Anesthetic Management of a Parturient with a Syringo-Pleural Shunt

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Introduction:

- Impaired CSF drainage in Arnold Chiari Malformation (ACM) leads to high cranial pressures being transmitted to the central canal.[1]
- The development of syringomyelia is characterized by a fluid filled cavity in the spinal cord which is frequently associated with ACM.[2]
- Shunt placement through a syrinx is indicated for patients who failed decompression due to syrinx enlargement or persistent neurologic symptoms.[3]

Case:

- 29yo G3P0 at 31wks gestational age with a h/o ACM type II w/ associated syringomyelia now s/p neurosurgery & syringo-pleural shunt placement.

- Patient admitted for a mandibular abscess with an associated 12kg weight gain during her stay. CXR revealed bilateral pleural opacities. Repeat episodes of fetal bradycardia with minimal variability.

- Required emergent cesarean delivery general anesthesia.

- Persistently hypoxic (SpO2 87%) post-operatively. A CT-angiogram of chest revealed bilateral multifocal pneumonia. Shuntogram revealed no kinking or obstruction of her syringo-pleural shunts

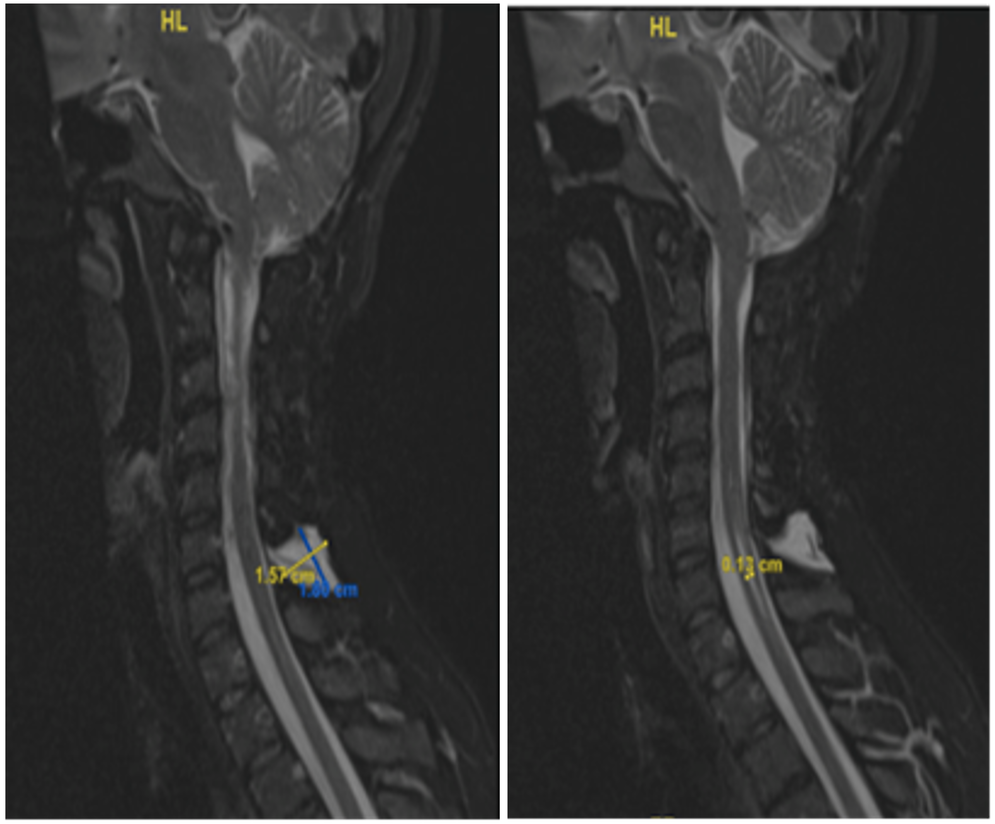

Figure 1: Spine magnetic resonance imaging of a parturient with syringomyelia. Cervicothoracic syrinx as well as associated seroma at C6-C7 level seen on T2 weighted images.

Question 1: Which anesthetic technique is more favorable ?

General Anesthesia[4]:
- Better management of ↑ ICP through BP control and hyperventilation
- Avoids risk of dural puncture

VS

Neuraxial Anesthesia[5]:
- Avoids ↑ ICP from laryngeal manipulation and intubation
- Avoids narcotic effects on fetus

Question 2: What mode of delivery is more favorable ?

Cesarean Delivery with GA[4]:
- Avoids changes in ICP that occur with Valsalva & uterine contractions
- Avoids risk of dural puncture

VS

Vaginal Delivery[5]:
- Can slowly titrate labor epidural to prevent acute reductions in BP
- Avoids manipulation of airway and augmentation of pulmonary function.

OBSTETRIC ANESTHESIOLOGY: ORIGINAL CLINICAL RESEARCH REPORT

Anesthetic and Obstetric Management of Syringomyelia During Labor and Delivery: A Case Series and Systematic Review

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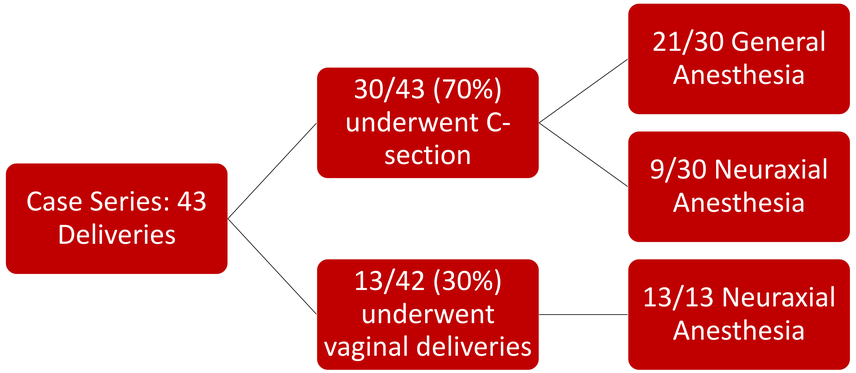

Results[6]:
- Prior to delivery: worsening neurological condition in 5 patients (11.6%), 4 of whom underwent GA.
- Peripartum: one neurological complication (one sided anesthesia after delivery)
- No persistent complications from spontaneous vaginal delivery & neuraxial anesthesia.

Takeaways:

1. Physiologic changes in pregnancy such as increased ICP make syringomyelia a significant clinical concern in pregnant patients.

2. Unique problems such as neuro-shunt malfunction that can occur after many years of excellent function add another dimension of complexity in those with syringo-pleural shunts[7]

3. A shunt patency study is required if there is suspicion of a malfunctioning shunt

4. It a appears that anesthetic complications occur infrequently regardless of anesthetic technique

5. It appears that neuraxial anesthesia might be undertaken without serious clinical consequence in these patients

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