

## Airway management in a child with partial mandibulo-maxillary fusion

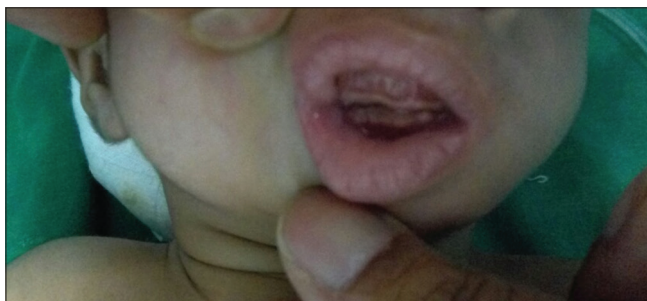
Sir,

Syngnathia, bony maxilla-mandibular fusion, is a rare anomaly and usually associated with cleft palate or other systemic anomalies. We herewith describe a method to maintain adequate depth of anaesthesia while managing airway by fibre-optic (FO) intubation.

A 4-month-old female child weighing 3.5 kg with congenital complete fusion of left mandible and maxilla with 0.2 cm opening on right side [Figure 1] presented to the hospital. History revealed that the patient was more comfortable in either of the lateral positions. Her

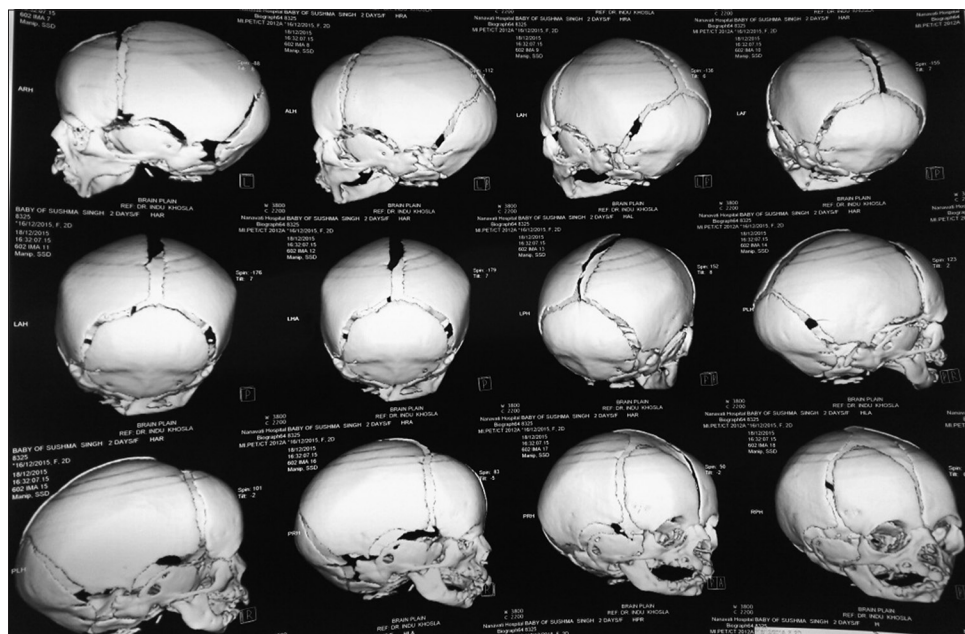
routine haematological, biochemical and radiological workup was normal. Reconstructed three-dimensional computed tomography scan images of the skull showed complete left-sided mandibulo-maxillary fusion, with opening seen on the right [Figure 2]. She was scheduled for left maxilla-mandibular release. An FO nasal intubation while maintaining spontaneous ventilation was planned. Nebulisation with lignocaine spray (2%, 10.5 mg) was started 20 min before surgery. Nasal packing with 1:100,000 adrenaline was done. Intravenous glycopyrrolate (4 µg/kg) was administered. Anaesthesia induction was started with O<sub>2</sub>, N<sub>2</sub>O and sevoflurane (gradually increased to 8% and maintained at 2%), with gradually increasing concentration of inhalational agent, following which size 2.5 mm (internal diameter [ID]) of endotracheal tube (ETT) was passed through right nostril up to nasopharynx. Jackson Rees' circuit was connected; bag movements corresponded with chest expansion

and end-tidal CO<sub>2</sub>; FO bronchoscope (FOB) with size 2.5 mm ID of ETT loaded was over it and was passed through the left nostril and cords were negotiated in the first attempt. After confirming ventilation, muscle relaxant (injection atracurium, 0.5 mg/kg) was administered and surgical procedure started. Peri-operatively, the patient was maintained on O<sub>2</sub>, N<sub>2</sub>O, sevoflurane (2%) and intermittent doses of muscle relaxant. Surgical procedure lasted for approximately 90 min. Bony release of the left maxilla and mandible was done. Blood loss was around 25 ml, which was replaced by crystalloids. Infra-orbital, greater palatine and postero-superior alveolar block were given for post-operative pain relief. At the end of procedure, immediate extubation was circumvented to avoid airway compromise from soft tissue oedema during the post-operative period. The patient was shifted to intensive care unit with T-piece and extubated after 12 h.



**Figure 1:** Complete fusion of the left mandible and maxilla with 0.2 cm opening on the right side

Maxillo-mandibular fusion is a rare group of anomalies varying in severity from simple mucosal adhesions (synechiae) to extensive bony fusion (syngnathia), depending on the amount of mesodermal penetration. True bony fusion is a very rare anomaly, and only a handful of case reports exist in literature.<sup>[1]</sup> Adhesion can be complete or incomplete, unilateral or bilateral, with an anterior opening. Problems associated with syngnathia include maintenance and protection of the airway, feeding difficulties and particularly when surgical correction is planned – difficulty in induction of anaesthesia.<sup>[2]</sup> Securing airway is the biggest challenge in patients. With history of airway obstruction, our aim was to maintain spontaneous ventilation. Adequate preparation of upper airway is important as even the slightest bleeding leads to aspiration and complications such as laryngospasm, bronchospasm or difficulty in ventilation; readiness for emergency tracheostomy is therefore important. Meier *et al.* showed that continuous positive airway pressure (CPAP) in addition to chin lift and jaw thrust nearly doubled the size of the glottic opening by working as a pneumatic splint, as visualised by FOB.<sup>[3]</sup> An elegant way of providing CPAP/positive end-expiratory pressure while simultaneously handling a difficult airway with an FOB through one nostril is by inserting an ETT (3.0–3.5) as a nasopharyngeal airway approximately 8 cm into the contralateral nostril attached to an anaesthetic circuit.<sup>[4]</sup> This helps in giving CPAP, provides passive flow of



**Figure 2:** Reconstructed volume rendered three-dimensional computed tomography images of skull showing complete left-sided mandibulo-maxillary fusion, with opening seen on the right

O<sub>2</sub> and inhalational agents, providing stable plane of anaesthesia; at the same time, bag movements assess breathing pattern. Thus, use of FOB can be facilitated using an endotracheal tube, connected to an anaesthetic circuit and passed till nasopharynx. However, utmost care is required to avoid mucosal bleeding and oedema due to airway manipulation.

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#### Conflicts of interest

There are no conflicts of interest.

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