

## Airway management challenges in maxillofacial trauma with Erich arch bar placement and trans palatal wire

Dear Sir,

I am writing to share insights into a challenging case of difficult laryngoscopy and airway management in a patient with maxillofacial trauma and a recently placed Erich arch bar with trans palatal wire. Maxillofacial trauma, often accompanied by Le Fort fractures, creates a complex scenario for anesthesiologists due to extensive soft tissue swelling, bony displacement, and facial structure instability. The addition of the Erich arch bar along with trans palatal wire further complicates airway management

by obstructing laryngeal visualization during laryngoscopy and impeding the establishment of a secure airway.<sup>[1]</sup>

In our recent case, a 48-year-old male was admitted following a high-impact motor vehicle accident. He presented with Le Fort I and II fractures, extensive soft tissue swelling, oral cavity hemorrhage, multiple abrasions, and a recently placed Erich arch bar along with a trans palatal wire for orthodontic treatment. The combination of fractures, swelling, and

arch bar placement posed significant challenges during intubation [Figure 1a and b].

During the intubation process, we encountered difficulties primarily due to the patient's maxillofacial trauma and the presence of the Erich arch bar and trans palatal wire. The fractures and swelling obstructed the airway, making laryngeal visualization challenging. Careful positioning of the head and neck was crucial to optimize the view of the airway. We utilized a Macintosh laryngoscope blade with a straight design to avoid interference with the arch bar. Despite limited mouth opening during laryngoscopy and these challenges, successful intubation was achieved on the first attempt via the nasal route. Intravenous injection of fentanyl, propofol, and vecuronium facilitated the procedure, and mask ventilation was uneventful [Figure 1c].

The management of airways in patients with maxillofacial trauma, particularly those with already placed preexisting orthodontic appliances like the Erich arch bar and trans palatal wire, presents significant challenges. The Erich arch bar and trans palatal wire, commonly used in orthodontics for dental alignment to stabilize the fracture, can complicate airway management due to their potential to obstruct laryngeal visualization during intubation. In our case, the presence of the Erich arch bar along with trans palatal wire added complexity to an already challenging airway scenario caused by maxillofacial trauma and Le Fort fractures. The arch bar and wire not only limited mouth opening but also posed risks of interference and breakage during intubation attempts. These factors necessitated a careful approach to positioning, instrument selection, and technique during airway management.

The risk of Erich wire breakage during intubation is a critical consideration. A broken wire can potentially obstruct

the airway, leading to breathing difficulties and requiring immediate intervention.<sup>[2]</sup> Moreover, the presence of the arch bar may restrict normal jaw movement and contribute to trismus, further complicating the intubation.<sup>[3,4]</sup> In our case, we opted for a Macintosh laryngoscope blade with a straight design to minimize interference with the Erich arch bar. Careful head and neck positioning was essential to optimize laryngeal visualization despite the restricted mouth opening caused by the arch bar. Successful intubation via the nasal route on the first attempt demonstrated the efficacy of our approach in managing a difficult airway with Erich arch bar placement.

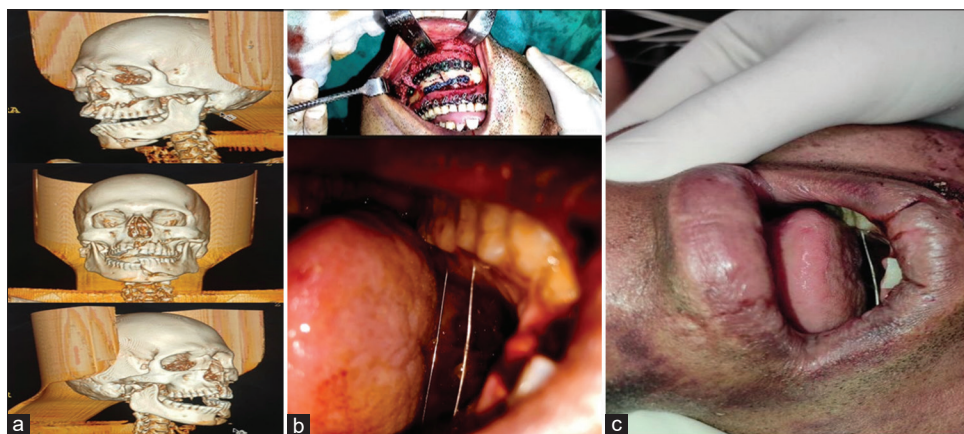
The challenges posed by the Erich arch bar highlight the importance of a multidisciplinary team approach in managing complex airway cases involving maxillofacial trauma. Anesthesiologists, otolaryngologists, and maxillofacial surgeons must collaborate closely to manage such intricate scenarios effectively.

#### Acknowledgements

We would like to acknowledge Dr Ashi Chug (Professor), Dr Prem Kumar Rathod, Dr Saurabh Simre, Dr Sudarshan, Dr Abiskar, and the team for their excellent surgical skills, meticulous approach, and dedication toward patient care.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.



**Figure 1:** (a) Non-contrast computed tomography view left lateral, frontal, and right lateral showing Lefort, parasymphysis, and right subcondylar fracture, respectively. (b) Erich arch bar placement (above) between maxilla and mandible in the first molar region with trans palatal wire (down) to stabilize the palatal fracture. (c) Limited mouth opening during laryngoscopy

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

**RAVI CHAUDHARY, BHAVNA GUPTA<sup>1</sup>,  
BEERALING N WALIKAR<sup>1</sup>, ANANDA BHATTARAI<sup>1</sup>**

Departments of Anaesthesiology and <sup>1</sup>Anaesthesia and Critical Care, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India

**Address for correspondence:**

Dr. Bhavna Gupta,  
Department of Anaesthesia and Critical Care, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India.  
E-mail: bhavna.kakkar@gmail.com

**Submitted:** 27-Mar-2024, **Revised:** 28-Mar-2024,


**Accepted:** 29-Mar-2024, **Published:** 04-Jun-2024

**References**

1. Ghabach MB, Abou Roupheal MA, Roumoulian CE, Helou MR. Airway management in a patient with Le Fort III Fracture. Saudi J Anaesth 2014;8:128-30.

2. Koshy JC, Feldman EM, Chike-Obi CJ, Bullocks JM. Pearls of mandibular trauma management. Semin Plast Surg 2010;24:357–74.  
3. Dhanrajani PJ, Jonaidel O. Trismus: Aetiology, differential diagnosis and treatment. Dent Update 2002;29:88–92. 94.  
4. Kamadjaja DB, Soesanto R. Jaw locking after maxillofacial trauma. Dent J (Maj Ked Gigi) 2007;40:106–13.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
<b>Website:</b> <a href="https://journals.lww.com/sjan">https://journals.lww.com/sjan</a>	<b>Quick Response Code</b> 
<b>DOI:</b> 10.4103/sja.sja_167_24	

**How to cite this article:** Chaudhary R, Gupta B, Walikar BN, Bhattarai A. Airway management challenges in maxillofacial trauma with Erich arch bar placement and trans palatal wire. Saudi J Anaesth 2024;18:467-9.

© 2024 Saudi Journal of Anesthesia | Published by Wolters Kluwer - Medknow