

The Role Of Age: Complication Profiles In Pediatric Mandibular Distraction Osteogenesis

Melanie Bakovic, BS; Asli Pekcan, BS; Raina Patel, BS; Valeria Mejia, BS; Marvee Turk, MD; Alyssa Valenti, MD; Mark Urata, MD, DDS; Jeffrey Hammoudeh, MD, DDS

Introduction

- Mandibular distraction osteogenesis (MDO) is an **effective treatment for upper airway obstruction** in pediatric patients with micrognathia.
- Data on **how age** at the time of distraction **affects complication rates** is limited.

Objective

Evaluate age-related risks associated with MDO and offer updated complication rates based on patient age at the time of surgery.

Methods

Retrospective review at a tertiary children's hospital

Inclusion Criteria: MDO between 2004 and 2023

Exclusion Criteria: <6 months of follow-up

Outcome Variables: 30-day infection rates, major post-operative complications, minor post-operative complications, hospital stay and postoperative tracheostomy placement (MDO failure).

Statistical Analysis: Fisher's exact, Pearson's chi-squared, and the Mann-Whitney U tests.

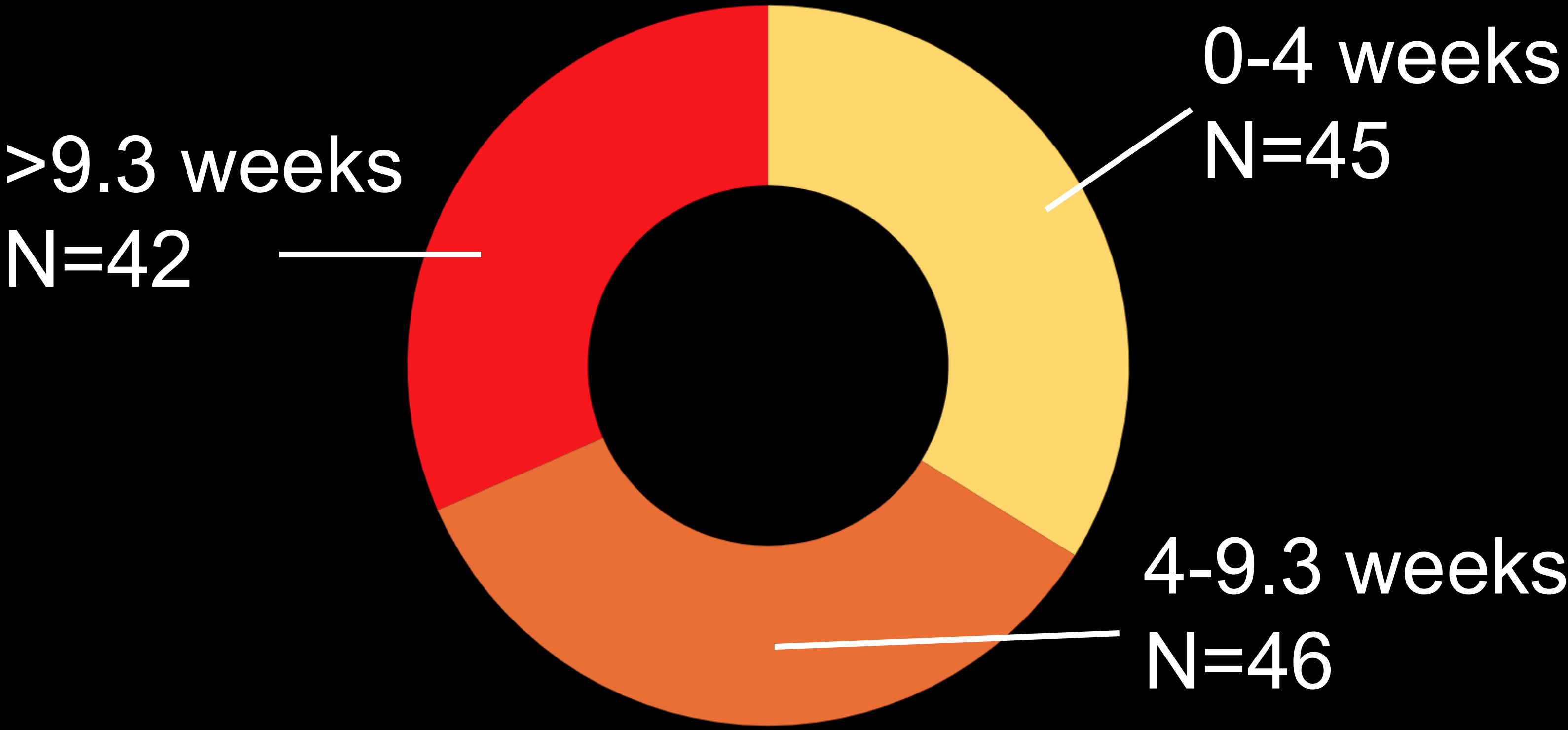


Figure 1. Distribution of Age Cohorts. Patients were evenly distributed across the three age groups.

Table 1. Complication Rates Across Age Cohorts.

	0-4 weeks	4-9.3 weeks	>9.3 weeks	p-value
N	45	46	42	
Infection	10 (22.2%)	13 (28.3%)	6 (14.3%)	0.28
Wound Dehiscence	9 (20.0%)	1 (2.2%)	2 (4.8%)	0.006
Minor Complication	24 (53.3%)	17 (37.0%)	9 (21.4%)	0.009
Major Complication	14 (31.1%)	12 (26.1%)	10 (23.8%)	0.73
Postoperative trach	2 (4.4%)	2 (4.3%)	1 (2.4%)	0.85
Hospital Stay (days), median	48.0	59.0	26.5	<0.001

Results

- 133 patients met inclusion criteria
- Median age at MDO: 5.6 weeks
- Average distraction distance: 30mm
- Median follow-up: 6.1 years
- Minor complication rates were **highest in the youngest cohort**
 - Specifically, wound dehiscence
- No significant differences** were observed in 30-day infection rates, **major complications** requiring rehospitalization, or need for **postoperative tracheostomy**.

Conclusion

MDO remains a **safe and effective** procedure for patients of **all ages**, though attention to **wound care** and nutrition is critical for those who undergo surgery **before three weeks of age**.