

Fibrodysplasia of maxilla: A difficult airway

INTRODUCTION

Fibrous dysplasia is a benign condition, in which the fibrous tissue and abnormal bone replace normal bone. Fibrous dysplasia occurs most frequently in maxilla than in the mandible. This disease most commonly presents as an asymptomatic slow enlargement of the involved bone. Craniofacial involvement is reported in 25% of monostotic cases.^[1]

CASE REPORT

A 22-year-old boy weighing 38 kg, presented with a huge swelling on the left side of the face, which extended partly on to the right side also. The swelling had increased to present size over 7 years as in Figure 1.

Examination revealed swelling on both sides of face extending from infraorbital region (left > right) involving the maxillary and mandibular area along with the upper part of the lip. Anatomy of the nose was distorted along with the deviation of upper lip. Pre-operative evaluation was carried out thoroughly with routine investigations. Airway assessment revealed Mallampati class I, thyromental distance - 6 cm with adequate mouth opening and upper lip bite test – grade III.^[2]

Radiological finding showed involvement of maxillary, mandibular and nasal bone causing total blockade of left posterior nare with narrowing of the right.



Figure 1: Anticipated difficult mask ventilation and intubation

Mallampati grading did not suggest difficult airway, but the upper lip bite test along with the extent of the tumour distorting the anatomy both externally and internally made us still think of difficulty in intubation along with difficult mask ventilation. The size and extent of swelling was defined carefully to plan for mask holding and to avoid soft-tissue trauma during intubation. As difficult mask ventilation and intubation was anticipated, a difficult airway cart was kept ready containing laryngeal mask airway of size 3, McCoy blade size 3 and 4 and bougie. Written informed consent was obtained.

Priority of our anaesthetic plan was to achieve mask ventilation. If it was not possible, we planned to do awake fibroptic intubation with local blocks through oral route as posterior nares were almost blocked, remote possibility of tracheostomy was thought of and ENT surgeon was kept informed to be available.

The boy was pre-medicated with injection midazolam 0.02 mg/kg and fentanyl 2 µg/kg. As adequate mask ventilation was not possible due to inability of the biggest mask to close the nostrils and mouth, we adopted the following steps to achieve adequate mask ventilation: Both nostrils were closed using cotton balls after explaining the patient same. It did not cause any inconvenience as left posterior nare was blocked completely with narrowing of the right nare. Then the mask was held on to the oral cavity. As the swelling involved upper part of the lip, there occurred leak, which was covered with gauze, but still adequate seal was not achieved. Hence, we planned to hold the mask by two pairs of hands by two persons, which made us achieve adequate bag filling successfully. The boy was induced with injection propofol 2 mg/kg and sevoflurane (2-6%). Mask ventilation was possible only with two persons holding the mask. Even after apnoea, we were able to mask ventilate with adequate chest expansion. Then we decided to perform a trial laryngoscopy to assess the ease of intubation. There was difficulty in introducing the direct laryngoscope as the left side of upper lip was involved by swelling. McIntosh laryngoscope with no. 3 blade was used through, which we could visualize only epiglottis with CL grading of III.^[2] As mask ventilation was achieved with two persons adequately we decided to give succinylcholine 1.5 mg/kg in order to facilitate the better visualization of the glottis on direct laryngoscopy. To facilitate the same we further decided to use McCoy blade of size 3. With all these precautions, our laryngoscopy with McCoy blade

revealed CL grade IIIa.^[3] As there was no improvement in CL grading following relaxation and with McCoy blade, we decided to introduce the bougie and thread the tube over it and the same was accomplished with single attempt as in Figure 2. Following uneventful intraoperative period, boy was extubated at the end of surgery on the table (in view of anatomy of the tumour not impinging on the upper airway post-operative airway oedema was not anticipated and this opinion to extubate patient on the table was in consensus with the operating surgeons), shifted to intensive care unit and to ward, the next day.

DISCUSSION

The prime consideration in managing our case was to achieve adequate mask ventilation in order to secure airway. Successful mask ventilation provides anaesthesiologist with a rescue technique during the unsuccessful attempts at difficult airway situations.

A case of a big nasal tumour with impossible conventional mask ventilation in a 14-year-old boy was successfully managed by ventilation with paediatric face mask (no. 2) covering the mouth only,^[4] whereas in our case we required biggest mask (no. 5) to cover the mouth. We checked the inadequacy of mask ventilation in awake patient by lack of filling of reservoir bag even with high flows, it was considered as grade III difficult mask ventilation.^[5] After confirming adequate ventilation, patient was induced and trial laryngoscopy revealed CL grade IIIa. Succinylcholine did not improve CL grading; hence, we intubated by threading endotracheal tube over bougie.



Figure 2: Secured airway

There is another case report of osteosarcoma of maxilla posted for total maxillectomy where in the swelling made mask ventilation impossible. In this case, anaesthesia was induced (inhalation) by using a nasopharyngeal airway and positive pressure ventilation was accomplished by packing oral cavity adequately and was confirmed by capnography, following which a check laryngoscopy was carried out, which revealed CL grade IIa. After deepening anaesthesia, patient was intubated successfully.^[6] In our case, the swelling blocked left posterior nare totally with narrowing of right nare, which prevented us from using nasopharyngeal airway.

In our case, primary worry was mask ventilation though difficult intubation was also anticipated. There are various degrees of difficulty experienced with mask ventilation, which is classified in review article by name “difficult mask ventilation.”^[5]

CONCLUSION

There are various ways of managing difficult mask ventilation and difficult intubation, which depends on institutional protocols and expertise of anaesthesiologist. Each and every case is unique and a method followed in one case cannot be always extrapolated to next similar case.

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