

Retrograde intubation in Temporomandibular Joint ankylosis with easily available operation theatre materials

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Abstract

Introduction: Difficult airways are secured by fiberoptic bronchoscopy, however because of unavailability of fiberoptic bronchoscopy and trained staff, older conventional methods of retrograde intubation is sought. We used a zebra guide wire, ureteric dilator and 18g I.V cannula.

Case Report: A 14 year old, ASA grade 1 male, with bilateral bony ankylosis of TMJ with unilateral mandibular hypoplasia with severe retrognathia. Neck mobility was normal. Both nasal nares were patent. No history of hoarseness of voice, breathlessness, difficulty in swallowing. Consent for retrograde intubation and tracheostomy was taken. Patient premedicated with Inj. Glycopyrolate 10 microgmkg⁻¹, Hydrocortisone 5 mgkg⁻¹, Midazolam 0.03mgkg⁻¹, Dexmedetomidine 100microgm in 100ml NS over 10 min infusion.

Superior Laryngeal Nerve block was given. Skin in between third and fourth tracheal rings was infiltrated with 2% lignocaine. Skin was punctured with 18 g I V cannula, 2% lignocaine was injected into trachea. Zebra guide wire was passed in. Guide wire emerged from the nostril. Ureteric dilator was railroaded over the guide wire to bring it out between tracheal rings. Endotracheal tube, 6.5 mm ID was passed over the dilator and dilator removed. Tracheal placement of ETT was confirmed by bilateral air entry and EtCO₂.

Patient was induced with propofol 2mgkg⁻¹, muscles relaxed with vecuronium 0.1mgkg⁻¹ and maintained with O₂, N₂O, and halothane. Patient was reversed with neostigmine and glycopyrolate and extubated when the patient was fully awake. Anticipated desaturation was prevented by tongue tie.

Discussion: Retrograde intubation with easily available OT materials can be tried with successful results when there is unavailability of fiberoptic bronchoscopy and trained personnel.

Keywords: Difficult Airway, Fiberoptic Intubation, Ot Materials, Retrograde Intubation, TMJ ankylosis, Zebra Guide Wire

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Introduction

Successful intubation can be accomplished in a majority of patients via direct laryngoscopy, but sometimes tracheal intubation may be difficult or impossible mainly due to limited mouth opening or any other anatomical abnormality. Difficult airways are secured by fiberoptic bronchoscopy, however because of unavailability of fiberoptic bronchoscopy and trained staff, older conventional methods of retrograde intubation is sought. Retrograde tracheal intubation is a possible technique that seems to be simple and quick in experienced hands[1]and that is indicated in various clinical situations[2], including cervical and facial trauma and limited mouth opening[3]. We attempted the retrograde intubation with easily available ot materials like zebra guide wire, ureteric dilater and 18g I.V cannula.

Case Report

A 14-year-old, ASA grade I male patient presented with complaints of restricted mouth opening. Mouth opening was 5 mm. He was diagnosed as a case of bilateral bony ankylosis of TMJ with unilateral mandibular hypoplasia with severe retrognathia. His neck mobility was normal. Both his nasal nares were patent. Radiological examination ruled out any significant narrowing of airways and the absence of hypertrophied adenoids. No history of hoarseness of voice, breathlessness, difficulty in swallowing or frequent sleep awakening at night was noted. Relatives were explained that the technique may fail and consent for tracheostomy was taken. Apart from the usual preparation for difficult intubation, we used the following items for retrograde intubation:

A) J-tipped Zebra Guide-wire.

B) Ureteric Dilater.

C) 18 G I.V Cannula.

D) Sets for emergency cricothyroidotomy and tracheostomy were kept ready.

E) Monitoring with SpO₂, EtCO₂, ECG and NIBP was done.



Figure 1 and 2 TMJ Ankylosis with Retrognathia



Figure 3 and 4 Severe occlusion of teeth with limited mouth opening.

Patient premedicated with Inj. Glycopyrolate 10 microgmkg⁻¹, Hydrocortisone 5 mgkg⁻¹, Midazolam 0.03mgkg⁻¹, Dexmedetomidine 100microgm in 100ml NS over 10 min infusion. Superior Laryngeal Nerveblock was given. Skin in between third and fourth tracheal rings was infiltrated with 2% lignocaine. Skin was punctured with 18 g I V cannula, 2% lignocaine was injected into trachea. Zebra guide wire was passed in. Guide wire emerged from the nostril. Ureteric dilator was railroaded over the guide wire to bring it out between tracheal rings. Endotracheal tube, 6.5 mm was passed over the dilator and dilator removed. Tracheal placement of ETT was confirmed by bilateral air entry and EtCO₂.

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Discussion

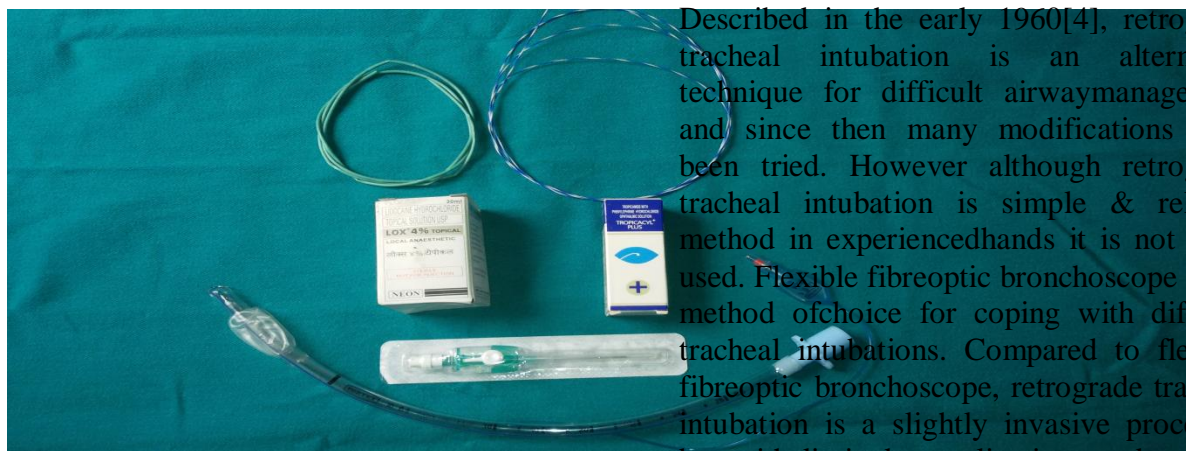


Figure 5 The materials used for successful retrograde intubation.

Described in the early 1960[4], retrograde tracheal intubation is an alternative technique for difficult airwaymanagement and since then many modifications have been tried. However although retrograde tracheal intubation is simple & reliable method in experiencedhands it is not often used. Flexible fibreoptic bronchoscope is the method ofchoice for coping with difficult tracheal intubations. Compared to flexible fibreoptic bronchoscope, retrograde tracheal intubation is a slightly invasive procedure but with limited complications and we feel is quite practical where facilities for fibreoptic intubation are not available or not

feasible. Traditionally, blind nasal access was recommended, but because of high rate of failure and trauma, retrograde is more preferable. Traditional techniques of retrograde intubation use epidural catheter. We used J tipped zebra guide wire instead. J tipped zebra guide wires are easily available, negotiates the curved passage of larynx, pharynx, nasopharynx, nasal passage easily to prevent mucosal trauma ureteric dilator was used. Retrograde intubation technique was described originally by Watters. A number of technical and procedural problems may arise using this method. According to availability of retrograde intubation set, venous catheter, epidural catheter or seldinger's wire can be used for retrograde intubation technique. Due to unavailability of retrograde intubation set, we used j tipped zebra guide wire, ureteric dilator with 18G hypodermic needle which is available everywhere. A j tipped zebra guide wire with ureteric dilator was selected to minimize trauma. An ureteric dilator can be kept in situ after the airway is secured and because of its flexibility the tracheal tube can be easily advanced beyond the catheter insertion site without trauma. A prospective randomized study done by Gaurav Jain [5] and his colleague, they had used J tipped vascular guide wire and modified tracheal tube guide with side eye for retrograde intubation to avoid laryngeal trauma. In our study we did not find any difficulty in retrieving j tipped zebra guide wire retrogradely. According to Virendra Arya et al [6], pharyngeal loop can be utilized for successful retrograde intubation. Bhattacharya et al [3] had used a suction catheter with negative pressure to retrieve the tip of coiled epidural catheter blindly. Shaila Kamath et al [7] had modified the retrograde intubation technique by using nasopharyngeal airway as a guide to J type guide wire to come through nose. In our

patient we retrieved catheter from nose without any difficulty. Literature reported that death from loss of airway still occurs in patients with difficulty in airway. Data suggested that in absence of fiberoptic device, retrograde intubation technique is simple, non traumatic and does not add any complication. S. Ghosal and A. Singam [8] showed in their study that instead of endotracheal tube, ventilating bougie can be used for retrograde intubation in case of bilateral TMJ Ankylosis, they also used J tipped guide wire in addition to ventilating bougie for easy sliding, better ventilation of the patient and to avoid trauma. In our case we were successful in sliding endotracheal tube over ureteric dilator without trauma. This technique can be utilized as a safe and cost effective alternative in centers which are unequipped with fiber optic laryngoscope. Retrograde intubation with easily available OT materials can be tried with successful results when there is unavailability of fiberoptic bronchoscopy and trained personnel.

References

1. Van Stralen DW, Rogers M, Perkin RM, Fea S. Retrograde intubation training using a mannequin. *Am J Emerg Med* 1995; 13:50-2.
2. Harrison W, Bertrand M, Andeweg S, Clark J. Retrograde intubation around an in situ Combitube: A difficult airway management strategy. *Anesthesiology* 2005; 102:1061-2.
3. Bhattacharya P, Biswas BK, Baniwal S. Retrieval of a retrograde catheter using suction, in patients who cannot open their mouths. *Br J Anaesth* 2004; 92:888-901.
4. Butler F.S, Cirillo AA. Retrograde tracheal intubation. *Anesth Analg* 1960; 39:333-338.
5. Jain G, Singh DK, Yadav G, Gupta SK, Tharwani S. A modification in the tube guide to facilitate

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retrograde intubation: A prospective, randomised trial.

Indian J Anaesth. 2011 Sep; 55(5):499-503.

6. Arya VK, Dutta A, Chari P, Sharma RK. Difficult retrograde endotracheal intubation: the utility of a pharyngeal loop. *Anesth Analg*. 2002 Feb; 94(2):470-3.

7. Kamat S, Raju M, Gupta R, Kamat S. Modified Technique of Retrograde Intubation in TMJ Ankylosis. *Indian J Anaesth* 2008; 52:196-8

8. S. Ghoshal, A. Singam : Modified Technique Of Retrograde Intubation Using Ventilating Bougie. *The Internet Journal of Anesthesiology*. 2012 Volume 30 Number 2.