



Introduction

- Marble bone disease, also known as osteopetrosis, is a heritable bone disease characterized by osteoclast dysfunction¹.
- The autosomal recessive form presents in childhood with multiple, systemic pathologies that place this population at increased risk of anesthetic complications².
- Invasive therapies or procedures requiring anesthesia are common in this population, such as those for hematopoietic stem cell transplantation (HSCT), which is to-date the only curative treatment for osteopetrosis.
- This case study describes spinal anesthesia (SA) as an alternative to GETA in an ex-preterm neonate with osteopetrosis to achieve a smooth, hemodynamically stable induction of surgical anesthesia with avoidance of airway manipulation.

Case Report

A 4.4 kg, 37-week postmenstrual age, ex-premature (29-week gestational age) infant with infantile osteopetrosis presented for left partial orchiectomy for cryopreservation prior to therapeutic HSCT with planned out-of-pocket payment and overnight observation due to ex-premature status.

PMH: 12-week NICU stay requiring a 2-week intubation, history of aspiration s/p GJ tube, chronic nasal congestion, GERD, hypoglycemia, and healing fractures of the right arm and leg.

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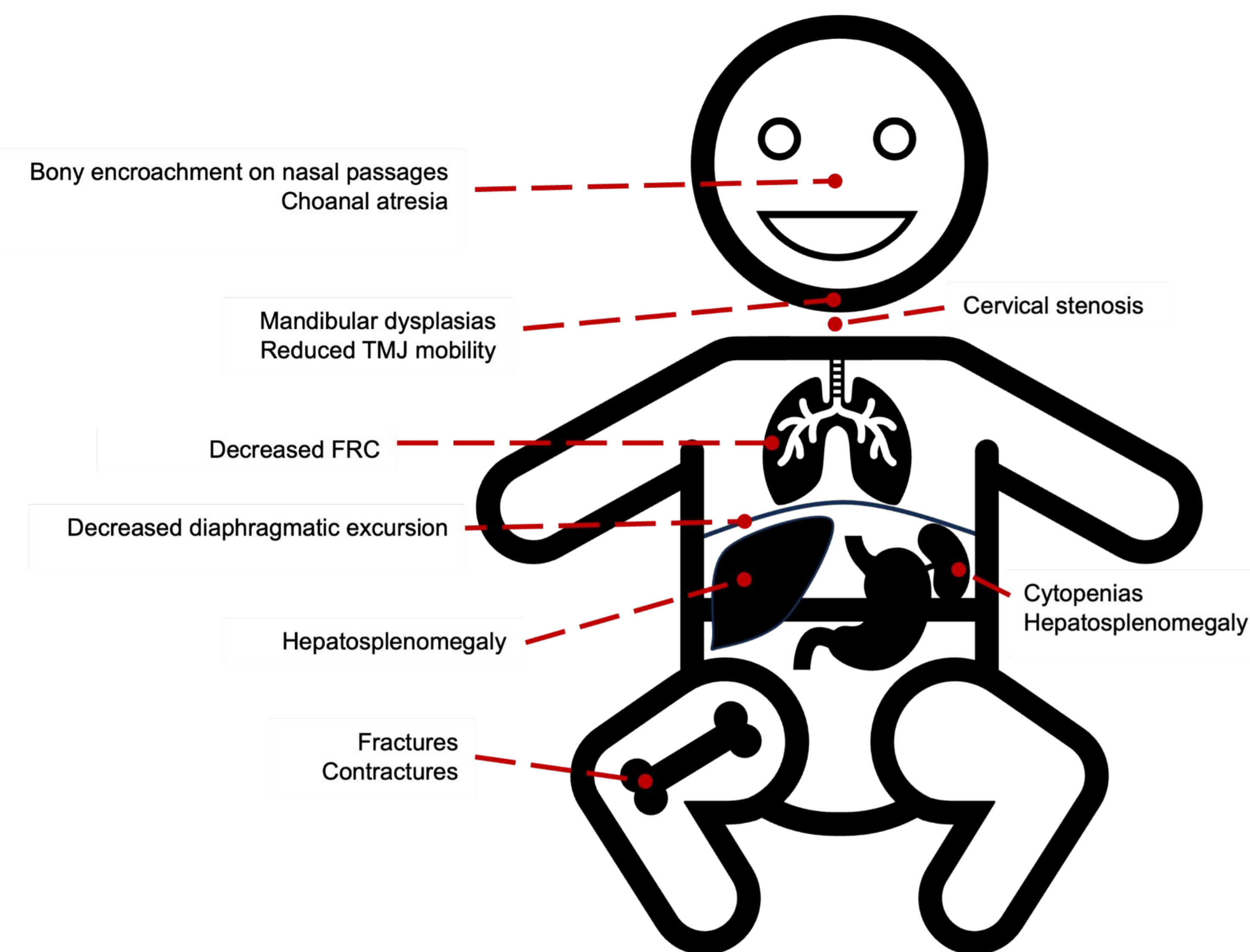


Figure 1: Key manifestations of osteopetrosis with implications for anesthesia

ASRA
PAIN MEDICINE



Scan for references

Technique

- **Pre-operatively:**
 - Topical lidocaine 2.5% and prilocaine 2.5% (EMLA) cream
 - Oral sucrose solution (Sweet-Ease) as pre-medication
- **Intraoperatively:**
 - Awake 24-gauge PIV obtained in the left foot prior to induction
 - Sedation dexmedetomidine to optimize patient conditions
 - 2-person upright hold with max hip flexion in a 45° head up tilt
 - L4-5 intervertebral level was marked and prepped with betadine
 - A 22-gauge, 3.5-cm Quincke needle was inserted at a 70° angle and gradually checked with positive return of CSF
 - 3.5 mg (0.8mg/kg) of 0.5% bupivacaine plain was injected over 20s
 - Block effectiveness confirmed after quick onset of flaccid lower extremities and low rectal tone
 - Patient re-positioned supine and arms were gently restrained

Discussion

- Patient was calm and hemodynamically stable throughout
- SA in pediatric patients → less hypotension, less early apnea, shorter times to first feed, and lower pain scores in PACU⁴
- Obtain parental consent for SA and GA in case of SA failure⁴
- PIV access in lower extremity can be done post-SA in healthy infants
- SA may have hastened recovery period → reduced resource utilization and postoperative length of stay when compared to GETA⁵

