



A STUDY OF VIDEO ASSISTED THORACOSCOPIC SURGERY(VATS) IN THE MANAGEMENT OF EMPYEMA THORACIS

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KEYWORDS : Empyema Thoracis , VATS, Thoracotomy

INTRODUCTION

- Empyema thoracis defined as pus in the pleural cavity, is often associated with poor lung compliance and function, prolonged recovery time and mortality rate of 20%
- It is a well documented fact in surgical literature that pus in body must be drained to ensure the recovery of the individual and so it must be with empyema thoracis.
- This evacuation of pus within pleural space has been tried with percutaneous drainage, by the use of inserting an intercoastal drain into pleural cavity by means of thoracoscopic drainage or by open thoracotomy.
- VATS is minimally invasive procedure known to be associated with quicker recovery, reduced morbidity and post operative pain, improved cosmesis and fewer complication
- Primary decortication by means of VATS as against medical management in empyema would not only drastically improve the time scale of recovery of patient but also cut down the financial extent bought but prolonged medical care
- The study aimed to understand the role of pleural decortication by VATS and assess the benefits brought by its application in management in empyema thoracis

AIMS AND OBJECTIVES METHODOLOGY

- To understand and evaluated the role of video assisted thoracoscopic surgery (VATS) in the management of empyema thoracis
- To study the efficacy and complication of video assisted thoracoscopic surgery (VATS) as therapeutic tool in empyema thoracis

MATERIALS AND METHODOLOGY

- Study type= prospective study

Study Type- Prospective Study

Source of data- 30 patients diagnosed to have empyema thoracis admitted during period of august 2019- august 2020 were included

Inclusion Criteria -

1. Patients diagnosed to have empyema thoracis
2. Patients with loculated pleural effusion.
3. Patients with unresponsive empyema
4. Patients with intercostal drains without benefit
5. Patients where pleural effusion remains undiagnosed

Exclusion Criteria

1. Patient deemed unfit for surgery due to co-morbidities such as recent myocardial infarction, coagulopathies, poor pulmonary function tests
2. Patients who were HIV seropositive
3. Moribund patients with poor lung function or those on ventilatory support

METHODOLOGY

- Patient of pneumonia were monitored for development of empyema or those presenting with empyema on admission
- Each patient detail clinical history and clinical examination was done to look for signs of tracheal shift (Traile's sign),

decreased chest movements on side of empyema, dull note on percussion on the side of empyema, absent air entry or decreased air sounds on the sides of empyema, presence of any adventitious respiratory sounds.

- Those who failed to improve would undergo further investigations to confirm pathology and nature of empyema. Patients with confirmed empyema were enrolled into surgery

Tests

- CBC- to assess Hb, look for leukocytosis and platelet count
- Chest Xray- to see who has only pneumonitis or has developed empyema, a homogenous opacity with blunting of costophrenic angle as well as for monitoring the progress of empyema
- USG thorax - to look for empyema and thickness of these septations and the thickness of pleura
- HRCT thorax- to better asses the condition of lungs, presence of uniloculated or multiloculated empyema, pleural thickness and to look for any additional thoracic pathology
- In patients with pleural effusion needing pleural fluid analysis to confirm diagnosis, diagnostic tapping with W/I consent and all under all aseptic precautions
- The fluid was examined for microscopy and culture and diagnosed as exudate by LIGHT criteria - pH>7.2, glucose level <40mg/dl, LDH >300IU/ml, protein>2.5g/dl, PT and INR
- If multilocation was suspected or if patient directly presents with it or in a chronic stage, primary thoracoscopic debridement of all slough and necrotic tissue was done as percutaneous drainage or intercoastal drainage would not be possible in such patients where pus was thick.
- If thoracoscopic decortication were not successful then the option of open thoracotomy to decorticate the thickened pleura and ensure ultimate lung expansion where initially no room for lung expansion existed

Anticipated Risk Factor -

1. Primary hemorrhage, secondary hemorrhage, wound infection and visceral injury
2. Air leak, broncho-pleural fistula, subcutaneous emphysema, pneumonia, pneumothorax, hemothorax, ventilatory support, re- exploration for bleeding and any cardiac tamponade

DISCUSSION

- With the detection and confirmation of empyema thoracis in a patient, the surgical methods available to tackle it range widely from simple aspiration to open thoracotomy decortication.
- Our study involved subjecting all patients to the minimally invasive procedure of thoracoscopic drainage of empyema and decortication as primary surgical method of intervention.
- Age distribution: in our study 19 patients were <10 years of age, 4 patients fell in 11-20 years. 4 patients fell in the age group of 21-30years, 2 patients fell in the age group of 31-40years, 1 patient fell in the age group of 41-50 years.

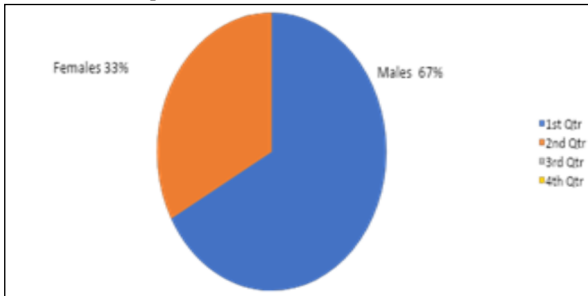
AGE GROUP (YEARS)	NO. OF CASES	PERCENTAGE OF CASES
<10	19	63.33%
11-20	4	13.33%
21-30	4	13.33%

31-40	2	6.66%
41-50	1	3.3%
TOTAL	30	100%

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Age Distribution

- Sex distribution : in our study 20 patients were male and 10 patients were female
- Presenting symptoms: 30 pts with cough, 24 pts with additional expectoration.
- 12 patients had breathlessness as a symptom while it was absent in 18 pt
- Fever was a symptom in 24 pts while it was absent in 6 pts.
- Conversion to open thoracotomy: in our study 24 patients were successfully treated by primary VATS whereas in 6 patients, decortication by VATS could not completely carried out hence these patients' required conversion to open surgery and decortication was completed by thoracotomy



Sex Distribution

Presenting Symptoms

SYMPTOMS	OBSERVED	ABSENT	TOTAL
COUGH	30	0	30
EXPECTORATION	24	6	30
CHEST PAIN	18	12	30
BREATHLESSNESS	12	18	30
FEVER	24	6	30

SYMPTOMS	OBSERVED	ABSENT	TOTAL
COUGH	100%	0%	100%
EXPECTORATION	80%	20%	100%
CHEST PAIN	60%	40%	100%
BREATHLESSNESS	40%	60%	100%
FEVER	80%	20%	100%

CONCLUSION

- VATS in management of empyema thoracis has now begun to be widely used as a first line treatment, bypassing a trial with percutaneous drainage or trial with an intercostal drainage tube
- VATS proved to be beneficial especially in early empyema with lesser blood loss, operative time, days of post-surgical intercostal drainage and post operative air leak than open thoracotomy
- Also, patients treated with VATS had potentially lesser surgical site infection
- At a review after 4 weeks post-surgery, patients treated by primary VATS had improved exercise tolerance, lesser paresthesia and required lesser analgesia
- Patient that underwent primary thoracoscopic decortications were far more pleased with scar cosmesis than those who underwent open thoracotomy
- Thus, it is safe and effective to use Video Assisted Thoracoscopic Surgery in empyema thoracis as a definitive first line treatment method

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