

Mandibular Distraction Clinical Guideline (MDO)

Inclusion Criteria:

- All infants with micrognathia with respiratory distress, glossptosis

Exclusion Criteria:

- Known lower airway obstruction <36 weeks

Available Resources:

- MDO Order Set
- MDO Airway Box

Clinical Evaluation

Admission:

- Admit to NICU or PICU ** For any consults or testing assure they have been completed outpatient
- Initiate reflux precautions and position to maintain airway (side lying or prone) as needed or indicated
- Consults: (if not previously consulted)
 - Genetics
 - Otolaryngology
 - Plastic Surgery
 - Pulmonary
 - GI
 - PICC Team
 - Developmental Team
 - Child Life
 - Ophthalmology (prior to discharge)
- Laboratory: Chromosomal Microarray
- Bedside Procedures
 - NAP Study
 - 3D CT Scan for virtual surgical planning (non-contrast face CT with 0.5-millimeter cuts)
- Operating Room Procedures
 - Rigid bronchoscopy
 - Laryngoscopy
- Multidisciplinary care meeting to discuss surgical plan: To include Plastics, ENT, Neo/Intensivist

Preoperative Care

- **Notify Anesthesia of patient prior to OR**
- Complete NICU Green OR sheet at bedside
- NPO per protocol
- Place MDO turn schedule at the bedside
- RN to ensure that turning screwdriver return with patient from OR

Postoperative Care

Medications:

- Acetaminophen IV 10-15mg/kg/dose Q6 hours for 48-72 hours postoperative
- Opioid Naïve
 - Morphine infusion 0.03-0.05mg/kg/hr
 - or
 - Fentanyl infusion 0.5-2mCg/kg/hr
- Opioid Exposed
 - Morphine infusion of 0.05-0.1 mg/kg/hr or increase current opioid infusion by 20%
 - or
 - Fentanyl infusion 0.5-2mCg/kg/hr
- Additional options as needed
 - Dexmedetomidine infusion 0.2-1mCg/kg/hr
 - Dexamethasone 0.25 mg/kg/dose ~ 4 hours before extubation per physician order
- PRN
 - Intermittent Morphine 0.05 mg/kg/dose or fentanyl 1mCg/kg/dose IV PRN every 2 hours for breakthrough pain to start if increasing morphine or fentanyl infusion, the PRN dose and infusion hourly dose should be the same
- Antibiotics: Cefazolin 30mg/kg/dose IV every 8 hours for 48 hours postoperative

Airway Management:

- Endotracheal intubation for 4-7 days or PICU per physician order
- Until mandibular alignment is achieved or if patient has tracheostomy **PICU per physician order**
- Suctioning as needed: Please render discretion to avoid oral aversion

Nursing Care Post Operatively

- HOB elevated 30°
- Ice to face Q6 hours for 20 min for 24 hours postoperative
- Pin care: Cleanse with sterile water and apply Bacitracin as ordered
 - Mepilex to be placed under pins on face during the first 72 hours post-op
- Rotation Instructions:
 - 2 turns BID while intubated followed by 1 turn TID as ordered OR per physician order
 - *Plastic surgery to do first turn and every morning turn. RN to do evening turn.*
 - Continue turning as ordered until instructed to stop
- Enteral Feeding: With return of bowel function and clinical stability
 - NPO for 12- 24 hours
 - Normal diet to resume over 24 - 48 hours
- Repeat NAP Study near completion of detractors

Post- Operative Device Removal

- 3 months after last turn

Discharge Recommendations

- Follow up with plastic surgery in clinic 4-6 weeks after last turn
- Craniofacial team referral
- Instruct family on how to use the wrench and how to turn daily
- Instruct family on assessment of pin site for redness or drainage and to call the plastic surgeon

MDO Reference List

- A. Heffernan, C. B., Calabrese, C. E., & Resnick, C. M. (2019). Does mandibular distraction change the laryngoscopy grade in infants with Robin Sequence? *Journal of Oral and Maxillofacial Surgery*, 77(2), 371-379. doi:10.1016/j.joms.2018.05.032. (American Medical Assoc.)
- B. Resnick, C. M. (2018). Precise osteotomies for mandibular distraction in infants with Robin sequence using virtual surgical planning. *International Journal of Oral & Maxillofacial Surgery*, 47(1), 35-43. doi:10.1016/j.ijom.2017.07.020.
- C. Paes, E. C., Fouché, J. J., Muradin, M. S. M., Speleman, L., Kon, M., & Breugem, C. C. (2014). Tracheostomy versus mandibular distraction osteogenesis in infants with Robin sequence: a comparative cost analysis. *British Journal of Oral & Maxillofacial Surgery*, 52(3), 223-229. doi:10.1016/j.bjoms.2013.11.017.
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- E. Bangiyev, J. N., Traboulsi, H., Abdulhamid, I., Rozzelle, A., & Thottam, P. J. (2016). Sleep architecture in Pierre-Robin sequence: The effect of mandibular distraction osteogenesis. *International Journal of Pediatric Otorhinolaryngology*, 89, 72-75. doi:10.1016/j.ijporl.2016.07.019.