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Difficulties in Antenatal Diagnosis of Conjoined Twins in an African Setting, 2 Cases Reports

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ABSTRACT

Fetal imaging techniques have undergone considerable change over the past 30 years. The recent development of three-dimensional (3D) ultrasound represents a technological revolution that enables the diagnosis of certain fetal malformations. However, this technology is not always available to obstetricians in common practice in sub-Saharan Africa. The presence of conjoined twins is a rare possibility during pregnancy. We report the antenatal discovery of conjoined thoraco-omphalopages twins and dicephalic conjoined twins including the first discovered in 3D ultrasound at 26 weeks of amenorrhea and the second unexpectedly during a low-birth at 32 weeks. These 2 observations show the difficulties of antenatal diagnosis. This diagnosis could make it possible to establish a prognosis and to practice a medical interruption of pregnancy in agreement with the couple.

Keywords

Antenatal diagnosis, 3D ultrasound, Conjoined twins.

Introduction

Conjoined twins are a rare specific complication of monochorial pregnancies. Their frequency is estimated at one per 50,000 to 200,000 births [1]. Currently, the diagnosis must be carried out in the 1st trimester [2]. Unfortunately, the accessibility to ultrasound in our countries with low medical density, as well as the cost of this examination make this diagnosis late [3]. We report two observations of conjoined thoraco-omphalopage twins and dicephalic conjoined twins diagnosed in the first case in antenatal using 3D ultrasound and, in the second case unexpectedly during a low-birth.

Observation 1

Miss D.P, 21 years old, Primigravida, housewife consulted at the Teaching Hospital of Cocody for a dyspnea and intercostal pain on pregnancy of about 6 months. She was not followed for her pregnancy with an unknown date for the last period, without prenatal check-up and no obstetrical ultrasound performed. The clinical examination at admission noted dyspnea (respiratory rate at 28 cycles/min), a distended and shiny abdomen. The uterine height was measured at 39 cm. A single focal spot at fetal heart auscultation was perceived. There were no uterine contractions and pulmonary auscultation was normal.

The ultrasound showed hydramnios (AFI=32 cm) as well as a 26-week evolutionary monoamniotic twin pregnancy with two symmetrically aligned fetuses mirrored (Figure 1). The 3D reconstruction specified the areas of attachment to the thorax and abdomen (Figure 2). The twins had the heart (Figure 3a) and the liver in common. The umbilical cord was unique and contained six blood vessels (Figure 3b).

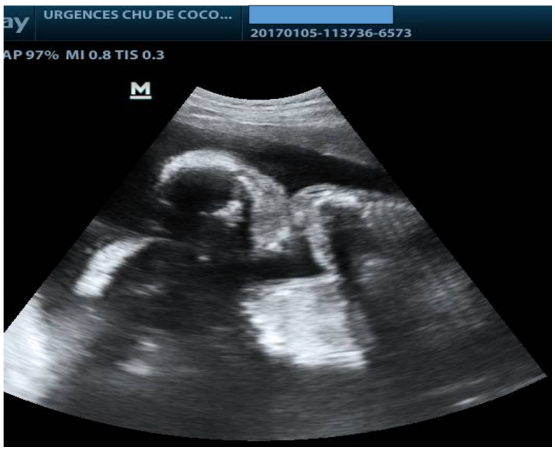

Figure 1: Ultrasound appearance of two symmetrical fetuses, mirrored.

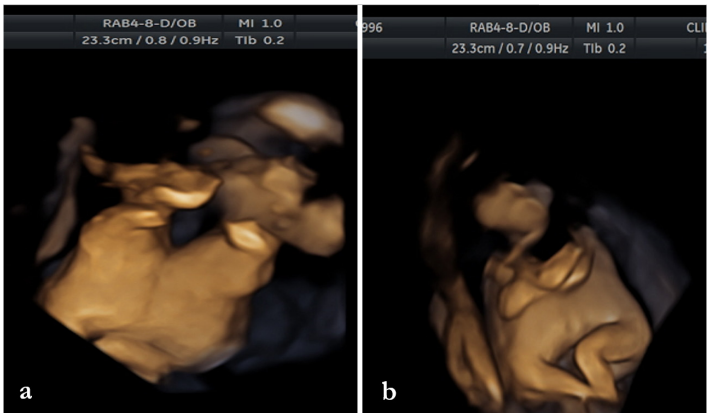

Figure 2: Obstetrical ultrasound in 3D. a: 3D image of the thorax and abdomen adjacent areas; b: abutment of the abdomen.

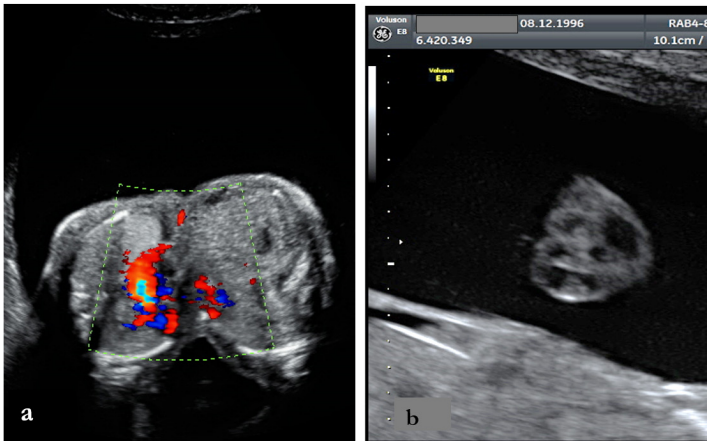

Figure 3a: Obstetrical ultrasound in cross section of the thorax with a single heart; b: umbilical cord with 6 blood vessels.

A paracentesis of amniotic fluid was carried out and a medical termination of pregnancy was proposed to the couple after a multidisciplinary staff. The caesarean section made it possible to extract two dead female fetuses weighing a total of 2650 grams, attached to the thorax and abdomen with a single umbilical cord containing six blood vessels (Figure 4).

Figure 4: Appearance of twins at birth.

Observation 2

This is a 21-year-old patient, G2 P0 (1 VTP) with no known medical history, no profession, evacuated from a first-level maternity ward in our hospital for fetal bradycardia on 32-week twin pregnancy. She carried out 2 poor prenatal consultations, performed by a midwife, no blood test was carried out. She performed 2 ultrasounds of which the first at 29 weeks of pregnancy having objectified a twin bichorial biamniotic pregnancy with no detectable abnormality (Figure 1); and the second at 32 weeks which instead highlighted a monoamniotic twin pregnancy but without abnormality of the fetuses. The clinical examination on admission to our hospital showed a good general condition, normal-colored conjunctiva, normal consciousness, BP = 11/5, pulse = 73 beats per minute, HU = 33cm and the heart sounds of the fetuses not seen in the four abdominal quadrants. On vaginal contact the cervix was dilated to 4cm, membranes absent with a cephalic presentation fixed for the first twin. It was concluded that the active phase of labor began on a twin pregnancy of 32 weeks + 4 days (according to the RFI) with fetal death in utero. It was decided to let the work evolve. This evolution was marked by the expulsion of conjoined dicephalic twins, macerated stillbirths of female sex, with a single weight of 2500g, size = 40cm, cranial perimeters at 30 and 31 cm. These were conjoined twins with a single trunk, 2 different heads (Figures 6 and 7); the umbilical cord was unique.

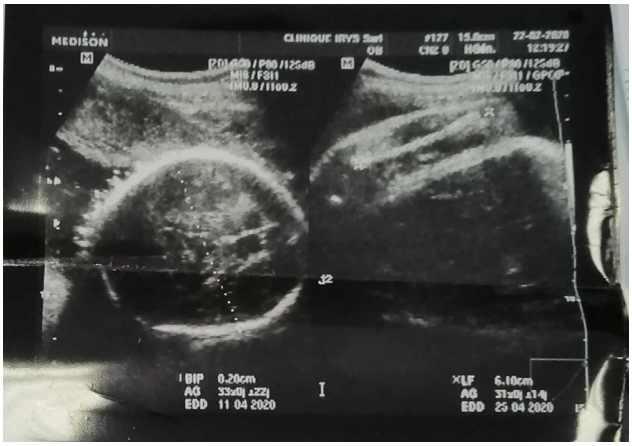

Figure 5: Non visualization of the attachment of the second cephalic pole to the single trunk on this 2D cut.

Figure 6: Anterior view conjoined dicephalic twins.

Figure 7: Conjoined dicephalic twins from the back.

Discussion

Conjoined twins (double monsters or Siamese twins) are always monozygotic twins and result from the late cleavage of the embryo beyond the thirteenth day after fertilization at the embryonic disc stage [4]. The female sex is predominant with a ratio of 3:1 [5].

The etiopathogenesis of conjoined twins is poorly understood. There is no associated chromosomal abnormality. Race, heredity, parity and consanguinity would not intervene in the process [6]. Two explanatory theories emerge: the theory of fusion is incriminated in the genesis of certain forms, but this hypothesis is rejected in favor of the theory of fission. From the 9th day after fertilization, the cells of the line intended for the formation of the chorion and the amnion are already differentiated, any cleavage of the egg occurring from this moment on will result in a twin monochorial pregnancy, monoamniotic beyond the thirteenth day, the division is incomplete and results in a double monster or conjoined twins [4]. Thoraco-omphalopages such as of that of the first observation constitutes the most frequent group and represent 70% of conjoined twins [7]. Parapagus dicephalic conjoined twins, as in our second observation, represent 11% of conjoined twins and may have 2, 3 or 4 upper limbs. They are stillborn in most cases due to the existence of cardiac and pulmonary malformations [8].

The thoracopagus twins are joined by the thoracic anterior part. The organs are generally asymmetrical. The pericardium is common in 90% of the cases and the joined hearts in 75% of the cases [9]. These forms are always lethal because splitting is impossible. The identification of the common heart, as found in our case, clouded the prognosis and early IMG is also legitimate. Omphalopages generally have a fusion between the xyphoid and the umbilicus [9]. In 50% of cases, these conjoined twins are thoraco-omphalopages. The liver is common in two thirds of cases [10]. In our observation, the twins shared the heart and the liver. The cord was unique with 6 vessels. Currently, the diagnosis must be carried out in the 1st trimester. The two embryos studied in the three planes have cutaneous continuity, are inseparable and mobilize as a whole [2]. The precise analysis of the union site and the common organs is improved by the trans vaginal route, or even by 3D and Doppler imaging [2,11].

The cephalic poles located nearby, as well as the two mirrored bodies. The persistence of the position of the two bodies relative to each other during successive ultrasounds with an unusual proximity of the extremities, reinforces the diagnosis. This was the case in our observation. In addition, the 3D acquisition made it easier to analyze the contact areas but also the cardiac exploration using the STIC mode.

However, in our context, the under-medicalization associated with difficulties in accessing care makes this diagnosis unfortunately late in the 2nd trimester of pregnancy or even at the end of pregnancy as was the case in the second observation. Even when these screening methods exist, their relatively high cost remains a factor limiting access to care. The difficulties of taking care of these malformations in our precarious health context led us in the first observation, to propose to the couple a medical termination of pregnancy after a multidisciplinary consultation.

In the age of ultrasound, no diagnosis of conjoined twins should come as a surprise to childbirth, even in developing countries. The diagnosis of conjoined twins is possible in the first trimester by 3D ultrasound. And when there is no possibility of separating them, a termination of pregnancy is generally carried out, this to prevent the complications of laborious delivery by the low-birth [12,13]. In our second case, the patient performed 2 ultrasounds which did not allow the diagnosis of the conjoined twins. An ultrasound is often prescribed but not always performed by qualified personnel. This is a common situation in our underdevelopment context.

Conclusion

The antenatal diagnosis of conjoined twins is based entirely on ultrasound. The 3D ultrasound facilitates the exploration of adjoining sites as well as the malformation assessment. The diagnosis is sometimes late in our context of under medicalization. The improvement of the management of conjoined twins can only be done in the event of early prenatal diagnosis which makes it possible to specify the common anatomical structures, to search for an associated congenital anomaly, to organize childbirth in an appropriate structure and to schedule multidisciplinary neonatal care.

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