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ANAESTHETIC MANAGEMENT IN A CASE OF CARCINOMA OESOPHAGUS AND CARCINOMA THYROID.

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ABSTRACT Oesophageal cancer is eighth common malignancy in the world and at an increasing incidence¹. It is associated with higher occurrence of metastases at the time of presentation. Moreover it shows a change in the pathology and its patient characteristics. The incidence of synchronous or metachronous multiple primary malignancies² are rising in patients with oesophageal carcinoma. Because of such reasons, oesophagectomy is often associated with a number of morbid complications¹. Therefore, careful assessment and optimization is essential before planning a surgery³. The anaesthetist has an important role in the complex care of the oesophageal cancer patient. Optimal fluid and electrolyte management, adequate pain management, hypotension, and protective lung ventilation are examples of proven strategies that can improve outcome after this high-risk surgery. Therefore, this case report of successful anaesthetic management in a 52 year old female posted for total oesophagectomy with total thyroidectomy and modified radical neck dissection.

KEYWORDS : Oesophageal Cancer, Thyroid Cancer, Synchronous Malignancy

INTRODUCTION:

Oesophageal cancer has been described since nineteenth century. The incidence is steadily increasing with age and reaching a peak in the 6th and 7th decade, and being more common in males. Currently it is one of the leading causes of cancer related deaths worldwide. In Western developed countries, around 80% of oesophageal tumours are adenocarcinomas and 20% squamous cell carcinomas. Other tumour types are rare. In developing nations and the Far East (including China and Japan), squamous cell histology continues to predominate¹. Risk factors for the two types are shown in Table below.

Risk factor	Adenocarcinoma	Squamous cell
		carcinoma
Lifestyle	Smoking	Alcohol, smoking (may show synergism), poor oral hygiene
Racial origin	Caucasian more common than Asian or African	Sub-Saharan African Heritage three times higher than Caucasians Far East Asian Heritage
Age and gender	Increasing age, male greater than female	Male greater than female
Dietary	Low dietary intake of fruit and vegetables	Salted vegetables, preserved fish
Disease	Gastro-oesophageal reflux, Barrett's oesophagus, obesity, family history (rare)	Mutations of alcohol metabolic pathways, achalasia, caustic injury, nutritional deficiencies, non-epidermolytic palmoplantar keratoderma
Economic	Developed world	Low socioeconomic status
Industrial	Thoracic radiation, medications relaxing lower oesophageal sphincter	Thoracic radiation

Risk factors for oesophageal malignancy^{1,2}:

Most common modality for treatment is surgery along with neoadjuvant chemotherapy¹. Therefore a risk of , pancy topenia (Anemia, haemorrhagic risks, infections) maln utrition, co-existing renal or hepatic malfunction are expected This necessitates proper pre-operative evaluation and optimisation. It is also associated with higher occurrence of metastases at the time of presentation. Moreover it also shows a change in the pathology and its patient characteristics. Also, the incidence of synchronous or metachronous multiple primary malignancies² are also rising in patients with oesophageal carcinoma, the most common ones being head and neck cancers⁴⁵. In this case report we shall discuss about successful anaesthetic management in a patient with oesophageal squamous cell carcinoma and papillary carcinoma of thyroid.

CASE REPORT:

A 52 year old female presented with history of dysphagia for 5 months. It aggravated during the last 2 months and was more for solids than for liquids associated with anorexia and weight loss. No other significant medical or surgical histories. No addictions or drug allergies.

On examination, she is thin built, undernourished. Vital parameters are within normal limits. Lymph nodes at level II and III were enlarged. No pallor, icterus, clubbing or pedal oedema. Systemic examination was within normal limits.

Patient was admitted for work up. Routine blood investigations like CBC, RFT, LFT, coagulation profile, electrolytes, RBS were in the normal range. An oesophagogastro-duodenoscopy was performed which showed growth involving 2/3rd of circumference of lower third of oesophagus and GE junction. Biopsy was sent and the histopathology study showed it as a moderately differentiated squamous cell carcinoma. PET scan was done for the purpose of staging which was reported as : active disease in the lower third, GE junction and proximal stomach. Hypermetabolic, hypodense lesion in the right lobe of thyroid , suspicious for synchronous primary malignancy, hermetabolic perigastric, gastrohepatic, upper pretracheal, left cervical level II, III and V nodes suspicious for metastasis. USG guided FNAC was done for the thyroid swelling which showed features of papillary carcinoma. Thyroid function test was in normal range. Chest xray, ECG, 2Decho were normal.

After thorough evaluation and assessment patient was posted for elective oesophagectomy and total thyroidectomy. Patient and her relatives were counselled about the aneasthetic management planned as well as about the risks involved. High risk consent was taken, adequate blood and blood products were arranged and ICU bed with ventilator was reserved. Patient was kept NBM overnight.

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The management planned for her was general anaesthesia with thoracic epidural with a radial arterial line and subclavian venous line. After confirming the identity and NBM status, she was shifted to OT. Routine monitors were attached for ECG, pulsoximeter, NIBP cuff. Patient was made to sit for providing thoracic epidural. Under all aseptic precautions, thoracic to lower lumbar area cleaned and draped. T7 vertebral spine located by palpating at level of lower angle of scapula. 18G Touhy's needle introduced at T7 T8 intervertebral space, advanced gradually with the help of loss of resistance technique using syringe. Epidural space was confirmed with the loss of resistance, guide was attached and the catheter was passed through the needle, needle and guide withdrawn, catheter was placed at 9cm and sterile dressing was done.

After securing the epidural catheter, patient was positioned for intubation. Pre oxygenated , while premedications were given (Inj. Glycopyrrolate 4micg/kg, Inj. Midazolam 0.5mg/kgmg, Inj. Fentanyl 2 micg/kg.). After pre-oxygenation she was induced with Inj.propofol 2mg/kg IV then muscle relaxant Inj. Atracurium 0.75 mg/kg was given, patient was mask ventilated after which the patient was intubated with 34 Fr left sided double lumen tube, Ventilation was confirmed in both lungs and the tube position was confirmed using a paediatric fibreoptic bronchoscope. ABG was done and the parameters were found to be in the normal limits.

Under all aseptic precautions, radial arterial line was taken with a 20G jelco cannula. catheter fixed and attached to a tranducer for IBP monitoring.-The right subclavian vein was cannulated with a 7 Fr triple lumen catheter considering the intra op as well as post operative needs.

Anaesthesia was maintained with isoflurane, oxygen and air with atracurium infusion. Analgesia was taken care of with regular epidural topups with 0.25% bupivacaine and inj. Fentanyl 50microg was repeated hourly. During the thoracic phase of surgery, right lung ventilation was cut off and one lung ventilation with left (dependant) lung was maintained. Right thoracotomy was done for resection and anastomosis.

The next step of the surgery was to tackle the thyroid . The patient was repositioned with required neck extension and a total thyroidectomy ensued.

Input and output was charted and maintained. Blood loss was around 600 ml, was within allowable limits. Patient was not extubated, the double lumen tube was changed to a regular size 7 cuffed endotracheal tube and was shifted to ICU. She was kept on sedation with relaxant (atracurium and midazolam infusion) and on PRVC mode of ventilator overnight. Next morning, ventilator supports were weaned and patient was extubated by afternoon. Postop analgesia was maintained with epidural topups. Catheter was removed by the end of 3rd day under aseptic conditions.

DISCUSSION:

Intraoperative management in such a case is challenging owing to multiple aspects which has to be taken care of in such cases³. One of the most important being safe lung isolation during the thoracic phase of surgery. Analgesia also poses a significant challenge, so does intra operative and post operative fluid management. When associated with another malignancy, the management becomes more challenging, depending on the site, organ involved and the duration of surgery.

The thoracic phase of surgery can be an open thoracotomy or thoracoscopy in which lung isolation is required (prone thracoscopy needs partial deflation of lungs). OLV is usually necessary for adequate surgical access, with the deflated lung vulnerable to atelectotrauma and ischaemia– reperf usion injury; while the ventilated lung is exposed to the risks of ventilator-induced volu- and barotrauma, high FIO2, and cardiovascular challenge from shunt and raised pulmonary artery pressures⁶. Previously, high tidal volumes and low/no PEEP were advocated to prevent atelectasis and minimize shunt, while over the last 15 yr, low tidal volume, lungprotective strategies have become the norm for OLV^{1.6}.

Dissection around the mediastinum is frequently associated with arrhythmias, ventricular compression causing hypot $ension^1$.

Analgesia is also a significant challenge considering the multiple incisions and their distribution. Pre emptive thoracic epidural analgesia⁶ has been widely used for intra-operative as well as post-op management.

Oesophagectomy presents great challenges for fluid management both intraoperatively and after surgery. Excess fluid administration risks not only pulmonary oedema but also venous congestion of the anastomosis causing post operative leak¹. Insufficient fluid is associated with excess vasopressor use, increased myocardial strain, and vasoconstriction, risking the anastomosis becoming ischaemic, and systemic effects including acute kidney injury and metabolic derangements¹. This is further complicated if there is significant blood loss.

CONCLUSION:

Awareness of the expected adverse situations and proper preparedness is the key to success in such cases of multiple malignancies. Proper preoperative evaluation, optimisation and formulation of an appropriate plan of action is necessary. Guidance from an experienced anaesthesiologist may be sought for, regarding the management. It has to be a proper planned team work. If planned and conducted well, even cases with a risk for higher risk of morbidity and mortality can be tackled efficiently.

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