

Maternal Complex Partial Seizure Associated With Fetal Distress

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We describe a 43-year-old woman who had a complex partial seizure in the seventh month of pregnancy with simultaneous fetal heart rate monitoring. The seizure was accompanied by fetal heart rate decelerations, indicating fetal distress. Maternal partial seizures can be associated with fetal distress.

REPORT OF A CASE

A 43-year-old woman with complex partial seizures secondary to 3 radiographically stable cavernous hemangiomas in both frontal and the left parietal lobes had been followed up for 3 years at the Georgetown University Hospital Epilepsy Center. Seizures had begun at the age of 21 years. They consisted of blank staring and unresponsiveness lasting several minutes, followed often by aimless wandering and verbalization and, occasionally, by backward counting, with a mean seizure frequency of 0.5 seizures per month. Only 3 of her seizures had ever become secondarily generalized convulsions. Past unsuccessful treatments had included phenytoin sodium, phenobarbital sodium, and valproic acid. Current treatments included carbamazepine and lamotrigine, with stable therapeutic levels for 3 years.

She inadvertently became pregnant. Her seizure frequency decreased to 0.25 seizures per month during the first half of the pregnancy. She presented to the emergency department following 2 complex partial seizures with a fall in the seventh month of her pregnancy. During the ensuing admission, she was documented to have a complex partial seizure while undergoing fetal heart rate and tokodynamometer monitoring (**Figure**). The seizure, witnessed by staff physicians, consisted of right facial twitching, fol-

lowed by right arm and leg twitching, without generalization. The patient was pale and sweating at the time. Maternal tachycardia, with heart rate up to 150/min, was documented until the electrodes fell off. She did not complain of any cardiovascular symptoms. She became transiently hypoxic during the tachycardia, with an arterial oxygen saturation of 75% (as measured by finger pulse oximetry) and a concomitant heart rate of 125/min. The seizure lasted 1 minute, followed by a quick recovery back to baseline within minutes. The fetal heart rate decelerated during the seizure for 2.5 minutes, from a baseline rate of 150 to 160/min to a low of 70/min, and returned back to baseline 2 minutes after the seizure. No further seizures or fetal distress was documented during the rest of the pregnancy. Two months later, she delivered a healthy-appearing, 4.1-kg infant with Apgar scores of 6 and 8 at 0 and 5 minutes, respectively.

COMMENT

The possible effects of seizures on fetal welfare during pregnancy have been of major concern. Detrimental effect of trauma related to seizures and metabolic disarray associated with prolonged generalized tonic-clonic seizures are well described.¹ Generalized tonic-clonic seizures have been associated with fetal hypoxia and, occasionally, fetal death,^{2,3} although fetal bradycardia may be absent even during prolonged maternal grand mal seizures without maternal hypoxia.⁴ A

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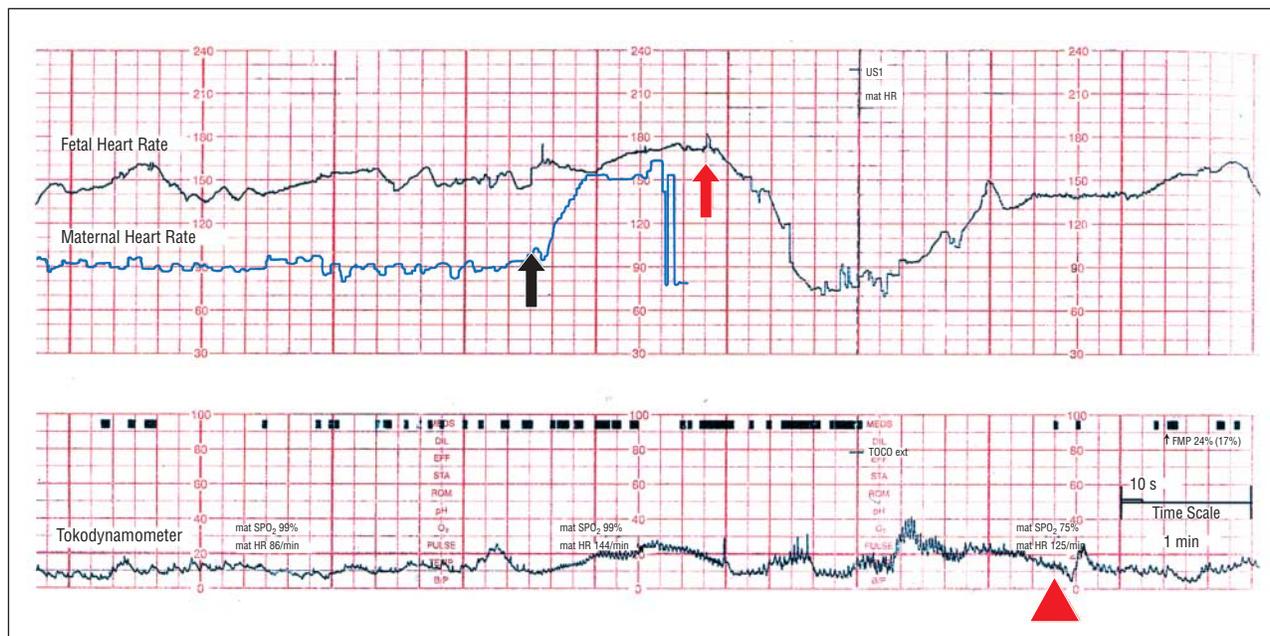


Figure. Onset of maternal tachycardia (black arrow), onset of fetal bradycardia (red arrow), and onset of maternal hypoxia (arrowhead), with an arterial oxygen saturation (SpO_2) of 75% as measured by finger pulse oximetry.

marked decline in fetal heart rate has been demonstrated after maternal grand mal epileptic seizure during delivery.⁵ By contrast, little is known about the potential effects of partial seizures on the fetus. It is generally assumed in clinical practice that simple and complex partial seizures probably do not significantly affect the fetus.⁶ A case of fetal cardiac deceleration during a maternal complex partial seizure has previously been reported.⁷ This occurred during concomitantly increased uterine contractility.

Our patient experienced a complex partial seizure with limited motor manifestations, without any increase in uterine contractions that might explain the fetal bradycardia. The presence of tachycardia early in the seizure suggests involvement of the maternal autonomic nervous system (eg, the insula or the cingulate gyrus).⁸ It is possible that seizure-triggered transient maternal dysautonomia resulted in secondary fetal bradycardia. The clinical significance of the observed bradycardia is uncertain. However, it is conceivable that recurrent or prolonged fetal deceleration associated with clinically benign-appearing partial seizures might affect fetal welfare and development. A prospective study of the effect of partial seizures on fetal heart rate is warranted.

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