

Mr Shaji Mansuri & Dr Arun Nair from the University Hospitals of Derby & Burton discuss implementing the THRIVE technique in clinical practice.



How did you first become aware of the THRIVE technique for laryngeal surgery?

Dr Nair: I attended the "Difficult Airway Society" meeting where I was interested in a presentation delivered by Dr A Patel on THRIVE. This was based on an earlier article published by Dr Patel and Mr R Nouraei. I could see how this would be a very useful tool in our own practice. I followed this up with a visit to the Royal National Throat, Nose and Ear Hospital, Gray's Inn Road, London and observed Dr Patel using THRIVE. I had further discussion with some of our other anaesthetic colleagues who had experience in the technique elsewhere in the East Midlands and became aware of the POINT® system.

What benefits does this technique bring to your clinical practice?

Dr Nair: The technique is a useful tool that can help in many situations and is not just confined to head and neck/laryngology. The effective pre-oxygenation provides valuable extra time in anticipated difficult airways and emergency situations in all surgical and anaesthetic specialities.

Mr Mansuri: In our own practice, it is particularly useful in providing an unobstructed view and operative field in laryngeal and tracheal surgery. As the POINT® system allows us to reduce the FiO₂, this is particularly key in Trans-Oral Laser surgery. We are also finding there is the potential of improving our "turn-around time" which will improve our efficiency and productivity.

What procedures benefit most & why?

Mr Mansuri: To date we have utilised the technique for diagnostic panendoscopy, microlaryngoscopy and tracheal surgeries. For the latter procedures, the unobstructed view, particularly of the posterior commissure and entire tracheal circumference is invaluable. This is particularly so in surgeries where the CO₂ laser was being used. Prior to THRIVE our practice was to use size 4 microlaryngoscopy tubes, which would still obscure lesions on the vocal process, arytenoid and distal airway.

Dr Nair: It is also a very useful device for awake fibre optic intubation of a difficult airway. The other uses are for preoxygenation prior to inducing anaesthesia in bariatric patients, patients with difficult airway and in extremely sick patients.

Mr Shaji Mansuri MBChB MSc FRCS (ORL), Consultant Otolaryngologist and Head & Neck Surgeon, University Hospitals of Derby and Burton.

Dr Arun Nair MBBS FRCA, Consultant Anaesthetist, University Hospitals of Derby and Burton.

What are the limitations?

Dr Nair: As this is only an oxygenation tool and does not provide any ventilation, our procedures are time limited to approximately 45 minutes. Also patient selection is important and currently we are limiting this to patients with a BMI <30.

Why did you choose the POINT® High Flow system?

Dr Nair: After looking at the different systems available, and also in discussions with colleagues with experience of them, there were several factors that led to the decision. Chiefly, there was greater flexibility in controlling the FiO₂, so we could perform laser surgery safely. Also, as with most decisions in the NHS, cost also had a major role, particularly the initial outlay. Moreover, there was also a lot of support from Armstrong Medical in training the theatre healthcare professionals particularly the ODP members of our team.

How long have you been using the POINT® system & how many patients?

Dr Nair: Approximately a year and we have completed 20 cases to date.

What concerns did you have when starting?

Dr Nair: Nothing significant really as both the surgeon and anaesthetist understood what was to be done.

Mr Mansuri: Dr Nair seeing the technique in action prior to its introduction into our practice meant there was no significant concern from our end. Other members in the team were reassured once its usefulness was explained, and the training was provided.

What has been the biggest challenge in implementing this technique?

Mr Mansuri: Getting everyone to understand what was involved and ensuring all pre-preparations were complete prior to the patient being anaesthetised, as time is critical. Like any new technique being introduced we had to justify it in terms of improvement in patient care and safety; as well as the cost. Dr Nair did a great job in achieving a better understanding amongst the hospital team of how this was a useful additional tool to have in the anaesthetic arsenal, rather than a direct replacement of existing practice. We are currently formalising a protocol that is tailored to our own settings as we found practice elsewhere could not be directly transferred.

How essential is teamwork between anaesthesia & surgical team?

Mr Mansuri & Dr Nair: Extremely important and actually the key element in being successful. It seems a clichéd phrase but it is very much a shared airway. Communication and empathy is required. Amongst us, we have a

good understanding of each other's individual practice and concerns.

What advice would you give anyone wanting to implement THRIVE for laryngeal surgery?

Mr Mansuri & Dr Nair: Both surgeon and anaesthetist have to understand the concept and buy into it. Following this, a discussion must be had within the team identifying areas of practice they would like to improve in terms of care and safety, and then see if THRIVE is a tool that can help achieve these aims. If so, do not be afraid to learn from others and visit colleagues in other centres.

What is your protocol when using diathermy for LASER?

Mr Mansuri & Dr Nair: The main aim is to prevent a fire and to keep the patient safe. To achieve this, there needs to be excellent communication between the surgeon and anaesthetist.

Dr Nair: The surgeon is informed once the oxygen saturation starts dropping and once it reaches 92-94%, surgery is halted. The FiO₂ is increased to 100% and an Aintree catheter is inserted by the surgeon, and the patient is ventilated until the oxygen saturation increases again to acceptable levels and surgery continues. If the saturation continues to fall alarmingly, then the patient is intubated and procedure is continued. A jet ventilator would be ideal in such situations.

Mr Mansuri: The laser is only switched on once the FiO₂ has been reduced to 20% or less, also there are no combustible materials such as patties in the field.

Does adjustable FiO₂ address the concerns about airway fire during LASER/Diathermy use?

Mr Mansuri: For any fire to develop you need 3 elements, an ignition, a combustible material and oxygen. By eliminating even one of these factors a fire will not develop, which is achieved by reducing the FiO₂.

How does POINT® high flow compare with Jet Ventilation?

Dr Nair: They are two separate entities. POINT® High Flow is to be used for oxygenation and should not be confused for a ventilation device. It cannot ventilate or recruit the lungs as a jet ventilator can. They should not be considered as alternatives to each other and it is our opinion that any unit performing complex laryngeal surgery should have access to both.

Mr Mansuri: Whilst jet ventilation is useful in longer procedures, from my own personal opinion, I found there is less movement of target lesions with the POINT® system and with the humidification, there seemed a lot less obscuring smoke. In our practice POINT® is best used in short duration procedures particularly if there are multiple back to back cases.