A 23 year old, G2P0010 female, with known Chiari malformation Type 1, at 39 wks IUP (ht 5'7", wt 200lbs) presented with rupture of membranes. The patient's surgical history was significant for D&C in 2010 for spontaneous abortion. As part of her prenatal care, the patient underwent a neurosurgical evaluation which included an MRI showing a stable Chiari I malformation with cerebellar tonsils occupying the foramen magnum. Neurosurgical recommendations included avoidance of vaginal delivery & use of epidural anesthesia because of the possibility of dural puncture resulting in a CSF leak leading to brainstem herniation [1]. On presentation, the patient declined to attempt vaginal delivery without anesthesia. A discussion between OB/GYN, Neurosurgery and Anesthesiology teams took place. Taking in consideration several reports of successful epidural, spinal, and general anesthesia for deliveries in similar patient populations [2,3], strong Neurosurgical opinion that a transient increase in intracranial pressure that may accompany general anesthesia is outweighed by the risk of accidental dural puncture with resultant CSF leak during epidural anesthesia, a decision was made to proceed with C/S with general anesthesia.

On the day of surgery, the patient's vital signs were BP 136/87, HR 89, Temp 98. Airway exam revealed a Mallampati II airway. The patient's laboratory values included WBC 10, Hgb 12, Hct 39, and Plts 148. The patient did report allergy to latex. Prior to induction, the patient received Reglan 10mg IV and Na Bicitrate 30mL PO. Rapid Sequence Anesthesia induction was carried out using an 18g IV in right arm. Lidocaine 100mg was injected, followed by Propofol 200mg. Succinylcholine 100mg was then used to achieve muscle relaxation and a size 7 cuffed ETT was placed and secured at depth of 21cm using direct laryngoscopy with MAC 3 blade. General anesthesia was maintained using isoflurane 0.9% O2 at 2L and N2O at 2L. The patient received 100mcg of fentanyl, 2mg of midazolam, 4mg of Zofran, and 20u of Pitocin intraoperatively. The patient remained hemodynamically stable throughout the procedure. A live female infant (Apgar score 91 and 95) was delivered. The patient was successfully extubated and transported to recovery room.

The patient remained hospitalized for a total of 5 days and remained stable following surgery. Post-operative pain was well controlled using hydromorphone-PCA. The patient did not report any neurological symptoms following surgery. Mother and child were discharged in a stable condition 5 days after admission.

Conclusion: This case demonstrates the relative safety of using general inhalational anesthesia with rapid sequence induction in order to minimize possible complications accompanying accidental dural puncture resulting in CSF leak in pregnant patients with Chiari I malformation during delivery.
References:

