

Management of a Parturient with Mast Cell Activation Syndrome and History of Tethered Cord

Kayla Jardine, MD, Caroline Tybout, MD, Goran Ristev, MD
Department of Anesthesiology, The Ohio State University, Columbus OH

Background

Mast Cell Activation Syndrome (MCAS)

- Disorder in which patients experience signs of inappropriate mast cell activation and mediator release
- Symptoms affect multiple organ systems including skin, GI, respiratory, and cardiovascular system
- Triggers can include food, medications, stress, and temperature changes
- Treatment focuses on alleviating symptoms through medications such as antihistamines, corticosteroids, diphenhydramine, epinephrine

Tethered Cord

- Condition where spinal cord becomes abnormally attached to surrounding tissues
- Symptoms include back pain, bowel/bladder dysfunction and lower extremity numbness, tingling, and weakness
- Treatment is surgery to release tethering tissue

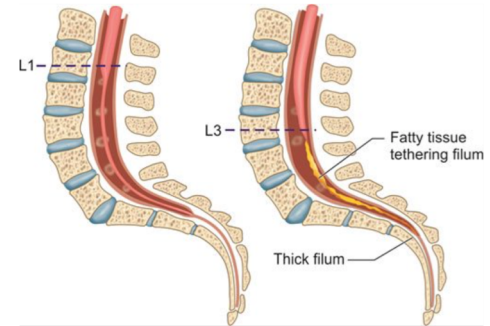


Figure 1. Normal spinal cord versus tethered spinal cord

Case Presentation

Patient History

- 33 year old G1P0 presented at 16 weeks for delivery planning
- PMHx: MCAS, POTS, and history of tethered cord (repaired in 2023)
- Current medications: ketotifen, famotidine, and IM diphenhydramine rescue

Anesthetic Planning

- After discussion with patient's neurosurgeon, she was deemed not a candidate for neuraxial anesthesia due to persistent neurologic symptoms after surgery
- Patient elected for cesarean delivery under general anesthesia
- Interdisciplinary meetings with pharmacy, obstetrics and the patient generated a list of tolerated medications with plan for special preparation of medications with minimal inactive ingredients

Delivery

- Pre-treated with famotidine, midazolam, diphenhydramine and methylprednisolone
- Low dose epinephrine infusion throughout case per patient request
- Operative course uneventful with delivery of a healthy infant and patient extubated in the operating room
- Patient recovered well with minimal symptoms of MCAS

Learning Points

- Labor planning for MCAS patients can be challenging
 - Consider neuraxial anesthesia in appropriate candidates
 - Amide local anesthetics seem to be less triggering than esters
- Identify and mitigate possible MCAS triggers
 - Physical/emotional stress
 - Temperature changes
 - Medications (Vancomycin, opioids, protamine, neuromuscular blockers)
- Consider pretreatment to prevent mast cell degranulation
- Must be prepared to treat anaphylaxis
 - Epinephrine
 - IV fluids
 - Secure airway

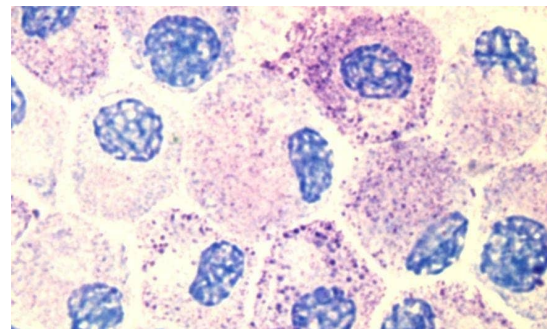


Figure 2. Microscopic view of mast cells releasing inflammatory mediators

The Mast Cell Disease Society: MCAS Premedications⁹

Select One Agent From Each Pharmacologic Category Administer Selected Agents 12 Hours and 1 Hour Before Surgery	
Histamine H ₁ antagonists	Choose one: - Diphenhydramine (BENADRYL) 25 mg PO or IV - Hydroxyzine (ATARAX) 25 mg PO - Cetirizine (ZYRTEC) 10 mg PO or IV - Loratadine (CLARITIN) 10 mg PO - Fexofenadine (ALLEGRA) 180 mg PO
Histamine H ₂ antagonists	Choose one: - Famotidine (PEPCID) 20 mg PO or IV - Cimetidine (TAGAMET) 400 mg PO
Leukotriene receptor antagonists	Choose one: - Montelukast (SINGULAIR) 10 mg PO - Zafirlukast (ACCOLATE) 20 mg PO

MCAS, mast cell activation syndrome.

Table 1. MCAS premedication recommendations

References:

1. Dorff, S. et al. (2020) J Obstet Gynaecol. 40(7):889-901.
2. Hubbard, J. et al. (2023) J Peri Anes Nurs. 38: 357-360
3. Kumaraswami, S. et al. (2018) Case Rep Anesthesiol. 8920921.