

# Anesthetic management of a pregnant woman with epilepsy and bad obstetrical history for emergency caesarean section

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## Abstract

Convulsive disorders are 2<sup>nd</sup> most prevalent and most serious neurological conditions encountered in pregnant women after migraine. Epilepsy can affect the course of pregnancy, labor, delivery and alter the fetal development whereas pregnancy can exacerbate epilepsy<sup>1, 2</sup>. Pregnancy with epilepsy is considered high risk mainly due to teratogenic potential of antiepileptic drugs and increased risk of pregnancy and neonatal complications i.e. hypertension, preeclampsia, antepartum hemorrhage, cesarean delivery, still births, neonatal deaths, intrauterine growth retardation and preterm delivery compared with general obstetric population<sup>3</sup>. Metabolism of antiepileptic medications during pregnancy is changed and teratogenic effects of several anticonvulsant medications are unquestioned. It becomes a challenge for the

anesthesiologist if epilepsy is associated with bad obstetric history .We report successful anaesthetic management of a pregnant patient with very bad obstetric history and known case of epilepsy for emergency caesarean section perioperatively.

## Introduction

Convulsive disorders are 2<sup>nd</sup> most prevalent and most serious neurological conditions encountered in pregnant women after migraine. Epilepsy can affect the course of pregnancy, labor, delivery and alter the fetal development whereas pregnancy can exacerbate epilepsy<sup>1,2</sup>. Pregnancy with epilepsy is considered high risk mainly due to teratogenic potential of antiepileptic drugs and increased risk of pregnancy and neonatal complications i.e. hypertension, preeclampsia, antepartum hemorrhage, cesarean delivery, still births, neonatal deaths, intrauterine growth retardation and preterm delivery compared with general obstetric population<sup>3</sup>.Metabolism of antiepileptic medications during pregnancy is changed and teratogenic effects of several anticonvulsant medications are unquestioned. It becomes a challenge for the anesthesiologist if epilepsy is associated with bad obstetric history .We report successful anaesthetic management of a pregnant patient with very bad obstetric history and known case of epilepsy for emergency caesarean section perioperatively.

## Case report

A 35 year old patient G7P6L0 presented for emergency caesarean section at 34 weeks in view of fetal distress. She had history of Rh iso immunisation, was a known case of epilepsy, was on Tab. Carbamazepine 200 mg B.D and Tab, Sodium valproate 250 mg b.d. for last 7 months. History revealed occurrence of absence seizures having duration of 3-5 seconds before her admission into hospital. On examination, she showed presence of huge carotid swelling on right side of neck with carotid bruit present over it on auscultation. On further evaluation it was found to be arterio venous malformation supplied mainly by external carotid artery and external jugular vein. In all previous pregnancies, intrauterine fetal death occurred because of hydrops fetalis at 6-7months.

No other significant abnormality was detected except for anticipated difficult intubation due to presence of huge carotid swelling over right side of neck and MPC grade 3 on oral airway assessment.

On investigation, serum carbamazepine was 4 times higher than the toxic serum level and USG abdomen pelvis showed again polyhydramnios with fetal ascites and pleural effusion. All other investigations were normal, including LFT, PT, INR, renal chemistry, blood chemistry, and serum electrolytes.

Vigilant monitoring and management during perioperative period from anesthetic point of view was needed due to possibility of precipitation of seizure episodes.

The case was attended in the emergency center and after attaching monitors for pulse, blood pressure, EtCO<sub>2</sub>, CVP, i.v. fluid were started and the patient was oxygenated by mask, To avoid precipitation of seizures, the patient was given 100mg phenytoin

sodium as premedication. The patient was induced with Inj Thiopentone sodium 300mg, and inj vecuronium 6mg iv and intubated with a 7.0 endotracheal tube. The procedure was maintained with O<sub>2</sub> & N<sub>2</sub>O 40:60 and all vitals were monitored vigilantly. The baby was delivered and Inj oxytocin 20U given slow i.v. The neonatologist was there as standby for resuscitating the baby in fear of low Apgar score and depressed sensorium because of antiepileptic drugs given to the mother as premedication and in pregnancy but the baby was fine after delivery. The operation was uneventful and we extubated the patient after careful observation with postop seizure precipitation in mind. The mother was shifted to the postop recovery room, the baby to the neonatal ICU and observed for 48hrs. Both mother and baby were fine at the time of discharge from the hospital.

## Discussion

Epilepsy is a symptom characterized by a paroxysmal and transitory disturbance of cerebral functions, which develop suddenly, cease spontaneously and exhibit a conspicuous tendency to recurrence. Commonly the attacks of epilepsy are known as seizures or fits. Incidence of epilepsy is 0.3 - 0.6% in pregnant women .<sup>4</sup>

The effects of epilepsy on pregnancy and that of pregnancy on epilepsy are subtle and complex. The understanding of the interactions between anticonvulsant drug therapy, pregnancy and the growing fetus are a must for the anesthesiologist for proper anaesthetic management of a pregnant women posted for cesarean section for successful outcome.

Amongst major categories, constitutional (idiopathic), generalized, tonic-clonic seizures are the most common presentation of chronic seizure disorders noted during pregnancy while the non-convulsive, generalized seizures (Petitmal) are rarely seen in this age group. Consistently repeated, acute, focal or generalized tonic-clonic seizures with focal onset, may be an expression of an underlying focal or generalized cerebral pathological lesions.

There is no reliable data that allows prediction of an individual's course of epilepsy during pregnancy<sup>4</sup> except the pregestational fit frequency<sup>5</sup>. Knight and Rhind found that 45% of women with epilepsy had an increased frequency of seizures, 5% experienced a decrease and 50% had no change<sup>4</sup>. A review of the literature revealed increase in seizure frequency from 23% to 75% amongst pregnant women who had epilepsy<sup>6</sup>. Women, who remain seizure-free for 9 months preceding pregnancy, are at 20-40% risk of exacerbation of seizures during pregnancy. And those who convulse at least once monthly before hand usually worsen during pregnancy.

A particularly likely cause during pregnancy is expansion of an arterio-venous malformation or a brain tumor. Non-obstetric causes of epilepsy, in this age group include brain tumours, aneurysms, arterio-venous malformations, metabolic causes( hypernatremia, alkalosis) and endocrine disorders (hypo- or hyperglycemia, hypo- and hyperglycemia, diabetic ketoacidosis, pituitary apoplexy etc).These causes are of primary importance for anesthesiologist for successful perioperative management.

Many large-scale studies have shown that there appears to be 6.8% chance of birth defects in the infant born to woman taking antiepileptic drugs (AED). This represents a

risk which is 2-3 times than that of the general population. The risk is more with polytherapy as compared to monotherapy<sup>7</sup>. Valproic acid is the only AED for which a dose dependency has been confirmed in several studies, the increase in risk of major congenital malformations compared with other AED's is especially evident at doses above 800-1000 mg/day.<sup>8</sup>

Infants born to mothers with a seizure disorder of unknown cause are four times likely to develop idiopathic epilepsy. Epilepsy in father does not increase risk of developing a seizure disorder in children<sup>9</sup>. Folic acid has been shown to decrease the incidence of neural tube defects in women on AED's. All women on AED's should be prescribed folic acid in the dose of 5 mg/day which should be started pre-conceptionally and continued throughout pregnancy<sup>8</sup>.

Anaesthesiologists have a major role in this type of cases to prevent precipitation of seizures preoperatively and postoperatively as well as maintaining haemodynamic of mother throughout labor and delivery of baby ultimately resulting in wellbeing of both mother and baby.

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