


Case Report

Successful Induction of Labour in a Patient with Antepartum Eclampsia: A Case Report and Literature Review

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Abstract

Eclampsia is a life-threatening complication of pregnancy. It is defined as the occurrence of 1 or more generalized, tonic-clonic convulsions unrelated to other medical conditions in women with hypertensive disorder of pregnancy not attributable to other causes. The pathogenesis of eclamptic convulsions remains unknown. Eclampsia is considered an absolute contraindication to expectant conduct. The management of eclampsia primarily involves stabilizing maternal conditions, treating blood pressure and controlling seizures with magnesium sulfate. Definitive treatment for eclampsia is prompt delivery, however, this does not necessarily preclude induction and a trial of labor. The optimal mode of delivery in women with eclampsia remains controversial in the modern practice of obstetrics and gynaecology. We present a case of successful induction of labor in a patient with antepartum eclampsia.

Keywords: Antepartum Eclampsia; Induction of Labor; Seizures; Hypertension; Preclampsia; Eclampsia; Convulsions

Introduction

Eclampsia is one of the most serious acute complications of pregnancy, and it is characterized by high morbidity and mortality for both the mother and baby[1]. Eclampsia refers to the occurrence of new-onset, generalized, tonic-clonic seizures or coma in a patient with preeclampsia (including HELLP syndrome) or gestational hypertension not attributable to other causes[2]. Almost all cases occur in the third trimester (91%), after 28 weeks of pregnancy[3]. The pathogenesis of eclamptic convulsions remains unknown[3]. The incidence of eclampsia in developed countries decreased over time, with a reported incidence ranging from 1.6 per 10,000 deliveries to 10 per 10,000 deliveries. In low-resource or developing countries, however, the incidence varies widely: from 50 to 151 per 10,000 deliveries[1]. The majority of women who experience numerous seizures due to eclampsia show signs of cerebral infarction and HELLP syndrome. Pulmonary edema, postpartum hemorrhage, disseminated intravascular coagulation, and acute renal failure are some of the other complications of eclampsia[3]. Approximately 63,000 women every year worldwide die for eclampsia and preeclampsia, and 99% of these deaths occur in low-income countries. Perinatal mortality is high in eclamptic pregnancies, the reported incidence varies from 5.6-11.8%, related to prematurity, abruption placentae, and severe fetal growth restriction[3]. The management of eclampsia primarily involves stabilizing maternal conditions, treating blood pressure and controlling seizures with magnesium sulfate[1]. The first priority in the management of eclampsia is to prevent maternal injury and to support respiratory and cardiovascular functions. During or

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immediately after the acute convulsive episode, supportive care should be given to prevent serious maternal injury and aspiration, assess and establish airway patency, and insure maternal oxygenation[4]. The next step is prevent occurrence and recurrence of convulsions with magnesium sulfate. The recommended regimen of magnesium sulfate is a loading dose of 4-6 g given over 20 minutes, followed by a maintenance dose of 1-2 g per hour as a continuous intravenous solution[1]. Antihypertensive therapy is administered to prevent stroke; antihypertensive drugs for treatment of severe hypertension (defined as SBP \geq 160 mm Hg or DBP of \geq 110 mm Hg) intravenous hydralazine or labetalol or oral nifedipine[1]. Delivery is the definitive treatment for eclampsia, but the presence of eclampsia is not an indication for cesarean delivery. The decision to perform a cesarean delivery should be based on gestational age, fetal condition, presence of labor, and cervical bishop score. After stabilization of maternal and fetal conditions, and when the patient is self-conscious, induction should be started, and it is reasonable as long as the patient is in the active phase within 24 hours[5,6]. Following delivery, the patient should receive close monitoring of vital signs, fluid intake and output, and symptoms for at least 48 hours. Intravenous magnesium sulfate is generally continued for 24-48 hours, and antihypertensive drugs are employed if the systolic BP is at least 155 mm Hg or if the diastolic BP is at least 105 mm Hg[3].

We present a case of successful induction of labor in a woman during the third trimester of pregnancy with evidence of eclampsia. This case suggests that cesarean delivery is not always the right and forced choice in these patients.

Case Report

A 22-year-old Caucasian nulliparous woman without any comorbidities or pregnancy complications was admitted to the Emergency Room in Udine at 37 weeks of gestation due to generalized, tonic-clonic seizures. A physical examination made by the ambulance staff revealed blood pressure 170/110 mmHg and proteinuria on the urine stick. In the emergency room she was given diazepam 5 mg + 5 mg + 4 mg and magnesium sulfate 2g intravenously and once the patient was stabilized she was admitted to Semi-intensive Obstetric Ward with a diagnosis of eclampsia. The patient appeared sleepy, complained of frontal headache, had no edema of the lower limbs, uterine hypertone or vaginal blood loss was not appreciated. Fetal cardiotocographic monitoring was normal, there was no uterine contractile activity. To treat hypertension she was given bolus of labetalol 100 mg. Initial laboratory tests showed normal hemoglobin (12.3 g/dl) and platelet count (239×10^3 /microL), elevation in transaminases (AST/ALT 87/98) and normal coagulation parameters. Obstetric ultrasound revealed blood flow velocity waveform indices of the fetal circulation were within normal range; regular amniotic fluid; singleton pregnancy and normal position

of fetus. Estimated fetal weight at 36 weeks was 2665g. At digital cervical exam the cervix was 1 cm dilated and the patient didn't have contractions. In the hours following admission, the patient was treated with magnesium sulfate prophylaxis and labetalol 20 mg intravenously with gradual improvement of her clinical conditions. In consideration of the stability of the vital signs, the clinical picture, the blood chemistry tests and the fetal well-being, it was decided to proceed with induction of labor. Labor was induced with vaginal prostaglandins (Dinoprostone 10 mg) and the patient delivered a male fetus 26 hours later. The baby's weight was 2666 g and Apgar scores were 9 and 10 at 1 and 5 minutes, respectively. 5 hours after the delivery magnesium infusion was stopped. Neurological examination was negative and the MRI showed multiple diffuse hyperintense areas, compatible with vasogenic edema, classifiable in the first hypothesis in the syndrome of posterior reversible encephalopathy (PRES). It is a clinical and radiological entity frequently developed in patients with preeclampsia and eclampsia. Following the delivery, the patient's clinical condition and laboratory values got better. The patient and her baby were discharged from the hospital on the 6th day after with normal blood pressure and good condition.

Discussion

Eclampsia is considered an absolute contraindication to expectant management. The definitive treatment for eclampsia is prompt delivery. This case of successful induction of labor in a patient with antepartum eclampsia suggests that cesarean delivery is not always the right and forced choice. According to AIPE guidelines cesarean delivery is recommended when unconsciousness persists, when a state of psychomotor agitation occurs which does not allow collaboration, when signs of complications appear, when vaginal birth can be foreseen in too long time, when signs of fetal distress persist, and in case of obstetric indications that contraindicate natural birth. Once maternal conditions are stabilized, vaginal delivery is permitted if labor is in progress, if there has been a full recovery of consciousness or if only minimal neurological alterations remain, and if no other complications have appeared. No contraindications to the use of prostaglandin PGE2 and oxytocin to manage childbirth[7]. The optimal mode of delivery in women with eclampsia remains controversial in the modern practice of obstetrics and gynaecology. Koech et al. reported a cesarean rate slightly higher than that of women who had normal vaginal delivery[8], according to most studies across the world[9,10,11]. For example Maji B. et al found an incidence of cesarean section equal to 62.14 % similar to the study conducted by Choudhary (55.3%) and Sunita et al (45%) [9]. The main possible explanation for this different incidence is that in most protocols, including AIPE guidelines, with respect to the management of eclampsia, it is recommended that delivery should occur as soon as possible and only if

the patient is in an active phase of labor or with favourable Bishop scores. Koech et al. reported that induction of labor with Cytotec alone, Foley catheter alone or a combination of the Foley catheter and Cytotec showed reduced morbidity related to caesarean delivery. Pregnant women in whom labor was initiated artificially had an unfavourable cervix (poor Bishop score) and the absence of emergency caesarean section delivery among those women showed that vaginal delivery was achieved within a reasonable time of 12 h [8]. Therefore, the authors of the current study recommend induction of labor in eclamptic women to achieve vaginal delivery, even with an unfavourable cervix. Tukur et al conducted a pilot study in order to compare emergency cesarean section (CS) to induction of labor using misoprostol for the delivery in antepartum eclamptics. All patients randomized for induction with misoprostol had a Bishop score of less than five. Induction failed in 16% of patients who subsequently delivered by cesarean section. There were more maternal complications and admissions of babies into Special care baby unit in the CS group. The duration of admission was longer in CS group compared to the misoprostol group. Perinatal and maternal mortality were similar in both groups (2%) [6]. Otherwise Saeed et al concluded that mortality rates are higher in patients undergoing cesarean section (17% versus 6% in vaginal delivery) [10]. The same findings were reported by the study of Farhat R. et al., in which all maternal mortalities were observed in cesarean section group (12%) while no maternal mortality was seen among the group undergoing vaginal delivery[12]. A randomized controlled trial conducted by Seal SL et al. on 200 eclamptic patients, showed that a policy of early cesarean delivery in eclampsia, carrying ≥ 34 weeks, is not associated with better outcomes and almost three-quarters of patients in the planned vaginal birth group succeeded in delivering vaginally. They showed that undertaking cesarean section in eclampsia patients when they are not in labor or are in early labor with cervical dilatation < 3 cm, provides maternal and perinatal outcomes comparable to attempted vaginal delivery. The perinatal outcomes tended to be slightly better but the differences did not attain statistical significance[13]. This contrasts with the findings from the study done by Priti Kumari and colleagues, in which the rate of vaginal delivery was higher than that of caesarean delivery. They reported that both maternal and perinatal outcome can be improved by taking early decision for caesarean section when admission cervix is unfavourable or delivery is not anticipated within 6hrs[14]. On the other hand, Sibai et al recommended cesarean delivery for those with eclampsia before 30 weeks of gestation who are not in labor and whose Bishop score is below 5. Patients having labor or rupture of membranes are allowed to deliver vaginally in the absence of obstetric complications. If gestational age was > 30 weeks, vaginal delivery is preferable, irrespective of the Bishop score[15].

Conclusions

The route of delivery in eclampsia is controversial. This case report showed that it is possible to achieved vaginal delivery through induction of labor in eclamptic mothers with unfavourable Bishop scores after maternal stabilization, according to most studies reported above. The use of magnesium sulfate, antihypertensive and anticonvulsant medications, as well as prompt obstetric interventions, is crucial to achieve the best maternal and fetal outcomes.

Conflicts of interest

The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Authors' Contributions

Lorenza Driul, Valentina Zanin and Marta Angelini have given substantial contributions to the conception or the design of the manuscript. Valentina Zanin to acquisition, analysis and interpretation of the data. All authors have participated to drafting the manuscript, Lorenza Driul and Marta Angelini revised it critically. All authors read and approved the final version of the manuscript.

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