

A case of osmotic demyelination syndrome detected after caesarean delivery in the patient with the administration of magnesium sulfate for threatened preterm labor

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BACKGROUND

Magnesium sulfate (Mg) has been used as tocolytic drug and induces some complications such as muscle weakness. The osmotic demyelination syndrome (ODS) associated with pregnancy is rare, although can lead to muscle weakness and quadriplegia. In addition, transient neurologic symptoms and cauda equina syndrome following spinal anesthesia could result in gait disorder. Herein, we report that the patient with Mg administration as tocolytic agent presented with gait disorder due to ODS detected after caesarean delivery.

PATIENT

- 36 years old, 1.58m, 63 kg → 71.2 kg
- primi-para, monochorionic diamniotic twin
- Past history: none

Table1. PREGNANCY PROGRESS

Gestational age	events	Mg doze (g/h)	Serum Mg (mg/dL)
26w4d	hospitalization ritodrine start	-	-
29w6d	Liver enzyme elevation Mg start	1	-
30w2d	-	1.2	3.8
30w3d	-	1.6	4.2
30w4d	-	1.6	4.8
30w5d	Weakness in lower limbs	1.6	-
31w2d	-	-	4.7
31w4d	-	1.8	5.1
32w0d	Breathing difficulty	2	-
32w1d	Cesarean delivery Mg off	1.8	-
POD2			1.7

Emergency cesarean delivery was performed

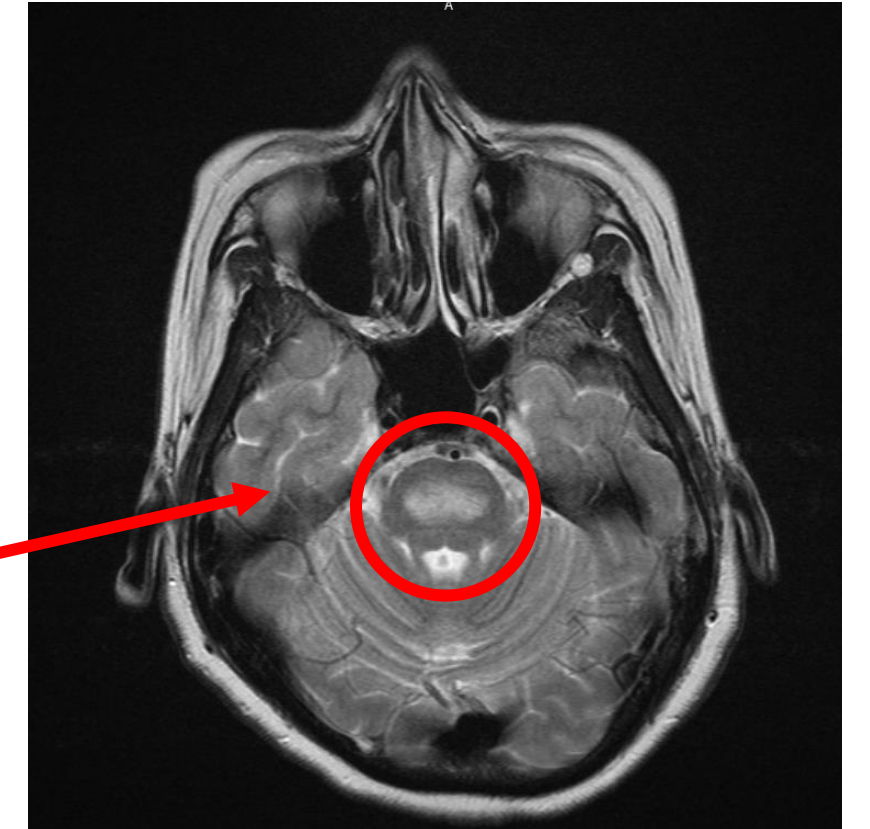
- Because of difficulty to suppress the premature birth
- Spinal anesthesia: 0.5%hyperbaric bupivacaine 2.4ml, fentanyl 10 µg, morphine100 µg
- Operation time: 53 minutes
- Blood loss: 900mL

ODS must be considered when patients receiving Mg for threatened preterm birth present with gait disorder, muscle weakness in lower limbs and dizziness.

Table2. POSTOPERATIVE PROGRESS

Postoperative days	Symptoms and events
1	fatigue
2	Breath difficulty
5	Gait disorder → take Magnetic resonance imagines (MRI)
9	Rehabilitation start
17	Discharge

Figure1. MRI (Diffusion emphasis) on day 5 of post operation.



high intensity area

How to diagnose

- We took an MRI on suspicion of intracranial disease, because of the increased deep tendon reflex and scissors walking.
- She was diagnosed as ODS with the MRI.

About Mg

- Normal serum range: 1.8-2.4 mg/dL
- The therapeutic range for threatened preterm birth: 4-8 mg/dL
- Side effects are seen in 70% of patients.

Differential diagnosis of gait disorder after cesarean delivery under spinal anesthesia

- Nerve injury caused by spinal anesthesia.
- Stroke
- Muscle weakness and ODS caused by Mg administration.

ODS

- Most case reports are associated with rapid correction of hyponatremia. Only a few cases are reported during pregnancy, most of them are associated with vomiting-induced dehydration.⁽¹⁾
- ODS is also associated with rapid administration of Mg for hypomagnesemia, uterine contraction suppression and preeclampsia during pregnancy.
- Our patient did not have history of hypomagnesemia including hyperemesis, hyponatremia and hepatitis.
- ODS could be occurred even with appropriate dose and speed of Mg administration.
- In acute phase, MRI might not useful to diagnose ODS.⁽²⁾
- Tendon reflex is more useful to distinguish ODS from muscle weakness caused by Mg.
- The appropriate anesthetic management for ODS is not unclear. We chose spinal anesthesia in this case, there might be no problem with the anesthesia

1) J Obstet Gynaecol. 2017 Apr; 37(3): 273-279.
2) Mayo Clin Proc. 2011 Nov; 86(11): 1063-1067



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