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Correspondence

Fetomaternal hemorrhage in case of reduced fetal movements: The rules of computerized cardiotocography and middle cerebral artery

Dear Editor,

I read with pleasure "Unusual maternal hemoglobin elevation before delivery as a rare presentation of massive fetomaternal hemorrhage" by Li et al [1]. In accordance with it, I consider that, in this article, there are several aspects that might be interesting to investigate, to evaluate an improved management of fetomaternal hemorrhage (FMH).

It would be very interesting if the authors could clarify the rationale for some of the options that their clinic has taken. In order to constitute a diagnostic algorithm for this fatal disease, it should be noted that FMH is a poorly understood condition with an incidence rate between 0.3 and 1 over 1000 deliveries [2]. This clinical condition seems to be responsible for 14% of perinatal deaths of unknown causes, and several studies suggest that there is a potential relationship between FMH and the decreased or absent fetal movements, sinusoidal fetal heart rate pattern, stillbirths, and hydrops fetalis [3]. In this sense, the authors describe an interesting case of FMH with a nonreassuring cardiotocography (170 beats/min, minimal variability, and variable deceleration >50% contraction) and reduced fetal movements. In addition, they also describe an elevation of fetal hemoglobin from 14.0 g/dL to 15.3 g/dL, compared with 5 days later. An emergency cesarean section was performed. One mature female neonatal weighing 3250 g was delivered by vertex extraction at 38 and 2/7 completed gestational weeks. The first and fifth Apgar scores were 0 to 0. A neonatal hemoglobin level of 3.6 g/dL, an arterial cord pH of 7.07, and a base deficit of 23.7 mmol/L were reported.

A recent review of FMH cases, with reduced fetal movements described in the literature, was reported by Cozzolino et al [4]. In women with reduced or absent fetal movements, the rate of perinatal mortality is around 36% [3]. The reduction of fetal movements can be considered unanimated as the first factor that could lead to a possible diagnosis of FMH.

Nonreactive cardiotocography is present in less than 10% of cases, including both tracings with reduced variability rather than with a sinusoidal pattern [3]. Why did the authors not perform computerized cardiotocography at second admission? The patient reported reduced fetal movements and did not present contractile activities. Computerized cardiotocography is not diagnostic alone, but it has definitely higher value in predicting the risk of fetal acidemia on the basis of the short-term variability (STV) value. A significantly reduced STV is closely associated with fetal acidemia, which is present when a massive FMH occurs.

FMH plays an important role in fetal anemia, which is a combined effect of acute hypovolemia with a reduced capacity of blood to carry oxygen, resulting in hypoxemia. Anemia leads to a hyperdynamic circulation, which can be detected by increased blood flow velocities in various vascular beds. Why did the authors not perform an ultrasound scan for measurements of the amniotic fluid and fetal growth parameters? The authors did not take into account the measurement of the middle cerebral artery (MCA). Many authors in the literature have reported that an increased peak systolic velocity in fetal MCA may help to identify anemic fetuses [2,4–6].

I believe that Doppler measurements are easy to perform and can be of great value in predicting severe fetal anemia caused by massive FMH. Therefore—and because of the possible life-saving consequences—we would recommend an investigation of the peak flow velocity of the MCA in cases of mothers complaining of diminished or absent fetal movements.

According to the last point, the authors said that "In conclusion, in case of pregnant woman with unexplained elevation of maternal hemoglobin, examination of FMH may be considered."

The measurement of maternal hemoglobin is extremely interesting, and it could be used in patients who require hospitalization, but I do not think it can be considered a reliable parameter in the diagnosis acute FMH.

I think that for women at term of pregnancy who report a reduction in fetal movements, computerized cardiotocography and MCA evaluation should be recommended. Acute and massive FMH was suspected prenatally and was confirmed after birth.

Conflicts of interest

The author has no potential conflicts of interest relevant to this article. I would like to warmly thank to Mr Herman David Lòpez Jiménez for reviewing the English of the manuscript and for valuable advice.

References

[1] Li YP, Lee CN, Hsieh WS, Lin SY. Unusual maternal hemoglobin elevation before delivery as a rare presentation of massive fetomaternal hemorrhage. Taiwan J Obstet Gynecol 2016;55:441–3.

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[2] Sueters M, Arabin B, Oepkes D. Doppler sonography for predicting fetal anemia caused by massive fetomaternal hemorrhage. Ultrasound Obstet Gynecol 2003;22:186–9.
[3] Giacoia GP. Severe fetomaternal hemorrhage: a review. Obstet Gynecol Surv 1997;52:372–80.
[4] Cozzolino M, Magro Malosso ER, Perelli F, Franchi C, Coccia ME. Keep in mind fetomaternal haemorrage in case of reduced fetal movements: a successful obstetric management. J Obstet Gynaecol 2016. http://dx.doi.org/10.1080/01443615.2016.1225022.
[5] Baschat AA, Harman CR, Alger LS, Weiner CP. Fetal coronary and cerebral blood flow in acute fetomaternal hemorrhage. Ultrasound Obstet Gynecol 1998;12:128–31.
[6] Eichbaum M, Gast AS, Sohn C. Doppler sonography of the fetal middle cerebral artery in the management of massive fetomaternal hemorrhage. Fetal Diagn Ther 2006;21:334–8.

Mauro Cozzolino*
Department of Biomedical, Experimental and Clinical Sciences, Division of Obstetrics and Gynecology, University of Florence, Careggi University Hospital, Largo Brambilla 3, 50134 Florence, Italy

* Corresponding author. Department of Biomedical, Experimental and Clinical Sciences—Division of Obstetrics and Gynecology, University of Florence, Careggi University Hospital, Largo Brambilla 3, 50134 Florence, Italy.
E-mail address: maurocoz@yahoo.it.