International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

A Case of Road Traffic Accident with History of Right Distal Femur Fracture Compound Grade 3b Posted for External Fixation under (TIVA) Total Intravenous Anaesthesia using Supraglottic Airway Device IGEL after Dry CSF tap on SAB (Subarchnoid Block): (Case Study)

Dr. Prashant H. Tembhurne, Dr. Vrishali Ankalwar

Muhs Nashik GMC Nagpur, Maharashtra, India

Abstract: ***Macewen initially described the first elective endotracheal intubation for anaesthesia in 1878, endotracheal intubation has been the most frequently used and universally acknowledged technique in anaesthetic treatment for airway control. Endotracheal intubation (ETT), which can deliver positive pressure breathing despite high airway pressures, is regarded as the gold standard for airway management. It provides defence against pulmonary aspiration and stomach distension. Endotracheal intubation is an invasive procedure that necessitates visualisation of glottis and subsequently leading to pressor response and trauma to surrounding structures. Supraglottic Airway devices ventilate patients by delivering anesthetic gases/oxygen above the level of the vocal cords. They are designed to overcome the disadvantages of endotracheal intubation such as damage to soft tissue, tooth, vocal cords, laryngeal and tracheal damage, exaggerated hemodynamic response, barotrauma etc. The advantages of the supraglottic airway devices include Avoidance of laryngoscopy, Less invasive to the respiratory tract, Better tolerated by patients, Increased ease of placement, Improved hemodynamic stability in emergence, Less coughing, less sore throat, Hands free airway and Easier placement even by inexperienced personal.***

Keywords: SGAD - SUPRAGLOTTIC AIRWAY DEVICES, ETT - ENDOTRACHEAL INTUBATION, BP - BLOOD PRESSURE, SPO2 - SATURATION OF PERIPHERAL OXYGEN ETCO2 - ENDTIDAL CARBON DIOXIDE. HB – HEMOGLOBIN. ECG - ELECTROCARDIOGRAM

1. Case Report

60 year old male patients was brought by relatives to orthopaedic casuality in tertiary care centre with history of road traffic accident 1 day back, patient had right distal femur fracture compound grade 3b & orthopaedician decided to operate him for external fixation.

2. On Examination

Patients was conscious, oriented, afebrile. Pulse - 102/min.
Blood pressure - 100/70 mmhg
SPO2 - 98% on room air. Respiratory rate was 16/min.
Cardiovascular & respiratory system examination was within normal limit.
Patients mouth opening was adequate & MPG grade 2 with no missed tooth or loose tooth.
Patient was hypertensive since 3 years & was taking tablet amlodipine 5mg OD.
Patients had no history of previous surgery, no any other comorbidities. he took his last meal 8 hours back

Investigations
CBC -
Hb - 9.2gm/dl, TLC - 6000/cmm, platelets count - 2, 70, 000/cmm KFT -
Urea - 55mg/dl, creatinine - 1.6mg/dl, Sodium - 144mmol/lit, potassium - 4.2 mmol/lit
Liver function test was within normal limit. ECG Suggestive of sinus tachycardia.
Chest xray finding was normal.

Anaesthetic management
Preoperative consent was taken from relatives then patients was taken on OT table. All multipara monitors (ECG, SPO2, NIBP) wide bore 18G iv canulla inserted in both upper limb, preloading with 1 point of ringer lactate was started. Premedication given with inj. pantoprazole 40 mg, inj. ondensetron 4mg as aspiration prophylaxis.

Under all aseptic precautions subarchnoid block (SAB) tried in sitting position, but even after 3 spinal SAB block no csf flow was there.

So after discussion with orthopaedician decision was taken to operate under TIVA (TOTAL INTRAVENOUS ANAESTHESIA) using supraglottic airway devices.

Preoxygenation given with 100% O2 for 3minutes using bag & mask with closed circuit of anaesthesia machine.

Sedation given with injection fentanyl 1.5 mcg/kg. Patient induced with injection propofol 2mg/kg.

Following induction mask ventilation was performed until conditions suitable for device insertion were obtained.

(apnea, lack of resoponse to jaw thrust, loss of eyelashes reflex).

IGEL of size 4 was inserted & correct placement of IGEL was confirmed after chest auscultation & capnography.

Feeding tube of size 12F was inserted through gastric channel of IGEL. IGEL was connected to anaesthetic circuit.

Anaesthesia was maintained with oxygen, N2O & injection propofol according to patients response.

Injection paracetamol 1gram was given intravenously for analgesia. Surgical procedure of external fixation was completed within 90 minutes.

After procedure got completed suctioning was done through feeding tube Which was inserted in IGEL.

IGEL was removed after full recovery of protective reflexes. then oxygen supply was given using Hudson mask. patient was vitally stable in postoperative period also.

3. Discussion

Patients was vitally stable during intraoperative period (except for tachycardia). Not much significant hemodynamic changes were observed. Peak pressure was in range of 15 to 18 cmH2O, sealing pressure was in range of 24 to 26 cmH2O. ETCO2 range was between 35 to 38 mmhg.

2 points of Ringer lactate & 1 unit of PRC (packed red blood cells) was transfused intraoperatively. Intraoperatively blood loss was 400 ml & urine output was 200ml.

4. Conclusion

Supraglottic airway device such as IGEL can be used as an alternative to endotracheal intubation (endotracheal intubation can causes more intubation stress response & more variations in hemodynamic parameters) for short surgical procedure. however this has to be substantiated by randomized clinical trial.

Dry CSF (Cerebrospinal fluid) tap.

When lumber puncture are performed using fluoroscopy, as it is standard practice for neuroradiologist visual confirmation of needle location is possible. If needle is correctly positioned but if there is no csf flow, contrast is injected to confirm intrathecal placement, this is called as Dry spinal tap.

Causes of dry spinal tap

1) Poor technique of SAB block
2) Spinal needle misplacement or spinal needle blockage
3) Spinal deformities, severe spinal stenosis or narrowing of thecal sac which can occour in lipomatosis or in archanoiditis.
4) Chronic degenerative disease.5. low CSF pressure.
5) Low CSF pressure.

IGEL

Advantages of IGEL

1) First time insertion rate is higher and insertion time is faster
2) Easy to insert
3) High seal pressure
4) Minimal risk of tissue compression
5) Easy ventilation of chest without air leak during chest compression

i-gel size	Patient Size	Patient weight guidance (kg)
1	Neonate	2-5kg
1.5	Infant	5- 12kg
2	Small Paediatric	10- 25kg
2.5	Large Paediatric	25- 35kg
3	Small Adult	30-60kg
4	Medium Adult	50- 90kg
5	Large Adult	90+kg

i-gel size	Maximum Size of Nasogastric Tube (FG)
1	N/ A
1.5	10
2	12
2.5	12
3	12
4	12
5	14

The **i-gel** is a truly anatomical device, achieving a mirrored impression of the pharyngeal, laryngeal and perilaryngeal structures, without causing compression or displacement trauma to the tissues and structures in the vicinity.

The **i-gel** has evolved as a device that accurately positions itself over the laryngeal framework providing a reliable perilaryngeal seal and therefore no cuff inflation is necessary.

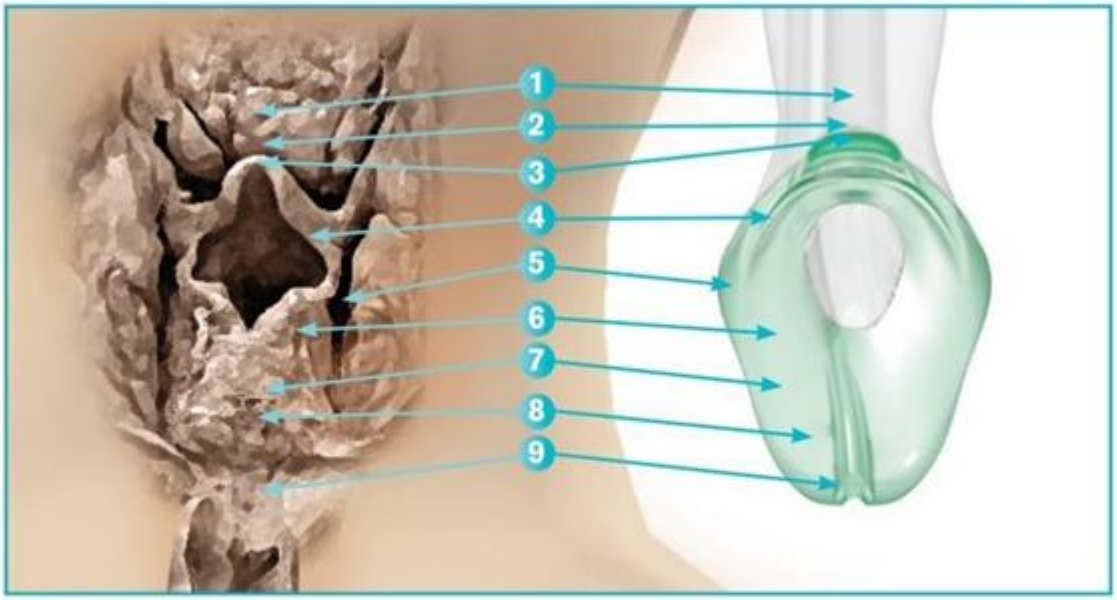

Figure : *View of the* **i-gel** *cuff in relation to the laryngeal framework*

1. Tongue
2. Base of tongue
3. Epiglottis
4. Aryepiglottic folds
5. Piriform fossa
6. Posterior cartilages
7. Thyroid cartilage
8. Cricoid cartilage
9. Upper oesophageal opening

i-gel

References

[1] Ramanchandran K, ponnusamy N. Dry tap & spinal anaesthesia. Can J Anaesth 2005; 52 (10): 1104 - 1105
[2] https: //www.researchgate. net/figure/Components - of - the - i - gel - adopted - from - i - gel - user - guide - Intersurgical - Co_fig3_251659778/amp
[3] RASHID KHAN – Airway management.
[4] Dr. Vijayalaxmi (APRIL - 2011) - comparison of SGAD IGEL & laryngeal mask airway for minor - surgical procedure under TIVA.
[5] Gatward JJ. et. al (Anaesthesia 2008; 63 (10): 1124 - 30)