Management Of Eclampsia Complicated With Traumatic Macroglossia Occurring After Tongue Bite

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Abstract

Eclamptic convulsions are a life-threatening emergency that should be cared in a proper manner in order to minimize morbidity and mortality. Since the development of an eclamptic convulsion is frightening to observe; natural tendency is to do something to abolish or shorten the convulsion. In fact, prevention of tongue bite and aspiration of oral secretion should be measures to be taken first. The woman usually bites her tongue unless it is protected and there may be increased risk of aspiration if oral secretions are not sucked properly. Eclampsia complicated with traumatic macroglossia may present a challenges concerning obstetric and anesthetic management of this clinical entity. However, it would seem inappropriate to apply a specific recommendation concerning anesthetic care, route of labor and management of macroglossia in view of the wide clinical spectrum of presentation. Therefore, the strategy should be individualised.

INTRODUCTION

Hypertensive disorders are most common medical complication of pregnancy, with a reported incidence ranging between 6 and 8 percent ($_1$). Preeclampsia is a disorder of pregnancy characterized by hypertension, as well as proteinuria or edema or both. Preeclampsia that is complicated by generalized tonic-clonic convulsion is termed eclampsia. Eclamptic convulsions are a life-threatening emergency and require proper care in order to minimize morbidity and mortality. Typically the convulsion, which can be divided into two phases, will continue for 60 to 75 seconds. The first phase, which lasts 15 to 20 seconds, begins with facial twitching, proceeding to the body becoming rigid with generalized muscular contractions. The second phase lasts approximately 60 seconds and consists of the muscles of the body alternately contracting and relaxing in rapid succession. In fact, the development of an eclamptic convulsion can be frightening to observe. Initially the patient's face becomes distorted with protrusion of the eyes. This is followed by a congested facial expression. Foam usually exudes from the mouth. The woman usually bites her tongue unless it is protected. Since eclampsia is so frightening, the natural tendency is to do something to abolish or shorten the convulsion. However, prevention of maternal injuries during convulsion, such as tongue bites and prevention of aspiration of gastric content, should be first measures to be taken. We present a case of eclampsia complicated with traumatic macroglossia occurring after convulsion and its management strategies.

CASE REPORT

A 27 year-old primigravidae was admitted to hospital with eclampsia at 28 weeks gestation. She had had no antenatal care. The history obtained from relatives on admission and confirmed later by the patient revealed that there was no past medical history of hypertension, seizural disorders, medications, surgery or any major disease. The patient had had 10-15 convulsion attacks starting about three days before admission. In fact patient's family has confessed that they thought that she was getting crazy. On admission, she was edematous, agitated and unresponsive to questions. The blood pressure was 170/110 mmHg, pulse rate 96/min and respiratory rate 18/min. There was a pitting edema of legs and obvious edema of face, eyelids and conjunctiva. Her tongue was out of the oral cavity due to swelling resulting from tongue biting. Spontaneous replacement of tongue into the oral cavity was impossible. Despite the fact that approximately half of the tongue was out of the oral cavity, the base of tongue was normal and she had no inspiratory stridor and tachypnea as well as her O_2 saturation and chest radiograph was normal. There were no unnatural reflexes and no localizing neurological signs. Funduscopic examination was extremely difficult because of her agitation. The height of the uterine fundus was compatible with 28

weeks gestation. The fetal heart rate was ranging 60-80/min. The cervix was 3 cm long and closed. Standard regimen for the treatment of eclampsia as described elsewhere was instituted ([1]). Because the patient had a cervix unfavorable for induction and fetus was in severe distress, emergency cesarean section was performed. Anesthetic management of present case was significant challenge to the anesthetist. Since patient was unconscious, uncooperative and fetus was in severe distress, we preferred general anesthesia to regional anesthesia. On the other hand we have not been sure about whether endotracheal intubation could be achieved or not. So otorhinolaryngologist was present at operation room for emergency tracheotomy. After administration of 250 mg long acting steroid, she was intubated easily and tracheotomy was not needed during induction of anesthesia (Figure 1).

Figure 1

Figure 1: Patient with traumatic macroglossia intubated with lateral approach

A 700g a live male fetus was delivered with 2 and 4 APGAR score for 1 and 5 min respectively but the baby died within 1 hour. After endotracheal extubation, patient developed inspiratory stridor and experienced breathless and became cyanotic, then the patient was re-intubated and tracheotomy was performed electively under general anesthesia. During postoperative period, patient was administered a broad spectrum antibiotic and steroid therapy for lingual swelling. In order to prevent repetitive lingual trauma, bite riser placement was attempted but she could not tolerate it. The patient made a rapid recovery, on the postoperative 1 st day; she was alert and her tongue swelling begun to regress, but spontaneous oral replacement of tongue was still impossible. On postoperative 3 rd day; regression of tongue swelling became good enough and it was decided to close the tracheotomy (Figure 2) and on postoperative 7 th day; patient could place her tongue fully in her mouth (Figure 3).

Figure 2

Figure 2: On postoperative 3 rd day; regression of tongue swelling and maceration

Figure 3

Figure 3: On postoperative 7 th day, spontaneous replacement of tongue into oral cavity

DISCUSSION

Hypertensive disorders complicating pregnancy are common and form one of the deadly triad, along with hemorrhage and infection, that result in much of the maternal morbidity and mortality related pregnancy. According to the National Center for Health Statistics in 1998, hypertension associated with pregnancy was the most common medical risk factor. It was identified in 146,320 women or 3.7 percent of all pregnancies that ended in live births. In 12,345 of these women eclampsia was diagnosed and maternal death from this complication still remain a threat ([2]). Berg et al reported that almost 18 percent of 1450 maternal deaths in the United States from 1987 to 1990 were from complications of pregnancy-related hypertension.([3])

Eclamptic convulsions are a life-threatening emergency that should be cared in a proper manner in order to minimize morbidity and mortality. Patient with eclampsia should undergo continuous intensive monitoring and not be left alone in darkened room. The guard rails should be up on the bed and padded tongue blade kept at bedside. A large-bore peripheral intravenous line should be in place. No other anticonvulsants should be left at bedside except for a syringe containing 2 to 4 g magnesium sulfate. Contrary to usual tendency, drug such as diazepam should not be given in an attempt to stop or shorten the convulsion, especially if the patients does not have intravenous line in place and someone skilled in intubation is not immediately available. In addition no more than 5 mg should be given over a 60-second period. Rapid administration of diazepam may lead to apnea or cardiac arrest or both ([4]). In case of new convulsion, a padded tongue blade should be inserted between the patient's teeth to prevent tongue biting. Care should be taken to avoid stimulating the gag reflex with blade. The women should be placed on her left side and foam and secretion from her mouth should be sucked to avoid the risk of aspiration. The lung should be auscultated after the convulsion has ended to ensure they are clear. In this present case, since the family thought that the patient had become crazy rather than a serious condition like eclampsia, she was not brought to hospital first to seek professional aid. Thus she had had to sustain involuntary self tongue bites with resulting trauma, probably for many times. Fortunately, she has not aspirated any thing during eclamptic attacks and traumatic macroglossia was not big enough for total obstruction of airway. In fact her nasal breathing was good enough to provide her a normal O_2 saturation.

Once convulsions have been controlled and the woman has regained consciousness her general condition should be assessed. When she is stable, induction of labor with oxytocin should be initiated since delivery is the treatment for eclampsia. If labor is not well established, in the absence of fetal malpresentation or fetal distress, oxytocin may be used to induce labor in all patients beyond 30 weeks gestation irrespective of cervical dilatation and effacement ([1]). The same approach is used for patients with gestational age below 30 weeks if the cervix is favorable for induction. However, women with unfavorable cervix and gestational age of 30 weeks or less are stabilized with magnesium sulfate and are then delivered electively by cesarean section ([1]). In our case since cervix was not favorable for induction as well as gestational age was below the 30 weeks and the fetus was in severe distress, thus cesarean section was performed.

The woman with severe preeclampsia is a significant

challenge to the anesthetist. General anesthesia may be associated with a severe hemodynamic response due to laryngoscopy and intubation and they might increase the risk of intracranial hemorrhage and pulmonary edema. This is in addition to the known risks associated with general anesthesia in pregnancy (e.g. difficult intubation and pulmonary aspiration of gastric contents) ([5]). Drug interactions may also be a problem, particularly between magnesium sulphate, neuromuscular blocking agents, calcium channel blockers and inhalational anesthetics ([6]). On the other hand in the past, both spinal and epidural anesthesia were avoided in women with preeclampsia. Physiological changes leading to these concerns centered on the hypotension induced by sympathetic blockade and in turn, on dangers from pressor agents or large volume of intravenous fluid used to correct iatrogenically induced hypotension. Rapid infusion of large volumes of crystalloid or colloid given to counteract maternal hypovolemia, has been implicated as a cause of pulmonary edema. There have also been concerns about fetal safety because sympathetic blockade-induced hypotension can dangerously lower uteroplacental perfusion. However, despite these potential problems, the relative hemodynamic stability conferred by epidural anesthesia combined with decreased catecholamine concentrations and improved uteroplacental and peripheral perfusion make it the preferred choice for hypertension in pregnancy ([7]).

Anesthesia in eclampsia, however, still provokes debate. Most anesthetists consider regional anesthesia inappropriate where there is an increased risk of losing airway control, and where the risk of further convulsions following magnesium sulphate therapy is between 6% and 13% ([8]). Raised intracranial pressure in eclampsia raises the possibility of cerebellar tonsillar herniation in association with dural puncture ([9]). It should be also expressed that in extreme emergencies such as severe fetal distress, surgery should not be delayed by waiting to establish an adequate sensory level by spinal or epidural anesthesia. In such emergencies the authors would be reluctant to initiate a spinal blockade because of the danger of sudden maternal hypotension and time required to perform the blockade. General anesthesia avoids this delay. In our case despite our awareness that intratracheal intubation might be difficult or impossible due to traumatic macroglossia and airway edema, the anesthesiologist has preferred general anesthesia provided that the otorhinolaryngologist were present at operation theatre, as the patient was unconscious and uncooperative and the fetus was in severe distress. Fortunately endotracheal intubation was performed without any difficulty but post-extubation airway obstruction due to edema at the level of the glottis could not be avoided and postoperative tracheotomy was needed. After operation, the authors have debated concerning whether tracheotomy should have been performed preoperatively or not, but no consensus was obtained except for the mandatory presence of the attending otorhinolaryngologist at operation theatre.

Traumatic macroglossia is a rare but potentially life-threatening problem. The mechanism of traumatic macroglossia includes hemorrhage in to tongue and obstruction of lymphatic vessels thorough trauma and inflammation ([10]). In the treatment of this problem, muscle relaxant and bite riser together with earlier manual replacement into the oral cavity are advised in order to prevent additional trauma and arrest the cycle of obstruction and congestion that leads to further edema and swelling ([10],[11],[12]).

It would seem inappropriate to apply a specific recommendation concerning anesthetic care, route of labor and management of macroglossia to such a wide clinical spectrum. So strategy should be changed on a case to case basis.

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