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MINIMAL ACCESS SURGERY IN CARCINOMA OESOPHAGUS - A CASE REPORT

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ABSTRACT

Surgery plays an important role in curative treatment of oesophageal carcinoma. Ivor-Lewis procedure modified by McKeown is the procedure of choice, which is an open approach. Here, we present our experience with a modified three-stage procedure i.e. right thoracoscopy, mini-laparotomy and cervical anastomosis, which shows that oncological procedures can be performed by minimally invasive procedures; this helps in reducing complications associated with open technique, especially pulmonary, without any oncological disadvantage for the patient. Thus, we propose that a minimally invasive approach is a significantly better technique for tumour resection, combined with neo adjuvant chemotherapy, in reducing hospital stay and improved quality of life.

KEYWORDS: Modified three-stage procedure, Carcinoma Oesophagus, Thoracoscopy, Minimally invasive.

INTRODUCTION

Oesophageal cancer a challenge to treat and requires a multidisciplinary approach to improve the outcomes.[1] Surgery remains the curative therapy for oesophageal carcinoma. The patients with oesophageal cancer have a poor prognosis where only 56% of the patients who presented have resectable disease with an overall five-years survival rate of 10%, and the five-years survival rate is still only 18% among operated patients.[2] Although the role of perioperative treatment modalities live neoadjuvant and adjuvant treatments have significantly evolved. The general international consensus is that fundamental curative therapy of locally advanced oesophageal cancer is surgery [3] The surgery of choice is modified Ivor-Lewis operation by McKeown. In this the tumour is resected through a right-sided thoracotomy in combination with a laparotomy with cervical esophagogastric anastomosis.[4,5] Ample exposure allows complete oesophageal dissection and en bloc resection which is the advantage of this procedure.[6,7] Pulmonary complications due to the thoracotomy & collapse of the right lung are the main disadvantages. Right thoracoscopy (three-stage operation) which mimics the conventional procedure through a minimal invasive approach can be attempted to lower the mortality & morbidity.

CASE REPORT

A 31-year-old male from Vijayapura, Karnataka presented to us with complaints of pain in the throat since 1 month, with dysphagia for solids. He had no history of smoking or alcohol consumption. A Gastro-duodenoscopy was performed and a friable, lumen occluding, friable mass lesion at 30cm, the scope could not be negotiated beyond. A biopsy was taken which showed moderately differentiated squamous cell carcinoma. CT Thorax (plain and contrast) was also done which showed heterogeneously enhancing circumferential wall thickening of the mid and distal oesophagus. After pre-op evaluation the patient was taken up for surgery.

Operation

1st Step thoracoscopic assisted oesophageal mobilization

Under general anaesthesia and epidural analgesia, using a double-lumen endotracheal tube the patient was intubated & placed in left lateral decubitus position, with right arm flexed at 90° to the body and placed on an arm rest. A 10mm infrascapular port was placed, followed by a 10mm port in the 5th intercostal space & a 5mm port in the 9th intercostal space Fig. 1. The inferior pulmonary ligament was divided using harmonic scalpel and the lung was retracted anteriorly. The mid and distal parts of oesophagus were approached and dissected from the surrounding structures Fig. 2. Left crus of diaphragm was identified and opened to expose gastro-oesophageal junction. Vagotomy was also done. All the direct branches from the aorta were identified and cut using a harmonic scalpel. The oesophagus was

then completely mobilized from the surrounding structures. Haemostasis was achieved. An intercostal drain was placed through the 5mm port, under thoracoscopic visualization.

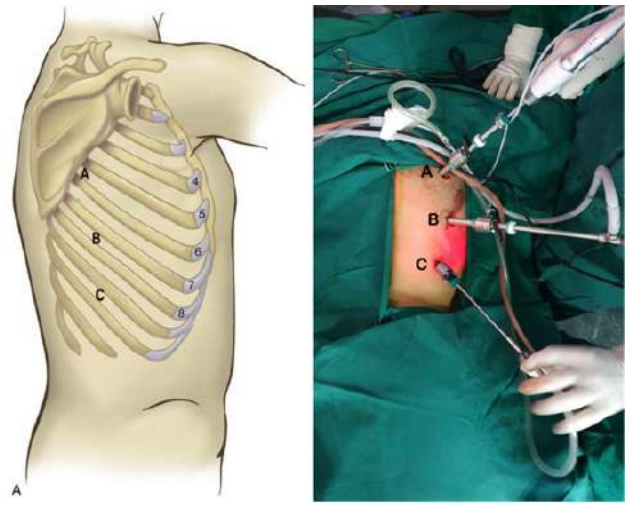

Fig.1: Thoracoscopy Ports

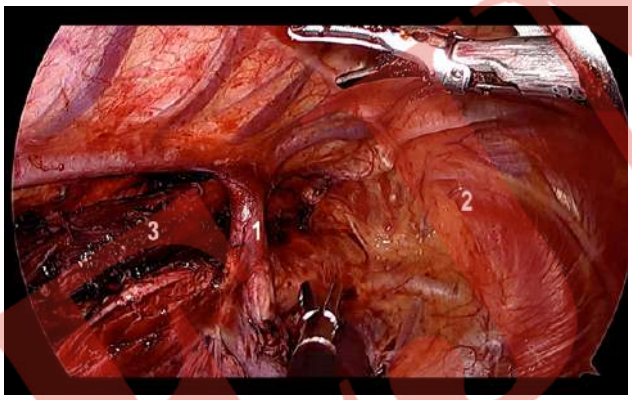

Fig.2: Intra OP (Thoracoscopy). 1:Azigous vein, 2: Apical region of the thorax., 3: Oesophagus

2nd Step: upper midline mini-laparotomy - gastric mobilization and oesophagostomy

The patient was placed in supine position with both arms by the side, and reintubated with a single lumen endotracheal tube. The neck was partially extended and turned to the right. A vertical midline abdominal incision of 10cms was taken between the xiphisternum and umbilicus. The stomach was mobilized, duodenum was kocherised and vagi were divided. A 3cm transverse cervical incision was made on the left side of the neck. Blunt dissection was done to reach and mobilise the cervical oesophagus. Care was taken to preserve the recurrent laryngeal nerve. A combination of dissection from abdominal and cervical incisions freed all attachments of the oesophagus. After transection of the oesophagus at the cervical incision, an infant feeding tube was sutured to the distal oesophagus; and the specimen is drawn out into the abdomen. Partial Gastrectomy and total oesophagectomy was done. (Fig.3.)

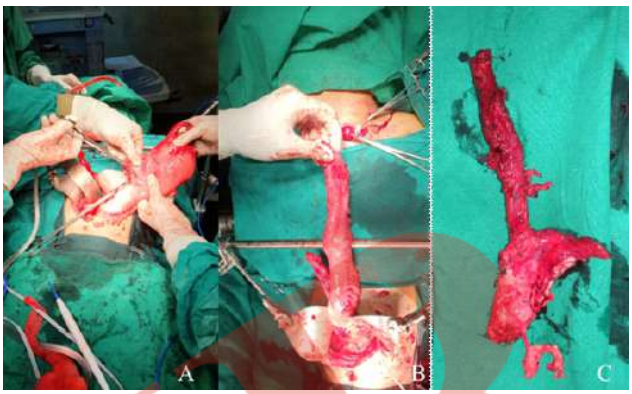

Fig. 3: A: Gastric conduit creation, B: Gastric conduit placed to check for Adequate length, C: Partial Gastrectomy and total Oesophagectomy specimen

3rd Step: gastric conduit creation and oesophagogastric anastomosis. (Fig. 3.)

The right gastric artery and lesser omentum were divided. Highest point of the fundus of stomach is identified. Lesser curve up to fundus is hand sutured using 2-layer technique, gastroplasty was done, creating a gastric conduit. The infant feeding tube is attached the apex of the gastric conduit and used to guide the stomach tube up into the neck. Hybrid anastomosis of oesophagus and stomach is done using staples on the posterior aspect and using hand sutures the anterior walls, and a drain was placed.

Histopathology report: Moderately differentiated squamous cell carcinoma infiltrating up to the adventitia. Perineural invasion and lympho-vascular invasion noted (Fig.4.). Both the surgical resection margins are free. 1 of the 5 lymph nodes found along the oesophagus shows metastasis. 1 of the 10 lymph nodes found at the GE junction shows metastasis.

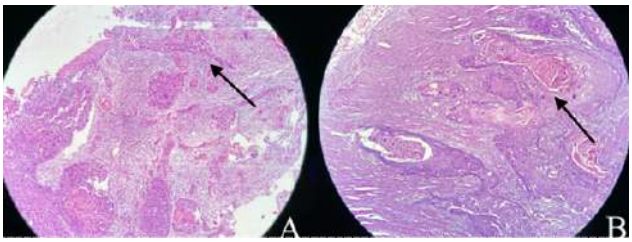

Fig.4: A: Biopsy H&E 100x - Sections studied show neoplastic squamous cells arranged in cohesive clusters and cords infiltrating into the adjacent stroma. B: RSC H&E 100x - Sections studied show neoplastic squamous cells arranged in clusters and cords infiltrating into the muscularis layer of the oesophagus.

DISCUSSION

With regard to surgery, several approaches for resection have been described: abdomino-thoracic, trans-hiatal, trans-thoracic & recently, minimally invasive resection. [8] Surgical intervention of oesophageal cancer, with dissections at cervical spaces, abdominal and thoracic means high postoperative discomfort and a high morbidity and mortality due to massive operative trauma for the patient. The oesophagus when approached through a right thoracotomy and a laparotomy with a cervical incision has a high rate of pulmonary complications, that accounts for long postoperative ICU stay. Imitation of conventional procedure by the 3-stage procedure (right thoracoscopy, mini-laparotomy & cervical anastomosis) shows that oncological procedures can be performed by minimally invasive procedures without any oncological disadvantage for the patient.

CONCLUSIONS

Based on the above experience, we postulate that the combination of a precise preoperative staging of the tumour, use of efficacious neoadjuvant therapy and the minimally invasive resection will be adequate for these patients, causing less postoperative complications and better survival.

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