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TECHNICAL NOTE

"Endotracheal Tube" as a Temporary Method of Mandibular Reconstruction in Infant with Juvenile Ossifying Fibroma

Adity Bansal[1] · Gosla Srinivas Reddy[1] · Ashi Chug[1]

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Reconstruction of adult mandibular defects is well-established, however, there are no conclusive guidelines regarding the same in the pediatric population [1]. Management becomes challenging in infants with widespread jaw destruction like "Juvenile Ossifying Fibroma" (JOF). PubMed and Cochrane CENTRAL database literature search for (("infant") AND ("lower jaw" OR "mandible") AND (benign jaw tumor" OR "juvenile ossifying fibroma") AND ("resection and reconstruction" OR "reconstruction")) yielded zero results. A definitive paradigm for reconstructive options in pediatric mandible is the need of time. We describe a method of temporary mandibular reconstruction with "Endotracheal tube" following total mandibulectomy in infants.

The goal of pediatric mandibular reconstruction (PMR) is to achieve function, aesthetics, and to provide scope for future dental rehabilitation. Although various bony reconstruction options have been utilized in pediatrics over a wide age-range in benign and malignant etiologies, like iliac-crest, costochondral graft, free-fibula graft, titanium reconstruction plate, bony distraction and various prosthetic materials like customized cribs [2], but the optimal technique and time for such surgeries have not been established. It depends upon multiple factors like growth potential, location, type and nature of the lesion, defect size, method of management, remaining bone and soft tissue cover, postoperative chemotherapy and radiotherapy.

Although vascularized free-fibula flap is popular for larger adult mandibular reconstruction, however, its use in the pediatric population is a challenge as growth potential of the neo-mandible remains controversial postoperatively [3]. Costochondral graft has also been considered, nonetheless, it can cause overgrowth or extrusion of the graft with time. A "staged-protocol" was also defined by Troulis et al., where two patients exhibited spontaneous bony regeneration [4].

A newborn male neonate presented with lower jaw swelling. Medical and family history was non-significant. The swelling gradually increased with time. Patient reported at the age of 2 months, when the swelling involved the entire mandible, with marked buccal cortical expansion (Fig. 1). On palpation, the swelling was non-tender, with no associated paresthesia. Non-contrast computed tomography (NCCT) face revealed heterogenous and mixed radiopaque-radiolucent lesion encompassing the complete mandible, with thinned-out buccal cortex and multiple areas of perforation including the inferior border. Histo-pathological examination observed multiple bony trabeculae, osteoids at peripheral areas with osteoblastic rimming and multiple spindle-shaped mesenchymal cells, suggestive of JOF.

Total mandibulectomy was performed under general anesthesia through intraoral approach (Fig. 2), followed by reconstruction with silicone "Endotracheal (ET) Tube" of size 3.5, which was fixed with a resorbable 3-0 vicryl suture (Fig. 3). This was done to preserve the overlying soft tissue, otherwise it might show prolapse with time, and thus would hinder the future bony reconstruction without adequate soft tissue cover. No complications were observed at a one-year follow-up, with ET tube well in position (Fig. 4).

✉ Adity Bansal
aditybansal@rediffmail.com

[1] Department of Cranio-Maxillofacial Surgery/Dentistry, All India Institute of Medical Sciences (AIIMS) Rishikesh, Rishikesh, Uttarakhand 134113, India

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Fig. 1 Mandibular growth involving the entire mandible with marked buccal cortical expansion

Fig. 2 Total mandibulectomy was performed through intraoral approach

Reconstruction of pediatric mandibular defects is scant and controversial due to their rare occurrence, thus complicating the decisions therapeutically. This technical note aims at introducing a temporary method of mandibular reconstruction in infants. It requires further long-term studies to define the reconstructive algorithms in pediatric

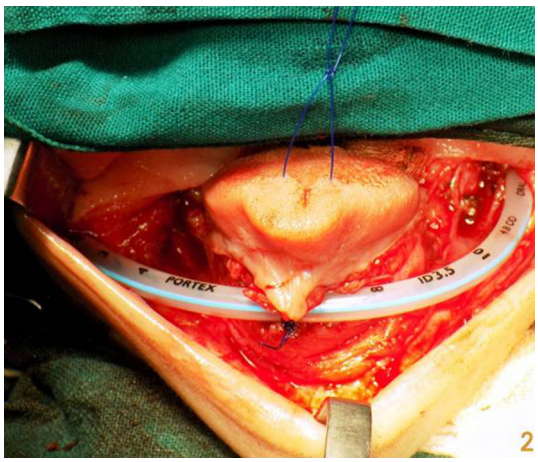

Fig. 3 Temporary mandibular reconstruction with silicone Endotracheal tube

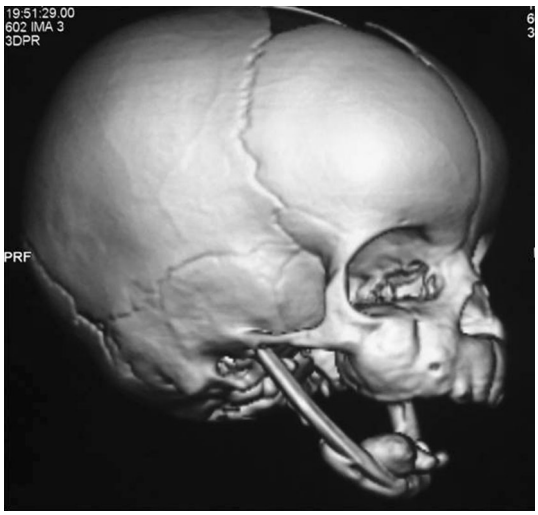

Fig. 4 Non-contrast computed tomography (NCCT) face at a one-year follow-up post-reconstruction showing well-positioned Endotracheal tube

population, to achieve minimal morbidity and higher success-rates.

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Compliance with Ethical Standards

Conflict of interest There are no conflicts of interest to declare.

Ethics The work was carried out in accordance with the "The Code of Ethics of the World Medical Association".

Consent to Participate Informed and written consent was obtained from the patient parent.

Consent for Publication Informed and written consent was obtained from the patient parent.

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