

Thoracic surgery in a tertiary care institute-Our experience of 4 years

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Abstract

Background: Thoracic Surgery is undertaken for a variety of acquired or congenital intra-thoracic lesions. In India majority of elective thoracic surgical procedures include decortication for empyema, lung resection surgery for benign lung diseases like bronchiectasis, Aspergilloma and benign lung tumors and resection of mediastinal tumors. In India operable bronchogenic carcinomas are very few due to delayed diagnosis. In the last few years due to early diagnosis and treatment, incidence of major complications of intra thoracic infection and empyema have decreased in India.

Objectives of our study were to find out the most commonly performed thoracic surgical procedures and major post operative complications including immediate post-operative mortality in a tertiary care institute.

Methodology: This was a retrospective record based study. All elective thoracic surgeries conducted by the thoracic surgery department at A.J. Institute of Medical Sciences & Research Centre, Mangaluru from August 2011 to July 2015 were included in the study. Cardiovascular surgeries, bowel and esophageal surgeries and all emergency thoracic procedures secondary to trauma were excluded from the study.

Results: Data analysis was done based on frequency distribution. Total cases were 70 which included 52 males and 18 Females. Male to Female ratio was 3:1. Most common surgical procedure was decortication for empyema, 17 cases (24.2%). Majority of the decortications, 12 cases (70.5%) were right sided. Second most common procedure was Lobectomy, 14 cases (20%). The most common lobe resected was left upper lobe, 7 cases (42.8%). Mediastinal mass lesion excision surgeries were 13 (18.6%). There were 6(8.5%) pneumonectomies, all of which were left sided. All pneumonectomies were done for post-tubercular destroyed lung.

Average post-operative stay in intensive care unit was 2 days. Average post operative hospital stay was 9 days. Immediate post-operative complications occurred in 9 in cases, 4(44.4%), all were due to pulmonary cause. All these patients had hypoxia. Two patients required mechanical ventilation for 3 days. No post-operative mortality was recorded.

Conclusions: In our institution, most common thoracic surgical procedure was decortication. Majority of patients were males. Average hospital stay was 9 days with 2 days post-operative intensive care. There was no post-operative mortality.

Introduction

Thoracic surgery is undertaken for a variety of acquired and congenital intra-thoracic lesions [1]. Thoracic surgery is performed to treat diseases or injuries of intra thoracic organs. Thoracic structures treated by surgery include esophagus, trachea, lungs, pleura, Mediastinum, heart, blood vessels, diaphragm and chest wall.

Empyema and tuberculosis were the main indications for thoracic surgery at the beginning of the 20th century [1]. Majority of thoracic surgeries are now done to treat traumatic injuries, esophageal diseases and lung cancer. Lung transplantation and lung volume reduction surgery for

emphysema are also being performed increasingly in the west.

Like other surgical fields thoracic surgery is evolving very fast. Newer modalities like video assisted thoracic surgery and robotic surgery is now being performed in many centers. Most common elective thoracic surgery is done for treatment of empyema [1]. With the advent of antibiotic and better treatment facilities, incidence of empyema is decreasing. Moreover in many centers early empyema is now being treated by video assisted thoracoscopy. Hence open thoracotomy for empyema is now less commonly being performed in the west [1].

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In India still majority of elective thoracic surgical procedures include resection for esophageal carcinoma, decortication for empyema, lung resection surgery for benign lung diseases like bronchiectasis, Aspergilloma and benign lung tumors, resection of Mediastinal tumors and repair of diaphragmatic hernia/eventration. In the west bronchogenic carcinoma is increasingly being treated with resection whereas in India operable bronchogenic carcinomas are very few. In west carcinoma of the bronchus is the most common indication for lung resection [1]. In India, majority of the surgeries are for empyema and post-tubercular bronchiectasis [2]. However there is paucity of data regarding the various thoracic surgical procedures undertaken in India.

In the last few years due to early diagnosis and treatment, incidence of major complications of intra thoracic infection and empyema have decreased in India [2]. Due to better health care facilities post operative morbidity and mortality following thoracic surgery has decreased.

With this changing trend there is a need to review the conditions where thoracic surgery is undertaken. Hence we undertook this study.

Objectives of the study

1. To find out the most commonly performed thoracic surgical procedures
2. To find the major post operative complications including immediate post-operative mortality in a tertiary care institute.

Materials and Methods

This was a retrospective record based study. All elective thoracic surgeries conducted by the thoracic surgery department from August 2011 to July 2015 were included in the study. Institutional ethical committee approval was obtained for the study. Only open thoracotomy cases were included in the study. Video assisted thoracic surgery cases were not included in the study as this was started in our institute only in year 2014. Cardiovascular surgeries, bowel and esophageal surgeries and all emergency thoracic procedures secondary to trauma were excluded from the study as we wanted to limit the study only to elective respiratory cases. Data analysis was done based on frequency distribution.

Results

Total cases were 70 which included 52 males and 18 Females. Male to Female ratio was 3:1. Most common surgical procedure was decortication for empyema, 17 cases (24.2%). Majority of the decortications, 12 cases (70.5%) were right sided. Second most common procedure was Lobectomy, 14 cases (20%). The most common lobe resected was left upper lobe, 7 cases (42.8%). Mediastinal mass lesion excision surgeries were 13(18.6%). There were 6(8.5%) pneumonectomies, all of which were left sided. All pneumonectomies were done for post-tubercular destroyed lung.

Average post operative stay in intensive care unit was 2 days. Average post operative hospital stay was 9 days. Immediate post-operative complications occurred in 9 in cases, 4(44.4%), all were due to pulmonary cause. The pulmonary causes for hypoxia were exacerbation of COPD, infection and lobar collapse. All these patients had hypoxia. Two patients required mechanical ventilation for 3 days. No post-operative mortality was recorded.

Discussion

In the present study, majority of the patients were males which is consistent with Indian data [3]. Majority of the surgeries were done for empyema and post tubercular lung disease in our study. Indian studies show that the incidence of empyema and tuberculosis is more in males compared to females³ which is consistent with our study.

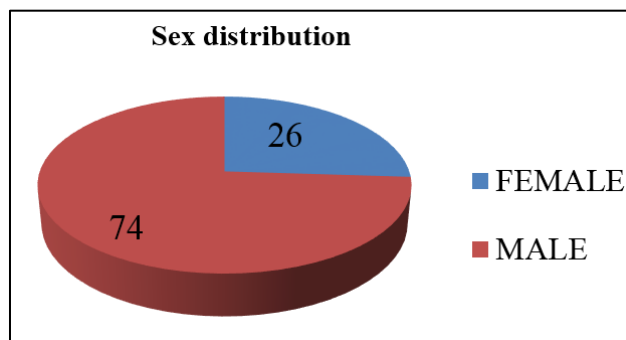


Fig. 1: Sex distribution

Table 2: Shows the type of surgical procedure and the side operated

Type of Procedure	Side involved
Decortication 17 (24.2%)	Right side 12 (70.5%)
	Left side 5
Lobectomy 14 (20%)	Left upper 7 (42.8%)
	Left lower 3
	Right upper 2
	Right lower 2
Mediastinal mass lesion 13 (18.6%)	---
Pneumonectomy 6 (8.5%)	All right sided for post tuberculosis

In 2011, according to European database, lobectomy accounted for 57.5% and pneumonectomy 9.5% of all thoracic surgeries [4]. Lobectomy was the most commonly performed surgery in general thoracic surgery [5]. Bronchogenic carcinoma was the most frequent indication in United Kingdom [2]. In our study decortication for empyema was the most commonly performed procedure. The majority of decortications were for right sided multi-loculated empyema which was consistent with an Indian study in 2004 by Amit et al., [6]. Most common cause for empyema was lower lobe pneumonia which was more common on right side than on left side.

The most common lobe resected was the left upper lobe in this study. All the pneumonectomies were left sided, due to post-tubercular destroyed lung which was consistent with previous studies [8]. This may be due to the fact that patients with right lung disease were not fit for pneumonectomy. Right lung contributes more than left lung for gas exchange as the size and volume of right lung is more than left lung.

Average post-surgery care in intensive care unit was 2 days. Average post operative hospital stay was 9 days. There is paucity of data as to how many days of ICU care will be required following thoracotomy as the incidence varies between hospitals [9]. With advances in thoracic surgery and better post operative care, the post operative intensive care unit stay is bound to decrease.

Pulmonary complications are responsible for majority of deaths and morbidity of patients undergoing thoracotomy [8]. In this study, immediate post-operative complications occurred in 9 cases, 4(44.4%) were due to pulmonary cause where patient had hypoxia. But no post-operative mortality was encountered in our study. Post-operative mortality is directly proportional to increased age, co morbid diseases and extent of resection [8]. Post-operative mortality after various thoracic surgeries is 1-2% [8]. Zero incidence of post-operative death in our study may be due to small number of patients, proper patient selection for surgery and good peri-operative care. Esophageal surgery and emergency surgeries were not included were the post operative morbidity and mortality is generally higher.

Conclusion

In our institution, most common thoracic surgical procedure was decortication. Majority of patients were males. Average hospital stay was 9 days with 2 days post-operative intensive care. There was no post-operative mortality.

Limitations of the study

Main limitation of our study is small study group of only 70 cases. Emergency thoracic surgical procedures were not considered which constitute major chunk of thoracic surgery.

Source of funding

None.

Conflict of interest

None.

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