

ANAESTHESIA AND THYROID SURGERIES-

ENDLESS CHALLENGES



DR. SATHVIKA PATI (RESIDENT)
DEPT OF ANAESTHESIOLOGY

70/F, resident of Nepal, came to our hospital with chief complains of:

- Painless swelling over the neck since 10 years
- Dyspnea on lying down position since 6 months.

- Midline swelling on the anterior aspect of the neck.
- She also had breathing difficulty on lying down since 6 months, which was relieved on lateral position.
- Moves with deglutition.
- Not associated with Dysphagia/ hoarseness of voice.
- H/o loss of weight 6kgs over the past 1 year
- No h/o chest pain/ dyspnea on exertion/ giddiness/ syncope.
- No complaints of weight gain, fatigue, cold intolerance, decreased appetite, constipation, dry skin
- No h/o visual disturbances, tremors
- No h/o swelling over ankles

Past history:

- No h/o similar complaints in the past
- No h/o any surgical procedure
- Not a K/c/o DM/HT/BA/TB/epilepsy/IHD
- No h/o any previous hospitalization /Blood Transfusion
- No h/o any allergy

Personal History:

- Diet –mixed
- Appetite- normal
- Sleep- disturbed
- Bowel and bladder –normal
- Tobacco chewer since 24years

Family History:

- No h/o similar complaint in the other family members

Drug history:

- No history of any kind of medication.

General Examination:

- Patient is conscious, cooperative, well oriented to time, place and person.
- Weight: 45kg, Ht: 140cm, BMI – 16kg/m²
- Pulse: 90bpm, right radial artery, irregular in rate and rhythm, all peripheral pulses are palpable.
- Bp: 130/70 mmHg recorded over the right brachial artery, supine posture
- RR: 16 /min
- No pallor, icterus, cyanosis, clubbing, lymphadenopathy, oedema
- Afebrile on touch
- Spine – normal

Airway assessment:

- Teeth - Edentulous
- Mouth opening - adequate
- Mallampati classification—III
- TMJ mobility - normal
- Neck movement—restricted due to swelling
- Thyromental distance and Sternomental distance could not be assessed.

Eye signs:

- Stelwags sign –negative
- Dalrymples sign –negative
- Joffroys sign – negative
- Von graffes sign – negative
- Mobius sign –negative

Local examination:

Inspection

- A spherical swelling is seen in the anterior aspect of the neck extending to both right and left side of the midline
- Upper border extends upto the thyroid notch, lower border extends below the sternal notch.
- Swelling moves on deglutition and not with protrusion of tongue.
- Skin over the swelling appears normal
- No dilated veins/scars/sinuses, over the swelling
- Pemberton's sign – negative



Palpation:

- Inspectory findings are confirmed.
- Surface over the swelling is smooth and soft in consistency, size 20x15x10 cm
- Swelling is mobile and skin over the swelling is free,
- No Tenderness
- No local rise in temperature

Auscultation:

- No bruit heard

Central Nervous system:

- Higher functions –conscious, cooperative and oriented to time place and person.
- Power, tone and reflexes were normal

Cardiovascular system:

- Tachycardia +
- S1, S2 normal, no murmurs

Respiratory system:

- RR-16/min, Abdominothoracic
- Chest B/L symmetrical in shape, moves equal bilaterally
- On auscultation –AEBE, no adventitious sounds

Per Abdomen:

- Soft, non tender, no rigidity/ guarding, no distension
- Bowel sounds + , no organomegaly

Investigations:

- Hb-13.6g/dl
- TLC 7000 /ul
- PC-1.45/ul
- Pt/inr- 12.1 sec /1.01
- Blood group: A+
- Bsl-88 mg/dl
- HbA1c- 5.3%
- Urea-28 mg/dl
- Creat-0.6 mg/dl
- Na-139 mmol/L
- K-4.6 mmol/L
- BT-1.18 mg/dl
- SGOT-19 U/lt
- SGPT-19 U/lt
- ALP-102 U/lt

Thyroid function tests:

- T3-**2.48** (0.6-1.5ng/ml)
- T4-**12.97** (4.9-11.7 ug/dl)
- TSH **<0.01** (0.35-4.94uIU/ml)

- **ECG**: irregularly irregular rhythm.

- **Echo**: LVEF 60%

Mildly dilated LA

No RWMA

Mild MR,TR, Trivial AR, mild PAH

Cardiology opinion was taken

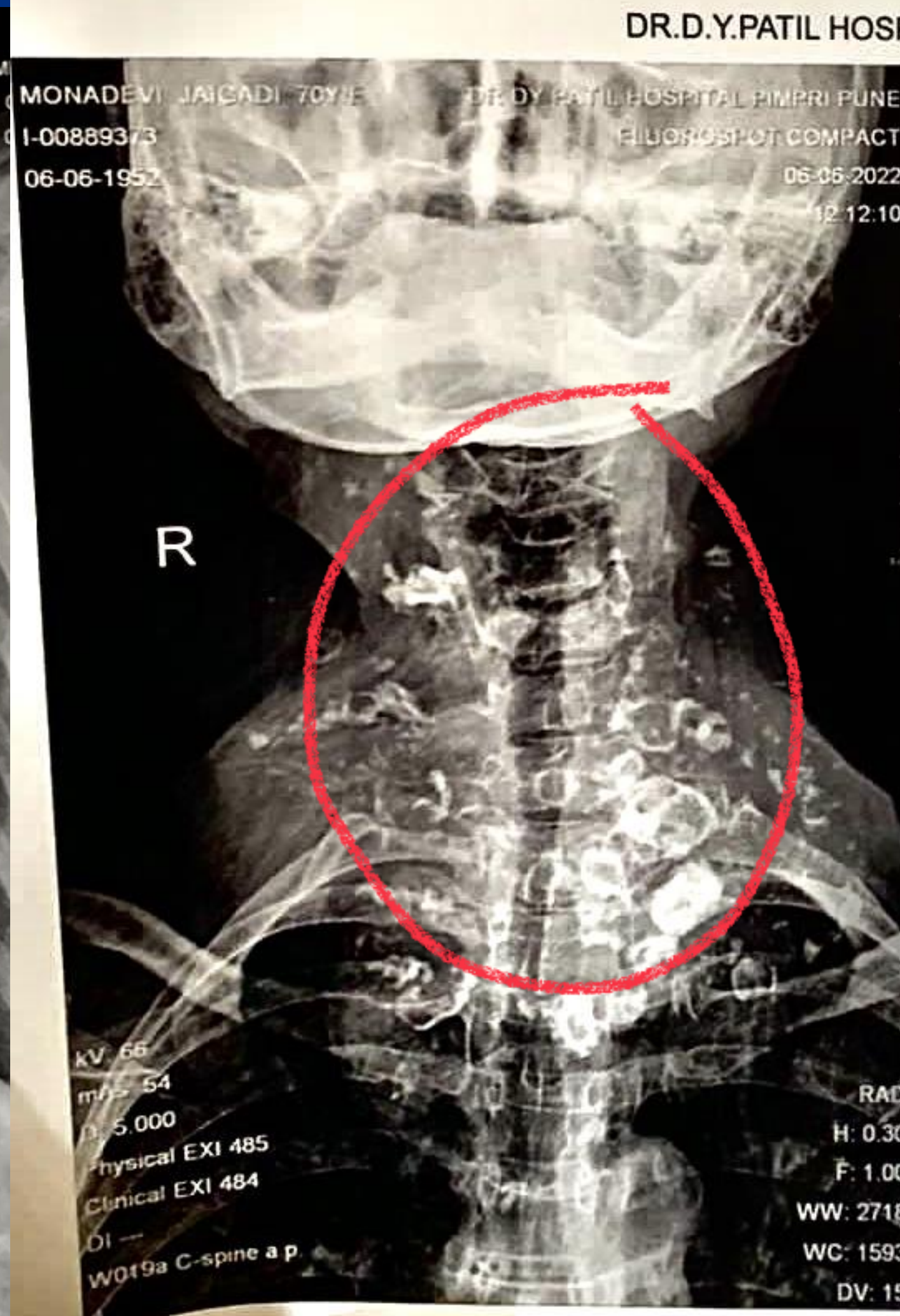
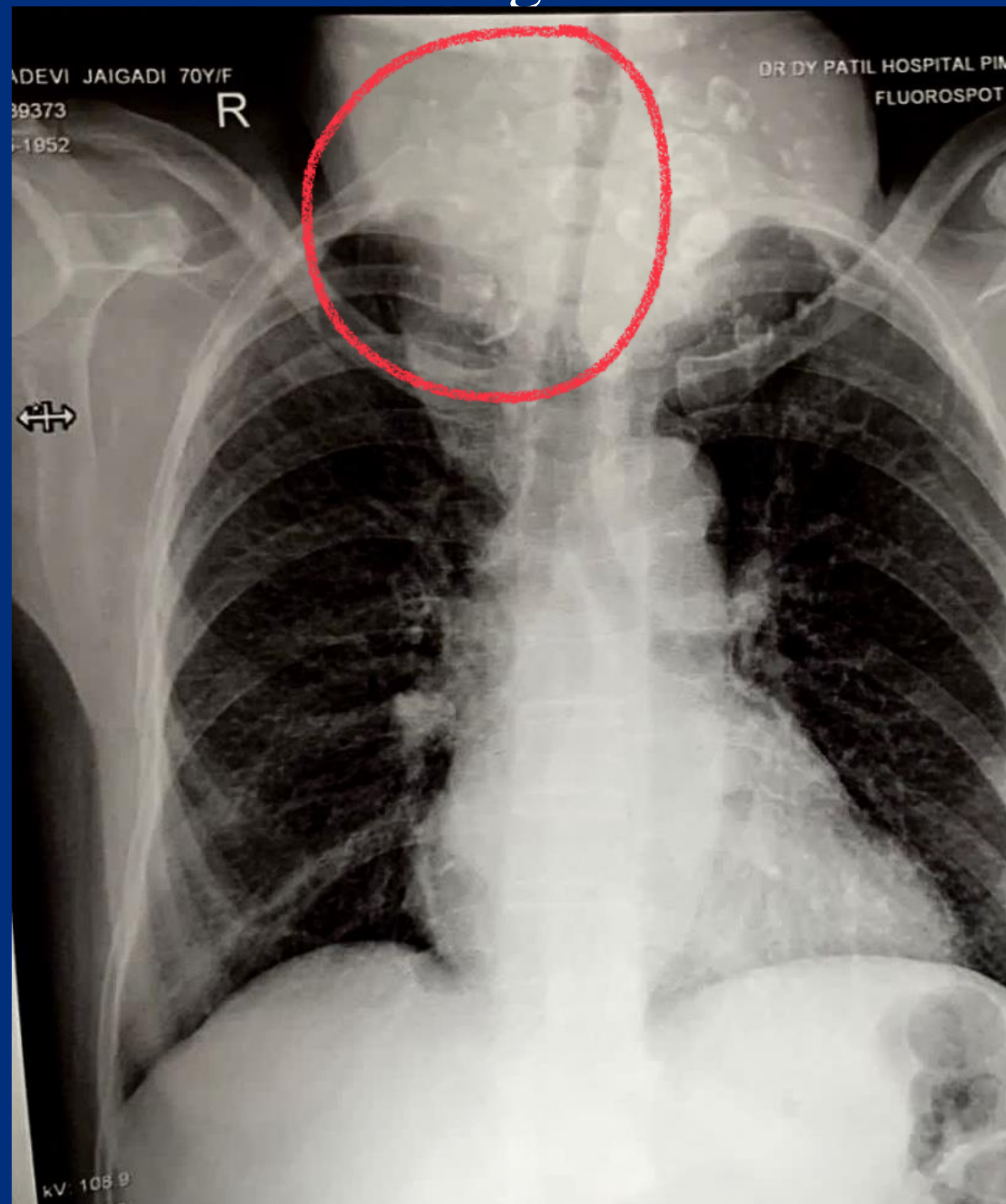
- **IDL**: B/L cords mobile.

- Endocrine opinion-

TSH receptor antibody- negative

- **FNAC** proven multinodular goiter.

- **X-ray neck AP/Lat:** Tracheal compression +
- **CXR:** B/L lung fields were normal, no tracheal deviation seen.



- **USG Neck:** Markedly enlarged thyroid gland; approx. size 25x4.4 cm, heterogeneous with loss of internal architecture. Largest nodule measures 44x27mm in Rt lobe
- **CT Neck & Chest:** 14 x 5.8 x 8.9 cms in Rt lobe and 13.3 x 5.9 x 7cms in Lt lobe, 5cms AP dimension in isthmus. Largest nodule in Rt lobe measures 43x38mm
- **Extension:**
 - **Superior:** level of angle of mandible on both sides
 - **Inferior:** Extending just below superior margin of manubrium sternum& medial end of clavicle on both sides for 1-2cms
 - **Posterior:** wrapping around trachea and pharynx
- Moderate tracheal compression +
- Compression of lateral wall of pharynx and esophagus+
- Lesion is displacing the B/L common carotid arteries and internal jugular veins posteriorly.

PROVISIONAL DIAGNOSIS

70/F c/o diffuse enlargement of thyroid gland with hyperthyroid state in AF posted for total thyroidectomy.

- After a thorough pre anesthetic evaluation and taking all the written and informed consents for high risk, postoperative ICU care and ventilator consents, patient was taken up for surgery under ASA III

ANAESTHETIC CHALLENGES:

- Difficulty in mask holding
- Distorted anatomy to perform any laryngeal nerve block.
- Routine intubation with muscle relaxant can not be used because, the relaxation caused by the anesthetic agents and muscle relaxants may lead to obstruction of the airway and inability to ventilate partially or completely with face mask after administration of general anesthesia leading to Cannot Ventilate Cannot Intubate situation.
- In case of emergency, tracheostomy also would have been difficult to perform in this patient.

- Intense and vigilant monitoring is required as there are potential chances of hemodynamic and respiratory complications.
- Risk of tracheomalacia
- The prevention of stress response during intubation and extubation is needed as it can lead to cardiovascular complications and accidental hemorrhage from the wound site postoperatively.

Anaesthetic Management

OT preparation - Monitors:

NBM was confirmed, consents were checked and all basic monitors were attached

- Pulse oximetry
- ECG
- NIBP
- ETCO₂
- Temperature probe
- Difficult airway trolley –
 - Laryngoscopes 1) McCoy blades
 - 2) CMAC videolaryngoscope.
- Airway of appropriate size: 3,4
- Endotracheal Tubes – PVC and Flexometallic tube of appropriate size as well as smaller size tubes - size 6mm,6.5mm,7mm
- Bougie, stylet
- Laryngeal mask airways
- Fiberoptic bronchoscope

Airway preparation:

- Nebulization was given preoperatively with 4% lignocaine.
- It was difficult to perform any laryngeal block.

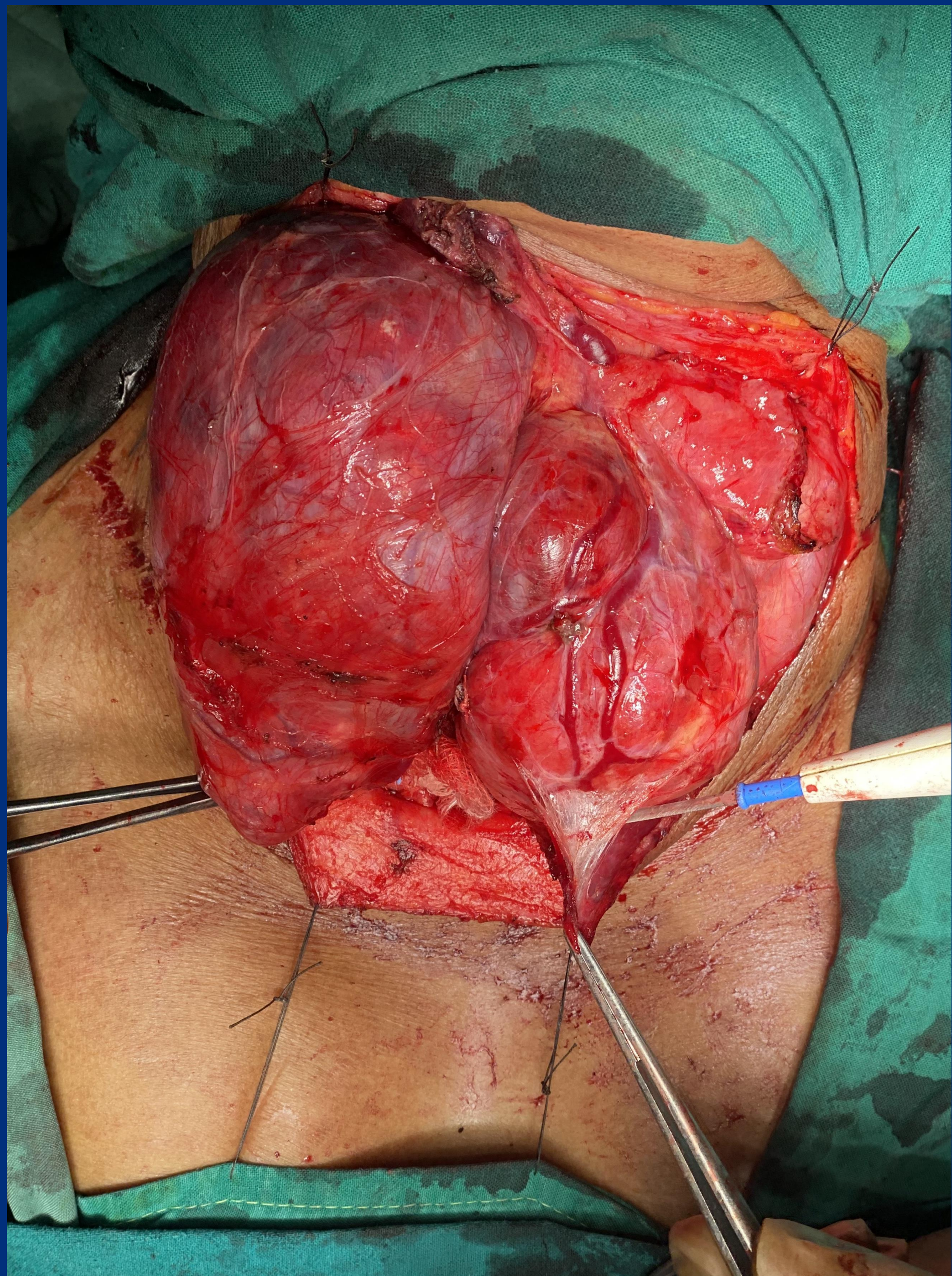
Premedication:

- Sedatives (used with caution) –BDZ midazolam (0.02/mg/kg IV)
- PONV and antibiotic prophylaxis

INDUCTION:

- Adequate pre oxygenation (3min)
- Inj. Loxicard 2% (1-1.5mg/kg IV) was used for attenuation of pressure response
- Opioid: Inj Fentanyl 100 mcg IV
- Lignocaine 10% spray
- With spontaneous respiration, fibre optic bronchoscope was introduced orally, epiglottis and B/L vocal cords visualized.
- Intubation was done with SAGO technique with flexometallic 7no. ETT
- B/L air entry was confirmed with auscultation and EtCO₂, and tube was fixed.
- Following intubation Inj propofol 100mg IV and muscle relaxant: Inj Vecuronium 5mg IV given.
- Maintained on O₂, air (50:50) , sevoflurane with a MAC of 0.9 and intermittent doses of vecuronium.

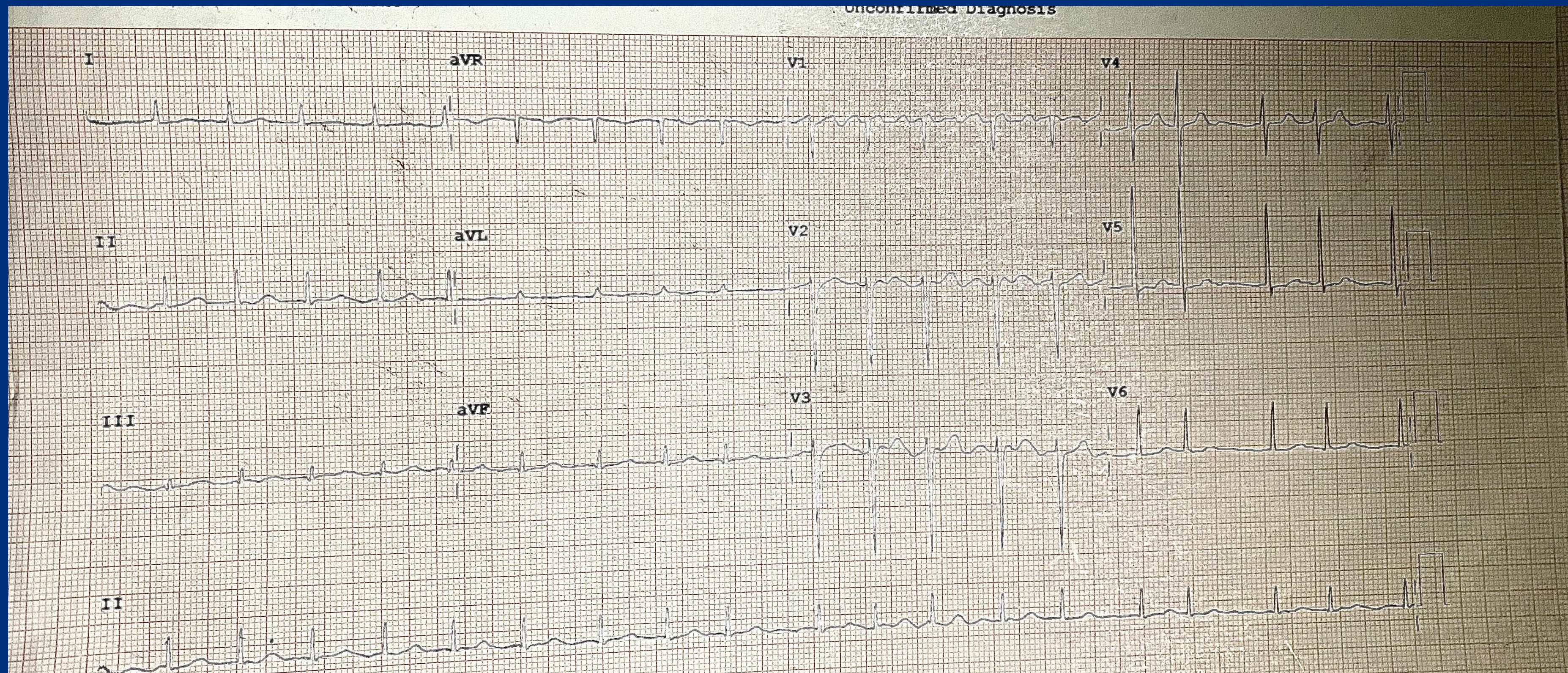




INTRAOP MONITORING

TIME	PR	NIBP	ETCO2	TEMP
1PM	128bpm	136/86mmHg	36mmHg	98.6°F
2PM	98bpm	130/84mmHg	32mmHg	98.4°F
3PM	96bpm	128/84mmHg	38mmHg	98.2°F
4PM	156bpm	108/74mmHg	36mmHg	98°F

- Atrial fibrillation with fast ventricular rate was noted at the end of surgery, which was managed intraoperatively with Inj. Amiodarone 150mg IV over 15min.
- No significant blood loss was noted.
- Urine output was adequate.



Caption

- Patient was shifted to surgical ICU intubated and handed over to the intensivist, patient was started on Inj. Amiodarone infusion and Inj. Fentanyl infusion.
- Patient was kept intubated for 3 days postoperatively as cuff leak test was positive
 - The difference between the inspiratory tidal volume(measured before the cuff was deflated) and the expiratory tidal volume(after cuff deflation) is the cuff leak volume. Suggested approach is to use 110ml - 150ml or 20% of tidal volume as cut-off.
- Difficult airway cart kept ready and patient was **EXTUBATED** on POD4, after confirming cuff leak test negative.

THANK YOU!

