

Case Report

Survival and Normal Quality of Life for 56 years after Pneumonectomy - A Case Report

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ABSTRACT

A 72-Year-Old male presented with exertional dyspnoea and bilateral pedal oedema since 6 months. On taking history it was found that the patient underwent pneumonectomy in 1963 and had been living a normal life since then. Patient had developed fibro-caseous tuberculosis at the age of 16 years. Due to fibrotic bands and adhesions the treating doctor decided to remove the entire lung as it was unsalvageable. Patient was further managed with 2nd Line ATTs and other supportive care during his 6-month long hospital stay at the time of surgery. Patient served as a government employee for 56 years. Survival for 56 years that too with normal activities of daily life is a rare phenomenon after pneumonectomy. He gradually developed Chronic Obstructive Pulmonary Disease and eventually landed up in Cor-Pulmonale and CHF.

KEYWORDS: Pneumonectomy, Fibro caseous tuberculosis, Cor -Pulmonale, Post pneumonectomy syndrome, Single lung.

INTRODUCTION

Tuberculosis in India is a major health concern, which causes around 220, 00 deaths per year. Pneumonectomy is a surgical procedure which involves removal of an entire lung. Although primarily performed to excise tumorous tissue due to lung carcinoma but it was also performed in chronic tuberculosis to get rid of the tubercular lung in the face of unavailability of effective drug treatment.

We present a case of devastating fibro-caseous tuberculosis at a young age of 16 years. The disease had entrapped the entire lung with irreversible damage to the lung parenchyma and widespread fibro-adhesions to the involving intercostal muscles, ribs and chest wall itself. He underwent left sided pneumonectomy in 1963 and was also given a fitness certificate by the treating doctor, in the year of 1978, stating that “He is fit to do any full time job” and patient did serve in a government sector for 56 years.

Subsequently, 6 months back he developed dyspnoea and pedal oedema. Patient was given Home Oxygen Therapy via O2 concentrator, but his condition worsened and he came to Pacific Medical College and Hospital.

CASE

A 74-year-old male patient presented to the General medicine OPD with complaints of difficulty in breathing (Grade III – MMRC) and pedal oedema. Upon obtaining history, it was found that the patient had undergone Pneumonectomy in the year of 1963 for fibro-caseous tuberculosis. He has been living with a single lung for 56 years, and was living an almost normal life. A chest X Ray was done. Fig. 1 Chest X - Ray (P/A View) shows Post pneumonectomy status (Fig 1) in the patient, trachea is shifted towards the right side and complete opacification of the left pleural space with visible calcified chain of lymph nodes.



Figure 1: Chest X - Ray

The contralateral lung is hyperinflated with prominent broncho -vascular markings (Emphysema) There is marked widening of the intercostal spaces.

Patient told that he stayed around 5 months in the hospital after the surgery. His right lung showed no evidence for active pulmonary tuberculosis and he was certified fit for any full time work duties.

Patient was also operated for Tympanoplasty due to CSOM in 1974, and he was also diagnosed with BPH in 2015.

At present patient came to the hospital with Chief complaints of difficulty in breathing and pedal oedema and. He was admitted in the ICU. A provisional diagnosis of Heart Failure with Pulmonary Artery Hypertension was made.

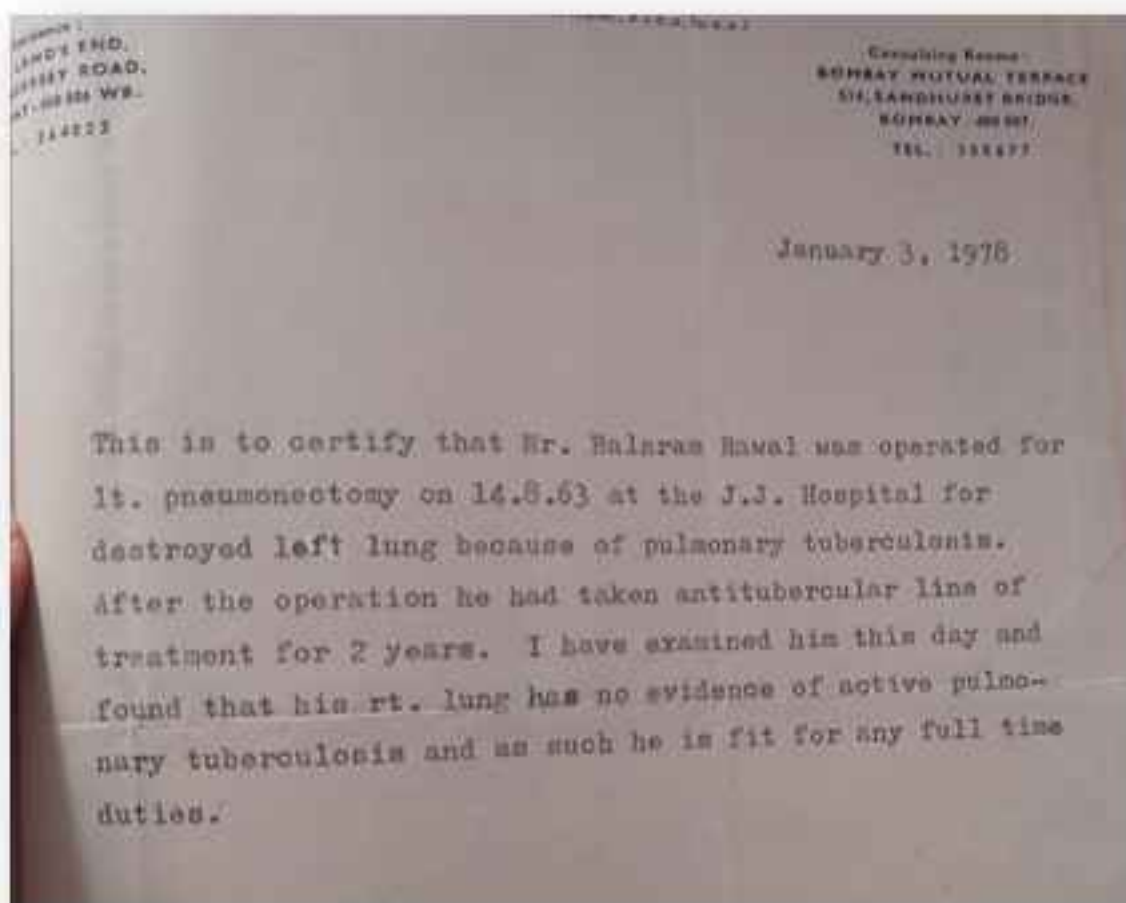


Figure 2: Fitness Certificate

His 2D Echo showed severe Pulmonary Artery Hypertension with PASP = 82 mmHg with Dilated RA, RV, Fair RV function and LVEF around 60%.

Patient complicated further and developed Cor Pulmonale. Patient suffered Cardiac Arrest twice in a single day and he was revived via CPR. He was intubated and kept on Mechanical Ventilator next day. Patient's further course remained critical and the relatives took leave against medical advice (LAMA) after 4 days of hospital stay.

DISCUSSION

Pneumonectomy or Lung Resection is a surgical procedure to remove a lung. Usually employed as a treatment modality of lung malignancy, trauma and infection. There are two main types of Pneumonectomy:

1. Simple Pneumonectomy
2. Extra pleural Pneumonectomy: Removal of lung and adjacent parietal pleura, diaphragm along with pericardium

It was done for the first time by William MacEwen, through multiple stages in a patient suffering from Tuberculosis complicating to emphysema in the year of 1895. First single stage total Pneumonectomy was done by Singer and Graham in 1933.¹

In infectious conditions of lung, about 90% of patients respond with medical management. But surgery is indicated if patients still have persistent disease despite optimal medical management along with empyema, bronchopulmonary fistula or abscess formation.²

Following Pneumonectomy procedure there are certain expected changes. The space which was occupied by the removed lung is called the Postpneumonectomy Space. In instances with pneumonectomy cases, a chest tube drain is not indicated and thus the filled air is not removed. Complete radiological opacification takes around 1-3 months.

Initially, pneumonectomies were employed for infective or suppurative conditions of lung, but the paradigm has shifted in recent years and more commonly practices for neoplastic disorders of the lungs who requires complete resection of the organ.⁴

Post Pneumonectomy Syndrome

Post pneumonectomy syndrome is defined as external compression of the distal trachea and the main bronchus as a result of mediastinal shift along with hyperinflation of the solitary lung. This phenomenon occurs after half year following surgery, and even reported in later stages.^{5,6}

Complications and Survival

Pulmonary and cardiac complications are very common following pneumonectomy. Pulmonary oedema, chylothorax, oesophageal and bronchopulmonary fistula along with contralateral pneumothorax have been reported. Cardiovascular complications may include arrhythmia, pulmonary embolism, intracardiac shunting etc.⁷ Pneumonectomy has higher incidence of complications (especially cardiopulmonary) than the smaller / lesser pulmonary resections.⁸

J B Joo et al. tried to predict mortality indicators for pneumonectomy patients. They studied around 105 patients who were recipient of pneumonectomy for lung carcinoma. Out of those cardiopulmonary complications were seen in 33% of cases and pulmonary complications were seen in 58.1% (Respiratory failure > Pneumonia > Bronchopulmonary fistula) cases. 11 deaths were noted giving around a 10.5% 30 Day mortality. Statistically significant mortality factors included Respiratory failure, Sepsis and Male gender. Presented case here had two of these three factors, which puts him in high risk for mortality, despite the prolonged survival observed.⁹

In a study which tried to understand the early and long term outcomes of pneumonectomy, the authors observed that pneumonectomy is indeed a challenge for perioperative and postoperative survival. Removal of right lung along with comorbidities were seen having a higher mortality along with preoperative renal failure also being a strong factor.¹⁰ Postoperative Pneumonia after Discharge (PDAD) are also seen in a higher incidence with rate increasing with time. (14.9% at 3 years and 21.6% at 5 years), there PDAD is a strong factor resulting in poor survival post pneumonectomy.¹¹

J Bown and M Pomerantz reported that pneumonectomy for Pulmonary Tuberculosis possessed the highest risk. Infected sputum contaminating the pleural space can be related directly to post operative complications. An extra pleural approach can be beneficial in such cases.¹²

Pneumonectomy for pulmonary tuberculosis was first done in 1936 by Lindskog.¹³ J. Hiltz et al. studied 124 pneumonectomies especially for the tuberculosis. They concluded that advancing age with male gender possessed the highest post-operative complications. They also observed that right lung resection had a worse outcome. Preoperative cavitating lesions also increased the risk. Overall death rate observed for tuberculous and non suppurative cause was 23%, and total complication rate stood at around 46%.¹⁴

Prognosis

The Thirty day mortality rate following pneumonectomy stand around 5-11%.¹⁵ Increased mortality is seen with Right sided pneumonectomy.¹⁶ Contrasting evidence is available when assessing whether increased age is a poor prognostic factor or not.^{17,18}

Post pneumonectomy patients have marked decline in quality of life. Quality of life reaches unacceptable levels in patients aged over 70 and already low quality of life preoperatively.¹⁹

CONFLICTS OF INTEREST: None

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