



## ANAESTHESIA MANAGEMENT IN PATIENTS WITH MEN 1 SYNDROME (MULTIPLE ENDOCRINE NEOPLASIA ); FOR VIDEO-ASSISTED THORACOSCOPIC THYMECTOMY AND PARATHYROIDECTOMY

Dr. Rajendra Patel

Dr. Sneha Telange

### KEYWORDS :

#### INTRODUCTION

- ❖ MEN 1 (multiple endocrine neoplasia ) syndrome is a ; autosomal dominant hereditary condition associated with tumors of the endocrine gland including parathyroid gland ; pituitary gland ad pancreas. ❖ MEN1 syndrome also known as WERMER syndrome.
- ❖ MEN 1 syndrome is due to mutation in MEN 1 gene.
- ❖ Most common tumor associated with MEN 1 syndrome is parathyroid adenoma.
- ❖ In rare cases ectopic parathyroid adenoma is seen; most frequently found in association with thymus or anterior mediastinum.
- ❖ Video-assisted thoracoscopic surgery(VATS ) is more preferred for thymectomy because of its advantages over open thymectomy.
- ❖ One lung ventilation with double lumen tube or bronchial blockers; More preferred for VATS .
- ❖ 37/F ; complaining of giddiness ; tiredness and hypoglycemic episodes since 2 years ; epileptic since 2018 ; last episode in july 2019 generalized tonic clonic in nature .
- ❖ She diagnosed with MEN 1 syndrome and Hyper-insulinemic hypoglycemia in 2018 .
- ❖ CT abdomen shows calcified lesions in tail of pancreas and bilateral inferior parathyroid adenoma and ectopic parathyroid in anterior mediastinum.
- ❖ Enucleation of pancreatic mass with distal pancreatectomy done in 2019 December hypoglycemic episodes resolved. In June 2022 she was planned for video-assisted thoracoscopic thymectomy through right-sided approach ; and open parathyroidectomy under General Anaesthesia with one lung ventilation with a left double lumen tube.
- ❖ O/E conscious , oriented pulse -80/min BP 120/80 mmHg in the supine position SPO2 99% on room air No pallor; icterus; clubbing; or edema present . Allen's test was done on both sides of the radial artery to check patency. On systemic examination; RS –bilateral air entry clear equal on both sides; CVS – s1s2 present .

**AIRWAY EXAMINATION** – mouth opening >3 fingers; MPC grade II ; no loose tooth ; adequate neck extension.

- ❖ Routine preoperative investigation Done including HB ,CBC,RFT,electrolytes ,calcium; thyroid profile ; ECG' chest x ray.

#### METHODS

- ❖ After ensuring adequate starvation; and informed consent patient brought inside operation theatre; monitors attached; two wide bore iv secured on both sides of upper limb.
- ❖ Preoxygenation done for 3 minutes; induction done with injection fentanyl 2mics/kg; injection propofol 2mg/kg; and injection rocuronium as a relaxant 1mg/kg intravenously.
- ❖ Left sided double lumen tube of 32 French secured under C MAC video laryngoscopy. Auscultation done on left side and air entry checked ; was clear with no any additional

sounds .

- ❖ Post-one lung ventilation SPO2 96% On PCVVG mode (pressure controlled volume guaranteed ventilation ) ; Airway pressures 24 ; with low tidal volume ventilation ; maintained intraoperatively with sevoflurane and nitrous oxide ; with MAC (minimum alveolar concentration ) 1 .
- ❖ After intubation; left-sided arterial line was secured and transduced and IBP (invasive blood pressure ) monitoring done; right-sided femoral line was secured with 7 French triple lumens. HB/WBC/PLT. 10.8/6500/2. 4 BUN/Sr.Creat . 12/0.9 PT/INR 12/0.98 FBS/PPBS 90/120 CALCIUM 12.3mg/dl phosphoros 1.7mg/dl PTH 833pg/ml T3/T4/TSH 0.78/4.9/2.64
- ❖ Arterial blood gas analysis done before one lung ventilation ; and after one lung ventilation ; was normal .Patient position was supine with slightly tilted to left .
- ❖ Thymectomy done with a right-sided thoracoscopic approach with right-sided ICD tube placement done extending to left pleura; with an adjustment of draining holes. One lung ventilation switched to two lung ventilation; air entry checked on both sides was clear with no additional sounds .
- ❖ Parathyroidectomy done right superior and inferior and left inferior parathyroid removed .
- ❖ Throughout the procedure patient was vitally stable; after parathyroidectomy patient reversed and vocal cords mobility shown to surgeons; due to poor respiratory efforts patient was shifted to ventilatory support.
- ❖ Double lumen tube changed to single lumen portex tube of 7 no. and patient shifted on ventilatory support on SIMV mode (synchronized mandatory intermittent ventilation ) .
- ❖ After 24 hours patient was extubated; maintaining saturation of 99 % on room air wwith no complaints; pulse 90/min; BP 116/68mmhg.

#### DISCUSSION

- ❖ Video assisted thoracoscopic surgery VATS is minimally invasive procedure ;involves creation of intentional pneumothorax for collapsibility of lung . Many surgeons prefer VATS for resection of thymus .
- ❖ VATS usually result with lower blood loss ; smaller cosmetic incision; reduced risk of respiratory dysfunction ; preserved pulmonary functions in postoperative Recovery.
- ❖ In VATS choice of anesthesia is general anesthesia with one lung ventilation ; for one-lung ventilation either a double lumen tube or bronchial blockers can be used .
- ❖ Double lumen tube is better as it allows selective ventilation of contralateral lung
- ❖ In our patient we used double lumen tube for one lung ventilation ; as it is easier for placement and quicker isolation and deflation of non dependent lung ; able to deflate or reinflate lung any time during operation ;intermittent suctioning can be done ; available Easily with low cost .
- ❖ For such procedures ; left sided double lumen tube with fibreotic bronchoscope standby is mandatory
- ❖ Some disadvantages related to double lumen tube includes increased risk of airway trauma; raised

incidence of hoarseness and sore throat; require an exchange of DLT with single lumen tube if postop ventilation required; bronchial blockers are preferred in pediatrics and challenging airway intubation

- ❖ In a study conducted by Clayton smith et al. showed that DLT could be placed faster than bronchial blockers . In a study conducted by Kang Qi et al in 2020 ; showed that patients undergoing video-assisted thoracoscopic surgery have a better perioperative outcome; associated with lesser complications compared to open thymectomy .
- ❖ **CHALLENGES** -Hypoxemia ;dislodgement of tube - Raised airway pressures - Increased ETCO2 - Fluid restriction should be done to avoid pulmonary edema - Bronchospasm - Mediastinal shift with hypotension

### CONCLUSION

This case with MEN 1 syndrome with one lung ventilation for thoracoscopic thymectomy with right-sided approach; with left side double lumen tube done successfully with no any intraoperative complication; with single ICD placement done draining both side of thorax ;due to poor respiratory efforts patient was shifted on

### REFERENCES

1. Vyas S, Agasthian T, Goh MH, Shankar S. Thoracoscopic thymectomy in a previous sternotomy. *Asian Cardiovasc Thorac Ann* 2006; 14(6):e108-10.
2. Soon JL, Agasthian T. Harmonic scalpel in video-assisted thoracoscopic thymic resections. *Asian Cardiovasc Thorac Ann* 2008; 16(5):366-9.
3. Agasthian T, Lin SJ. Clinical outcomes of VATS for thymomas. *Interact Cardio Vasc Thorac Surgery* 2008;7: abstract 021, suppl 3 to Vol 7.
4. Agasthian T, Lin SJ. Clinical outcome of video-assisted thymectomy for myasthenia gravis and thymoma. *Asian Cardiovasc Thorac Ann* 2010; 18(3):234-9.
5. Agasthian T. Can invasive thymomas be resected by video assisted thoracoscopic surgery? *Asian Cardiovasc Thorac Ann* 2011; 19:225-227.
6. Hazelrigg SR. Thoracoscopic or video assisted thymectomy (VA)