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Severe Preeclampsia with Bell's Palsy in Pregnancy: A Rare Case Report

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Abstract

Introduction: Preeclampsia remains a challenging problem in pregnant mothers. Complications may arise with bell's palsy being one of them. With Bells' palsy, clinicians must be able to exclude acute stroke as a differential diagnosis and face the challenge of deciding the appropriate treatment regimen for the pregnant mother. Therefore, this case report presents a case of a pregnant patient with severe preeclampsia and Bell's palsy.

Case Presentation: A 31-year-old G3P2A0 38-week gestation pregnant female patient presented with acute left-sided facial weakness. The patient had been diagnosed with severe preeclampsia and was receiving oral nifedipine. Physical examination was significant for elevated blood pressure of 161/96 mmHg and left facial asymmetry with forehead involvement indicating peripheral facial nerve palsy. Brain CT-scan showed mild edema at the bilateral subcortical parietooccipital region. Obstetric assessment showed viable term fetus without labor signs. Emergency cesarean section was performed with spinal anesthesia. Both the mother and the neonate had favorable outcome with no perioperative and postoperative complication.

Conclusion: Bell's palsy in patients with severe preeclampsia presents a clinical challenge with multiple management considerations. Early diagnosis, particularly to exclude acute cerebrovascular disease, and timely management are crucial to ensure maternal safety and a favorable neonatal outcome.

Keywords: bell's palsy, preeclampsia, pregnancy.

1. Introduction

Problems during pregnancy is a concerning maternal health problem. Maternal mortality rate (MMR) reaches up to 260,000 women during and after pregnancy with 20% accounted to Southeast Asia. Concerningly, around 92% of all maternal mortality rate occurs in low and lower-middle income countries. Of these maternal mortality rate, around 26% accounted to preeclampsia (PE) in low-income countries.¹ In Indonesia, the maternal mortality rate due to PE reaches up to 173 out of 100,000 livebirths, making Indonesia the fourth highest MMR in Southeast Asia and above the region's MMR of 140 per 100,000 livebirths.² Furthermore, PE contributes as the second most common cause of maternal mortality following postpartum hemorrhage.³

Not only does it cause mortality towards the mother and the fetus, PE may also cause various comorbidities. Among them, Bell's palsy is a rare comorbidity that may cooccur with PE in pregnancy. The incidence of Bell's palsy is higher in pregnant women compared to non-pregnant women with an incidence rate of 40 per 100,000 women in pregnancy. The incidence occurs mostly during the third trimester and during the postpartum period where physiological adaptation, including hypercoagulable state, hormonal changes, relative immunosuppression that may amplify viral inflammation, and edema in preeclampsia predispose to the development of Bell's palsy.⁴

Most patients improve with treatment completely with symptoms appearing for 2-3 days without permanent neurological paralyses. Nevertheless, the treatment of Bell's palsy in pregnancy remains complicated with fewer treatment options compared to non-pregnant women.⁴ Thus, this case report would like to present a rare case of Bell's palsy with

preeclampsia in pregnancy diagnosed during the third trimester and its birth management.

2. Case Presentation

A 31-year-old G3P2A0 female patient at 38 weeks of gestation presented to the emergency department with left-sided facial weakness since 8 hours prior to presentation. The patient's fetal movement was active and denied contraction. Patient had been diagnosed with severe preeclampsia 1 week prior and was treated with oral nifedipine. The patient was alert, vitals were stable except for blood pressure of 161/96 mmHg. On physical examination, the face was asymmetric with drooping of the left side and inability to wrinkle forehead suggesting CN

VII lesion (figure 1). Motoric and sensory examination was within normal limits for both side of the body. The patient's heart and lung examination were also within normal limits. Obstetric examination showed uterine fundal height of 34 cm, fetal heart rate of 148x/minute, no cervical dilatation and a thick rigid cervix. Her supporting examinations showed sinus rhythm on ECG, leukocytosis on complete blood count, and proteinuria in urinalysis. The patient's CT scan result showed slight hypodense at the bilateral subcortical parietooccipital region with a suspicion of posterior reversible encephalopathy syndrome (figure 2). With the confirmation diagnosis of Bell's palsy, the patient was given mecabalamin 500 mg thrice daily and ibuprofen 400 mg twice daily.



Fig. 1: A. Patient's left-sided facial drooping; B. Patient's inability to wrinkle forehead on the left side.

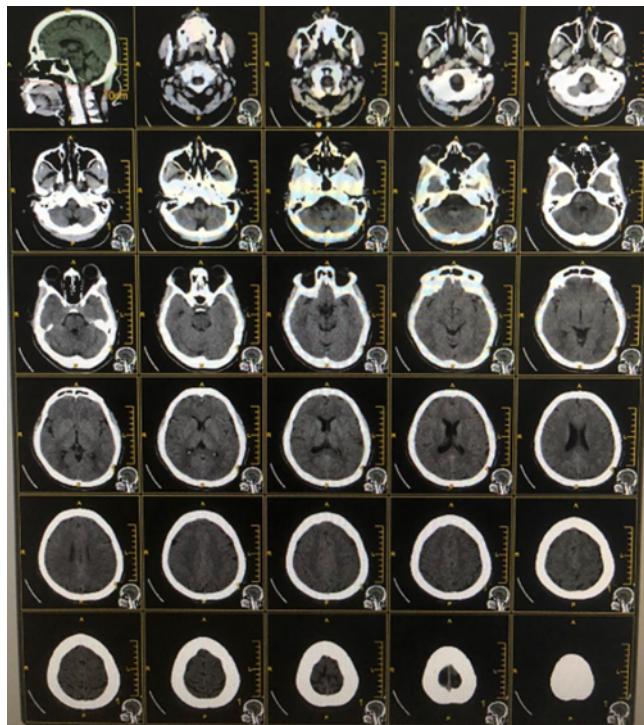


Fig. 2: Patient's CT scan showing slight hypodense at the bilateral subcortical parietooccipital.

The patient was scheduled for an emergency cesarean section. Preoperatively, the patient received nifedipine, magnesium sulfate and was prepared for spinal anesthesia performed in sitting condition under standard aseptic conditions. Spinal anesthesia was performed using a 27-gauge spinal needle at the L2-L3 intervertebral space. The intrathecal anesthetic regimen consisted of hyperbaric bupivacaine 10 mg combined with fentanyl 25 mcg and

morphine 100 mcg, administered over approximately 15 seconds. Monitoring included ECG, heart rate, peripheral oxygen saturation, and respiratory rate. Foley catheter has previously been inserted in the emergency room. Adequate anesthesia was achieved, with sensory blockade up to the T8 dermatome and motor blockade of the lower extremities, evidenced by inability to raise both legs and prick test at level T6 showed no pain.

The cesarean section was performed successfully, and the neonate was delivered with APGAR score of 7 and 8 at 1 and 5 minutes, respectively. Intraoperatively, the fluid was restricted with less than 250 mL of Ringer's lactate and 20 IU of oxytocin drip was given in a 20 mL

syringe instead of regular 500 mL dilution. There were no complications with stable hemodynamics (table 1), and the estimated blood loss was within normal limits for cesarean delivery with no blood transfusion required.

Table 1: Patient's intraoperative hemodynamic stability during cesarean section.

Time (minutes)	Heart rate	SpO2	SBP	DBP	MAP	Respiratory rate
0	106	99	-	-	-	-
5	95	99	177	106	119	-
10	93	99	150	102	118	19
15	88	98	152	84	110	25
20	106	99	144	97	109	22
25	71	99	145	78	93	25

Note: DBP, diastolic blood pressure; MAP, mean arterial pressure; SBP, systolic blood pressure.

Postoperatively, the patient was transferred to the intensive care unit (ICU) for observation. Management included oxygen supplementation via nasal cannula at 2-3 L/min, IV oxytocin 20 IU every 8 hours, 3x1 gram of IV paracetamol, maintenance IV magnesium sulfate, IV furosemide 20 mg, and maintenance fluid of ringer lactate 1000 mL/day. Patient was still continued on mecabalamin and ibuprofen for Bell's palsy. The transversus abdominis plane (TAP) block was also performed for postoperative analgesia. During observation, patient remained hemodynamically stable with no episodes of hypotension, bradycardia, or respiratory depression. Blood pressure and heart rate were maintained within acceptable ranges throughout the procedure. No nausea, vomiting, or neurological deficits was observed in the patient. Neurological evaluation revealed gradual regression of sensory and motor blockade with no abnormal findings. The patient remained alert and oriented. The following day, the patient's symptoms of Bell's palsy subsided. With the stabilization of blood pressure and continued neurological recovery, both maternal and neonatal conditions were satisfactory, with the neonate transferred to routine newborn care.

3. Discussion

Bell's palsy in severe preeclampsia remains a challenging problem in pregnancy. The management remains limited and further complicates childbirth. Patients that experience symptoms and signs of Bell's palsy with preeclampsia needs to be suspected of acute maternal stroke as the first differential diagnosis. Thus, evaluation and physical examination of unilateral weakness or other focal neurological deficits are mandatory. To further exclude or confirm suspicions on acute stroke, brain CT-scan is warranted.^{4,5}

As for the current patient, neurological assessment showed a peripheral facial nerve palsy indicating Bell's palsy. To further confirm the findings and exclude acute stroke, brain CT-scan showed no signs of intracranial hemorrhage or ischemia. Given that stroke is a known complication of severe preeclampsia, it must be carefully considered as a differential diagnosis.⁶ However, the CT-scan only showed subtle hypodense at the bilateral subcortical parietooccipital region which indicated a suspected posterior reversible encephalopathy syndrome due to severe preeclampsia.⁷ In the absence of radiological findings indicative of acute stroke, a diagnosis of Bell's palsy in the setting of severe preeclampsia was reasonably established.

In severe preeclampsia, delivery remains the definitive

treatment. The timing and mode of delivery should be individualized based on gestational age, fetal condition, cervical status, and patient's overall stability. Patients with severe features should undergo expedited delivery to prevent progression to eclampsia, HELLP syndrome, and other neurological complications. Nevertheless, blood pressure control through antihypertensive therapy, in this case oral nifedipine, should still be given to maintain blood pressure, as well as magnesium sulfate for seizure prophylaxis.⁸

Several anesthetic options may be considered for cesarean section, either through general anesthesia or spinal anesthesia. Spinal anesthesia is generally the preferred technique in cesarean section due to minimum fetal drug exposure; however, it still carries a risk for hemodynamic instability and possible change of intracranial pressure (ICP). On the other hand, general anesthesia may be indicated when neuraxial techniques are contraindicated, such as in patients with suspected increased ICP. In our case, the patient was obese which posed potential airway challenges and would have necessitated rapid sequence intubation, with an associated increased risk of perioperative complications. Therefore, after increased ICP was excluded by brain CT-scan, spinal anesthesia was safely performed with appropriate precautions and monitoring.^{9,10}

Postoperatively, the patient was managed in the ICU for continued close observation. Continued magnesium sulfate therapy, strict hemodynamic monitoring, and multimodal analgesia, in our case added TAP block, contributed to a stable postoperative recovery without respiratory depression, neurological deterioration, nor other complications. Improvement of Bell's palsy symptoms occurred concurrently with blood pressure normalization and resolution of pregnancy-related pathophysiological changes. Although the parieto-occipital subcortical edema observed on imaging is unlikely to directly explain the peripheral facial nerve palsy, both findings may reflect systemic endothelial dysfunction and edema associated with severe preeclampsia. Both maternal and neonatal outcome were favorable, underscoring the importance of multidisciplinary management.^{11,12}

Overall, this case highlights the need for early recognition of neurological symptoms in severe preeclampsia, prompt exclusion of obstetric and cerebrovascular emergencies, and individualized anesthesia planning. With appropriate evaluation and monitoring, spinal anesthesia remains a safe and effective option for cesarean delivery in complex

patients with severe preeclampsia, even in the presence of uncommon neurological complications, in this case, Bell's palsy.

4. Conclusion

Patients with severe preeclampsia present significant clinical challenges, which are further compounded by uncommon complications, such as Bell's palsy. Prompt recognition and thorough exclusion of cerebrovascular and obstetric emergencies are essential. Timely, multidisciplinary management is crucial to ensure maternal safety and achieve favorable neonatal outcomes.

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