Sedation for magnetic resonance imaging in a child with lingual venolymphatic malformation

Sir,

The number of diagnostic and therapeutic procedures performed outside the operation theatre has increased over the last decade and providing anaesthesia and sedation will be a real challenge to the anaesthetisiologists. Sedation for magnetic resonance imaging (MRI) procedures in children adds a substantial risk in younger children. This is more so in paediatric patients with difficult airway.[1]

A 4 years male child weighing 16 kg presented to paediatric department with a huge swelling of tongue since birth. He had undergone resection of the same at 6 months of age which had recurred (size approximately around 6 cm × 4 cm). He had difficulty in speech and feeding, and, of course, cosmetic issue to his family and society. Paediatricians suspected venolymphatic malformation and to confirm the diagnosis child was advised MRI neck. During preanaesthetic evaluation, we noted the profusely enlarged tongue which was protruding out of oral cavity [Figure 1]. The child was unable to protrude his tongue as it was covering the entire oral cavity. Availability of all emergency drugs and difficult airway cart including fibreoptic bronchoscope were confirmed in the MRI suite.

Parental consent was obtained, and the child was fasted for 6 h for solids and 2 h for clear liquids. Monitoring with pulseoximeter and electrocardiogram (ECG) were initiated, and baseline heart rate (HR), and blood pressure were recorded. Intranasal dexmedetomidine 1 μg/kg and eutectic mixture of lignocaine and prilocaine cream was applied 30 min before securing a 22 gauge intravenous cannula over dorsum of the left hand. Injection glycopyrrolate 10 μg/kg was administered. Oxygen through nasal prongs was delivered at 2 L/min. Injection dexmedetomidine 0.5 μg/kg (IV)was administered over 10 min. The sedated child was taken to MRI console (Ramsay sedation score of 5).[2] An MRI compatible monitor was used to monitor HR, ECG and oxygen saturation and respiration through a sidestream capnography continuously and patient remained stable throughout the procedure lasting for 20 min. In the recovery room, the child was made to lie in the left lateral position. Monitoring and oxygen supplementation were continued. The child made an uneventful recovery from sedation.

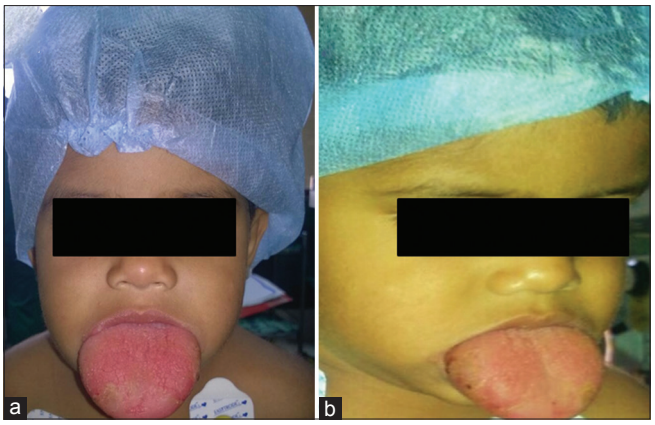

Figure 1: (a and b) Profusely enlarged and protruding tongue

Venolymphatic malformations are slow-flow lesions that are a combination of dilated lymphatic channels filled with proteinaceous fluid and large veins. These can be difficult to separate from other low flow lesions such as lymphatic malformations and haemangiomas on certain imaging, especially ultrasound. The presence at birth favours venolymphatic malformation, although the other two do occur at birth.[3] Computed tomography and MRI are used for volumetric analysis of haemangiomas and vascular malformations. Imaging resources are useful in both diagnostic differentiation and analysis of lesion features with regard to its size, extension and location, as well as for follow-up of lesions treated under a systemic therapy.[4]

MRI suite is unlikely to be a favourable place to give sedation or anaesthesia for many reasons. Patient's distance from anaesthesiologist creates problems such as airway management, intravenous access, patient visualisation and monitor attachment.[5] MRI compatible machines and airway instruments are required and patients may suffer due to claustrophobia, noisy unfamiliar environment, hypothermia, and strong magnetic field.

Children require moderate to deep sedation during MRI procedures to avoid movement and image distortion. The potential complications of deep sedation include hypoventilation, apnoea, airway obstruction, bradycardia and hypotension. An appropriate drug which causes minimal cardiorespiratory depression has to be used. Dexmedetomidine (a highly selective α_2-adrenoreceptor agonist) as a sedative agent will provide a controllable sedation and analgesia without

cardiorespiratory depression.[6] An interesting feature regarding oral use of dexmedetomidine is that after oral administration for paediatric sedation, the absorption is to the extent of 82%.[7] Although dexmedetomidine and propofol provide adequate sedation in children, propofol provides more rapid rates of anaesthetic induction and recovery but dexmedetomidine better preserves mean arterial pressure and respiratory rate.[8]

Thus, we conclude that drugs which provide a controlled sedation without cardiorespiratory depression like dexmedetomidine can be very useful for sedation in paediatric patients with difficult airway outside operation theatre.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

Mahantesh Shivangouda Mudakangoudar, Harihar Vishwanath Hegde, Bhavana A Koppad[1]

Departments of Anaesthesiology and [1]Paediatrics, SDM College of Medical Sciences and Hospital, Dharwad, Karnataka, India

Address for correspondence:
Dr. Mahantesh Shivangouda Mudakangoudar, Department of Anaesthesiology, SDM College of Medical Sciences and Hospital, Sattur, Dharwad - 580 009, Karnataka, India.
E-mail: drmontygoudar@yahoo.co.in

REFERENCES

1. Patteson SK, Chesney JT. Anesthetic management for magnetic resonance imaging: Problems and solutions. Anesth Analg 1992;74:121-8.
2. Kumar P. Sedation and pain relief. Indian J Anaesth 2003;47:396-401.
3. Mendonca DA, McCafferty I, Nishikawa H, Lester R. Venous malformations of the limbs: The Birmingham experience, comparisons and classification in children. J Plast Reconstr Aesthet Surg 2010;63:383-9.
4. Kamala KA, Ashok L, Sujatha GP. Cavernous hemangioma of the tongue: A rare case report. Contemp Clin Dent 2014;5:95-8.
5. Koroglu A, Demirbilek S, Teksan H, Sagir O, But AK, Ersoy MO. Sedative, haemodynamic and respiratory effects of dexmedetomidine in children undergoing magnetic resonance imaging examination: Preliminary results. Br J Anaesth 2005;94:821-4.
6. Malviya S, Voepel-Lewis T, Eldevik OP, Rockwell DT, Wong JH, Tait AR. Sedation and general anaesthesia in children undergoing MRI and CT: Adverse events and outcomes. Br J Anaesth 2000;84:743-8.
7. Afonso J, Reis F. Dexmedetomidine: Current role in anesthesia and intensive care. Rev Bras Anestesiol 2012;62:118-33.
8. Koroglu A, Teksan H, Sagir O, Yucel A, Toprak HI, Ersoy OM. A comparison of the sedative, hemodynamic, and respiratory effects of dexmedetomidine and propofol in children undergoing magnetic resonance imaging. Anesth Analg 2006;103:63-7.

Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/0019-5049.179470

How to cite this article: Mudakangoudar MS, Hegde HV, Koppad BA. Sedation for magnetic resonance imaging in a child with lingual venolymphatic malformation. Indian J Anaesth 2016;60:289-90.