (Konan, 2012; Misbah *et al.,* 2018; Fournié, 2001). In our study, the frequency of cord circulars, reported to all funicular pathologies is 97.06%. delivery from below was marked in 3.3% of cases by the presence of umbilical cord circulars. Several African authors found similar proportions (Djanhan, 2006; Adjoby , 2014; Diallo, 2016). In Europe, however, Shui and Spellacy also found a predominance of the occurrence of the umbilical cord circular in comparison with all funicular pathologies varying between 30% and 70% (8,9). Misbah in India, found 17.7% and Sheiner 14.7% on a series of 166,318 births (Djanhan, 2016; Clapp, 1992). The frequencies are very variable according to the recruitment method, in fact Clap found 6 to 29% in his study (Meda, 1992).

Epidemiological parameters

In our study the average age of our patients was 28 years with extremes ranging from 17 years to 42 years. The age group between 20 and 30 was predominant. It is the preferred age range of genital activity and procreation in Africa in relation to socio-cultural factors, intellectual level and ignorance of contraceptive techniques.

Figure 1. Multiples circular of the umbilical cord with fetal death in utero [Konan, 2012]

Table 1. Distribution of patients by Apgar Score at 5th Minute

Apgar at the 5th minute	frequency	Percentage
0	12	2,6
1-3	214	46,9
4-6	144	31,6
7-10	86	18,9
Total	456	100

Table 2. Relationship between birth weight and stillbirth

stillbirth / Voie d'accouchement	Yes	No	Total
Small weight (<2500g)	3	33	36
Normal weight ([2500g - 4000g])	13	351	364
Macrosomia (≥ 4000g)	2	54	56
Total	19	437	456

X^2 = 1.98 and X^2threshold (ddl=3, a=0.05) =5.99 p = 0.37 No significant relationship

Table 3. Relationship between labor time and stillbirth

Stillbirth / Labor time	Yes	No	Total
< 6 H	6	225	36
6-12 H	8	129	364
>12 H	5	83	56
Total	19	437	456

X^2= 2.52 and X^2 threshold (ddl=3, a=0.05) =5.99 p = 0.28 No significantrelationship

Clinical data: In our study, in 69.3% of cases, the patients were evacuated. Cocody's Teaching Hospital is a reference centre for obstetric complications. The presence of the umbilical cord circular is a high risk factor for fetal prognosis. Its mere presence is a reason for reference to a higher level (Jauniaux, 1992). In our study, the reason for admission was dominated by the cord circular on ultrasound, in 41.7% of cases. Even so, it must be possible to make the diagnosis in antenatal consultations thanks to the ultrasound coupled with the döppler (Mendez-Bauer, 1987). In the literature, the length of the umbilical cord is the essential promoting factor in the occurrence of the umbilical cord circular. The frequency of circulars doubles when switching from normal length cords (50 cm) to long cords (greater than 70 cm) (Spellacy, 1966; Sheiner, 2006).

Obstetric care: In our study 263 women who gave birth, or 57.7%, had an indication for cesarean before giving birth. Indeed, the association of a cord circular with another factor of co-morbidity was enough to justify a cesarean (Adjoby *et al.,* 2014). However, it is dangerous to feed maternal fears by emphasizing this situation, according to Robert (Robert, 2003). According to authors such as Mendez-Bauer, there are non-invasive tests (vibroaccoustic stimulation) which make it possible to suspect the cord circular and thus reduce morbidity and perinatal mortality during labor (Guikovaty, 1978). The trend was to avoid severe brain suffering from neck strain in the fetus or even fetal death. Attending an intrapartum death during the release of the fetus in the event of a umbilical cord circular is a traumatic experience for an obstetrician. Djanhan (Djanhan, 2006) in his study advocated increased surveillance during labor and an indication for an emergency cesarean in the face of any unexplained acute fetal distress. Note that in a bad medical care context where labor surveillance cannot be done by continuous monitoring, it is difficult to exercise effective surveillance of childbirth labor. Elsewhere in Europe, according to Guikovaty and Dellenbach, the decision on the mode of delivery can only be made on the basis of the analysis of cardiotocogram abnormalities joined to the PH measurement data using the fetal scalp. This makes it possible to intervene before an acidosis by anoxia could have caused irreversible fetal suffering (Clapp, 2003; Deros-Degras , 2015).

Fetal prognosis: 19 cases of death were recorded for 456 cases of births, or 4.2%. The neonatal mortality rate would be high in the event of a cord circular. In Europe, Deros-Degras incriminated the tight circular cord in 4.8% of cases of fetal death in utero (Loué, 2015). The reasons for this high mortality in our study would be related to delayed diagnosis and surgical management with an average delay of 2H15mn, as highlighted by Loue and al in the same hospital (Loué, 2015). Most authors found that cord abnormalities were a potential factor, associated with stillbirth in both developed and African countries (Diallo 2016; Konan 2012; Meda,1992). However Sheiner in a larger series, presented contrary results with an increased absence of perinatal morbidity (Scheiner, 2006). The other factors incriminated in the neonatal mortality linked to the presence of the circular cord which were not found in our series are: The number of coils, the fetal weight and the duration of labor. The long-term fetal prognosis was not evaluated in our study, which could be marked by neurological sequelae.

Conclusion

The presence of an umbilical cord circular alone could not constitute a reason for cesarean during labor. Delivery from below is possible when the umbilical cord circular is unique, as long as there is rigorous labor monitoring and that emergency caesarean sections, once decided, are performed within a reasonable time. At the end of our study, we see that perinatal mortality in the event of a cord circular is real data which should allow the obstetrician to be vigilant.

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