

FETAL DEATH DURING ELECTRONIC MONITORING OF LABOR

Analysis of a clinical case

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The electronic fetal monitoring is regarded as a useful and harmless control method in pregnancy and labor. Thanks to its good forecast value and lack of counterindications, it has already become largely used in all centres. The use of the Oxytocin Challenge Test (OCT) has highlighted a high incidence of false positives ⁽¹⁾. The detected indications of ante-partum fetal distress have therefore led to sometimes unnecessary obstetrical interventions.

More important still, though by far less frequent, the occurrence of false negatives causing an increase in the perinatal morbidity ^(2, 3, 4).

A recently reported clinical case concerns ⁽⁵⁾ the intrauterine death of a fetus during a delivery merely controlled by the monitoring of the Fetal Heart Rhythm (FHR) without simultaneous monitoring of the uterine contractions.

Furthermore, a low perinatal weight or a condition of latent diabetes in the mother severely limit the recognition of a perfectly physiologic pregnancy.

In 6 other reported cases ⁽⁶⁾ of intrauterine death after 'reactive' results in the Non-Stress Test (NST) 3 fetuses were affected by serious malformations non-compatible with life; one was born after a pregnancy characterized by hypertensive gestosis in the third trimester; one was the offspring of a twin pregnancy and in the remaining one, at the expulsion, the umbilical cord was winded once around the newborn's neck.

SUMMARY

The Author reports a case of intrauterine fetal death in labor associated to normal electrocardiographic record, 'reactive' Non-Stress Test (two days earlier) and 'negative' Oxytocin Challenge Test (on the previous day).

Neither pregnancy pathologies (mother's or fetus') nor fetal or adnexal anomalies were detected.

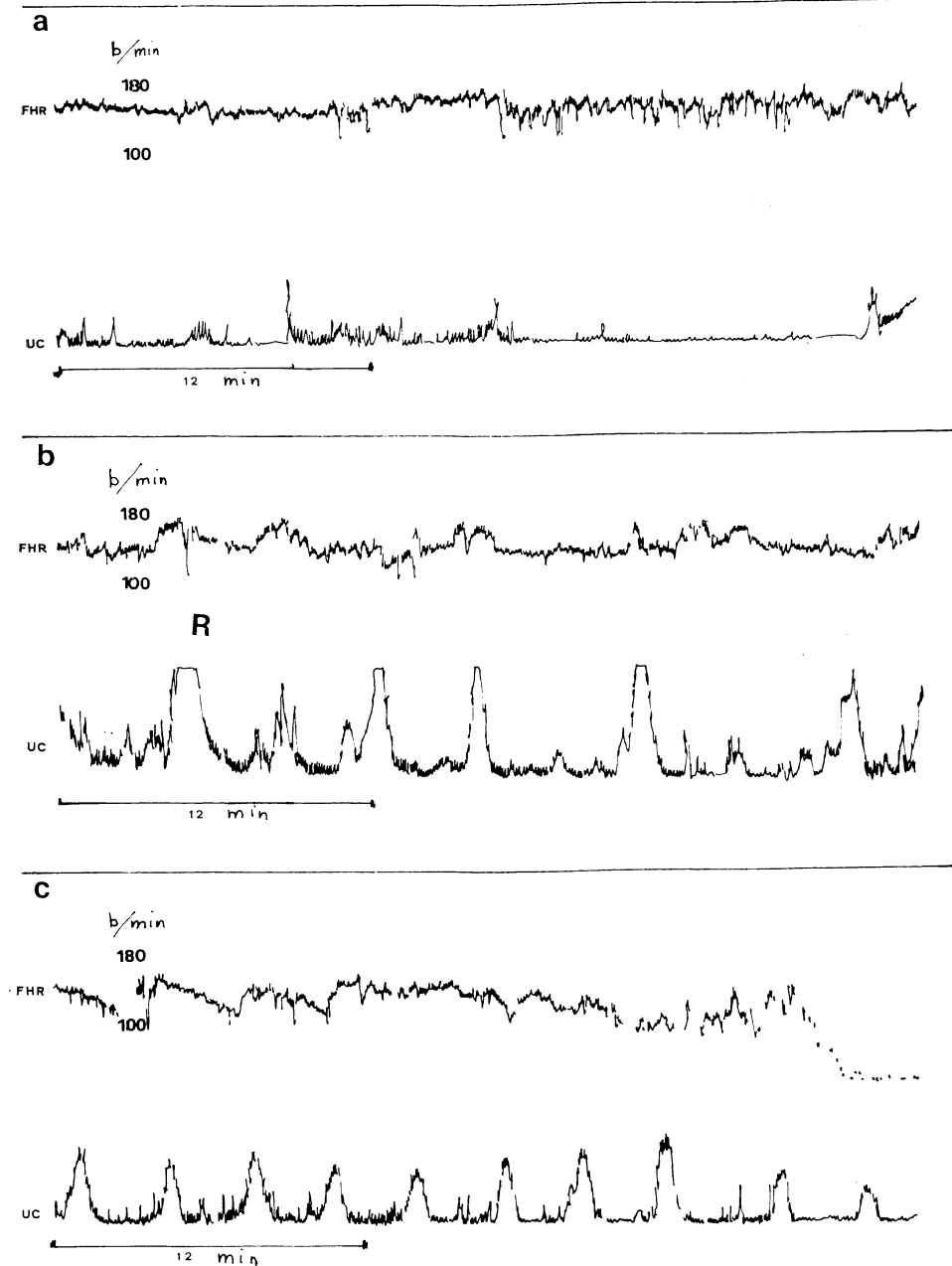
This case is compared to others reported in the literature.

DESCRIPTION OF THE CASE

This case concerns a 32-years nullipara patient, at the end of pregnancy, with regular cycles and negative family and pathologic remote anamnesis.

The biochemical monitoring of the pregnancy always showed normal oestriol (E₃) and HPL plasma levels.

The echographies performed at various stages of the pregnancy showed normal fetal growth and absence of anomalies. The patient's tension was always normal. Neither edemas nor changes in urine and hematochemical examinations were



Paper speed: 1 cm/min; FHR = Fetal Heart Rhythm; UC = Uterine Contractions.

Fig. 1. — Cardiotocographic records at various stages: *a*) Non-stress test (NST) two days before labor; *b*) Oxitocin challenge test (OCT) one day before labor; *c*) Beginning of labor: intra-uterine fetal death.

observed with the only exception of a moderate anemia over the last few weeks (Hb 9.1).

The patient was hospitalized at the end of the 41st week, before the beginning of labor. The general objective examination showed no pathology. The obstetric examination gave the following picture: intact and pervious cervix; cephalic version in the superior pelvic strait; intact membranes. The amnioscopy showed clear fluid.

The NST, performed by external electronic monitoring, gave 'reactive' results (Fig. 1 a).

On the following day the patient underwent OCT with negative results (Fig. 1 b).

The amnioscopy, both before and after the tests, showed clear amniotic fluid. No change was observed in the cervix.

On the following morning labor began spontaneously. It went on with regular, medium-intensity contractions, without infusion of oxytocin, under external electronic monitoring.

The patient was not continuously in left lateral decubitus because she could not keep the same position for long.

After about a 1-hour record without significant changes of the FHR, the fetal heart beating suddenly ceased. The patient had kept the left lateral decubitus for about 20' before the disappearance of the FHB (Fig. 1 c).

At the examination the cervix was still intact and pervious; at the rhexis the amniotic fluid showed marked meconium staining. The application of the electrode to the fetus scalp confirmed the disappearance of the FHB.

After 7 hours of oxytocin infusion, the patient delivered a stillborn female of 3.600 g in weight, presenting no apparent anomalies. The 60-cm umbilical cord showed neither turns nor real knots and had 3 normal vessels. The placenta, after spontaneous expulsion, was complete, 600 g in weight, without infarcts or areas of initial detachment. The umbilical cord too was normally inserted (paracentrally).

The post-mortem examination of the fetus showed no malformation or anomaly in the internal organs.

CONCLUSION

The examined literature reports a higher incidence of false positives and a more serious, but luckily by far lower

incidence of false negatives (0.25% ⁽⁶⁾ and 0.5% ⁽⁷⁾), that have negative consequences on the perinatal outcome in terms of morbidity and mortality.

In almost all the reported cases, anomalies in the fetus and the adnexa or serious mother's diseases – like hypertensive gestosis in the third trimester and, particularly, diabetes – were found.

Conversely, neither fetus' nor mother's anomalies were detected in the reported case. The NST, performed 2 days before the fetal death, gave negative results. No indication of fetal distress came from the 1 hour record at the beginning of labor and during the last 20' the patient was in left lateral decubitus.

This fetal death is, in my opinion, unexplicable.

However, if this experience is associated to the data reported in the literature, the low rate of false negatives in the electronic monitoring of pregnancy and labor, confirms the satisfactory reliability and forecast value of this method.

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