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## CASE REPORTS

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### UNDIAGNOSED TRACHEAL STENOSIS COMPLICATING AIRWAY MANAGEMENT IN PREGNANCY

*Nandeeshha Nanjegowda\*<sup>1</sup>, Nataraj Madagondapalli Srinivasan<sup>2</sup>*

*Assistant Professor, Dept. Of Anaesthesiology, Kasturba Medical College, India<sup>1</sup>., Associate professor, Dept. of Anaesthesiology, Manipal University, India<sup>2</sup>.*

*\*Corresponding author: [nandeeshha75@yahoo.co.in](mailto:nandeeshha75@yahoo.co.in)*

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Unanticipated difficult intubation can be the worst nightmare of an anaesthetist. This becomes all the more challenging when the anaesthetized patient is a pregnant mother. We describe a difficult airway in a term mother with foetal distress for an emergency caesarian section.

The management of a difficult airway in an obstetric patient is especially challenging during an acute obstetric emergency and can be an anesthesiologist's worst nightmare.<sup>1</sup> Failure to appropriately manage a difficult or failed intubation increases the risk of hypoxemic cardiopulmonary arrest and/or pulmonary aspiration, resulting in a high probability of maternal morbidity and mortality.<sup>2</sup>

Occasionally, in spite of careful assessment of the airway, general anaesthesia may be induced and endotracheal intubation of the parturient may prove to be impossible. Although, many predictors of a difficult laryngoscopic intubation have been developed, they all have low positive predictive values, and thus the unanticipated difficult laryngoscopic intubation continues to occur in our day to day practice.<sup>3</sup>

We present a case of unanticipated difficult intubation in a pregnant patient with undiagnosed tracheal stenosis.

#### Case report

A 28 old primigravida at 40 weeks of gestation with history of bronchial asthma was admitted to our hospital for delivery. She was

asymptomatic and on a regular salmeterol inhaler.

Labour was induced with dinoprostine gel. Due to non progression of labour and foetal distress, she was scheduled for an emergency caesarean section.

After obtaining written informed consent for surgery and anaesthesia, she was premedicated with ranitidine 50 mg, and metaclopramide 10 mg slowly intravenously. In view of fetal distress, general anaesthesia was planned with rapid sequence induction. Pre induction monitors included an electrocardiogram, non invasive blood pressure, and pulse oximeter. After preoxygenating with four maximum vital capacity breaths, anaesthesia was induced with IV thiopentone 200 mg and paralysed with IV succinylcholine 75 mg with cricoid pressure. Direct laryngoscopy with size 3 Macintosh blade showed a grade I glottic view and intubation was attempted with a 7mm internal diameter cuffed oral endotracheal

tube. As the tube did not negotiate beyond the vocal cords, intubation was attempted with a 6.0 mm ID cuffed oral endotracheal tube which was again unsuccessful after 2 attempts and adjusted cricoid pressure. A size 3 proseal LMA was inserted and anaesthesia was maintained on oxygen and nitrous oxide 50:50 with cricoid pressure and the baby was delivered quickly. Intubation was reattempted and was successful with a 4.0mm ID microlaryngeal endotracheal tube and the position of the tube was confirmed. Fiberoptic bronchoscopy showed that the epiglottis and vocal cords were oedematous. Anaesthesia was maintained with oxygen: nitrous oxide 30:70 and isoflurane 0.5 v/% and IV midazolam 2 mg and fentanyl 100 µg. Throughout the intraoperative period she maintained normal haemodynamics and oxygenation and surgery was uneventful. At the end of surgery, it was decided to electively ventilate the patient in the ICU in view of severe narrowing of trachea below the vocal cords and presence of subglottic oedema. Dexamethasone 8 mg IV was given eight hourly.

On day 2, the endotracheal tube was blocked and had to be removed. As the patient was conscious and comfortable, it was decided to watch her. Within 5 minutes patient developed respiratory distress with stridor. Trachea was reintubated with 5mm ID cuffed oral endotracheal tube with difficulty. In view of persisting subglottic oedema and narrowing of the trachea as revealed on X ray neck, endotracheal tube was kept for another 2 days. After discussion with ENT surgeons, the possibility of subglottic stenosis was considered and tracheostomy was done under sedation. Histopathological examination of the tracheal biopsy showed granulation tissue. Hospital stay was uneventful and the patient was reviewed 4 weeks later for the closure of the tracheostomy

### **Discussion**

Undiagnosed tracheal stenosis complicating pregnancy is very rare.<sup>4</sup>

The diagnosis of tracheal stenosis is difficult and it is usually mistaken for asthma especially when there is a negative history and the patient has no signs and symptom of any associated diseases upon clinical examination. Knowledge and awareness regarding the possibility of stenosis can help primary diagnosis.<sup>5</sup>

Idiopathic tracheal stenosis is an uncommon form of tracheal stenosis usually involving the sub-glottic area. It more commonly occurs in women and some believe that it is related to hormonal factors.<sup>4</sup>

In a pregnant woman with known tracheal stenosis it is very important to choose the safest therapeutic intervention to minimize complications in both the mother and the foetus. Current reports believe that a tracheostomy under local anesthesia is the safest way to maintain an airway in them.<sup>4,5</sup>

In patients with tracheal stenosis undergoing surgery under general anaesthesia it is very important to preserve spontaneous breathing. However, maintaining spontaneous breathing through the mask can increase the risk of aspirating stomach contents especially in case of an emergency.<sup>6,7,8</sup>

Undiagnosed tracheal stenosis during pregnancy can present as an unanticipated difficult airway resulting in difficult tracheal intubation which can result in hypoxaemia, hypercarbia, maternal and neonatal complications like premature delivery and neonatal distress.<sup>4</sup>

Our patient did not have any respiratory symptoms during pregnancy and she was misdiagnosed to have bronchial asthma two years ago and there was no history suggestive of any cause for the occurrence of subglottic stenosis, suggesting a possibility of idiopathic subglottic stenosis.

The inability to maintain a patent airway after attempts at failed intubation remains a major concern with regard to anesthesia-related maternal morbidity and mortality and is also a

significant source of malpractice claims in obstetrics.<sup>9</sup>

### Conclusion:

Team work between an anesthesiologist and an obstetrician is essential for the safety of mother and baby. Most of us tend to agree that airway emergencies have a way of occurring at the worst possible times. It is essential that all anaesthesia care practitioners have a preconceived and well thought-out algorithm and equipment available to deal with airway emergencies during difficult or failed intubation in a parturient. Even if intubation is not possible, every effort should be made to maintain adequate ventilation and, more importantly, oxygenation of mother and foetus.

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