Intrapleural Fibrinolytic Therapy in Clotted Hemothorax

Dr. Vineeth Anuraag
Resident
Department of Respiratory Medicine

33 Year old male, office clerk
never smoker

K/C/O Congenital Heart Disease with Eisenmenger syndrome
Potential recipient for Heart and Lung Transplant

CHIEF COMPLAINTS

1. Breathlessness since childhood increased for 8 days - MMRC grade - 3

2. Cough since 10 days, with yellowish expectoration

3. Fever – 8 days Intermittent, Undocumented and relieved with medication

No History of Trauma

EXAMINATION

- General Physical Examination: Clubbing- Grade 3

- Vitals → PR : 112 bpm

  BP : 110/70 mmHg,

  RR : 24 cycles/min

  SpO2 : 68% on room air (FiO2 –21%)

EXAMINATION

Respiratory system:

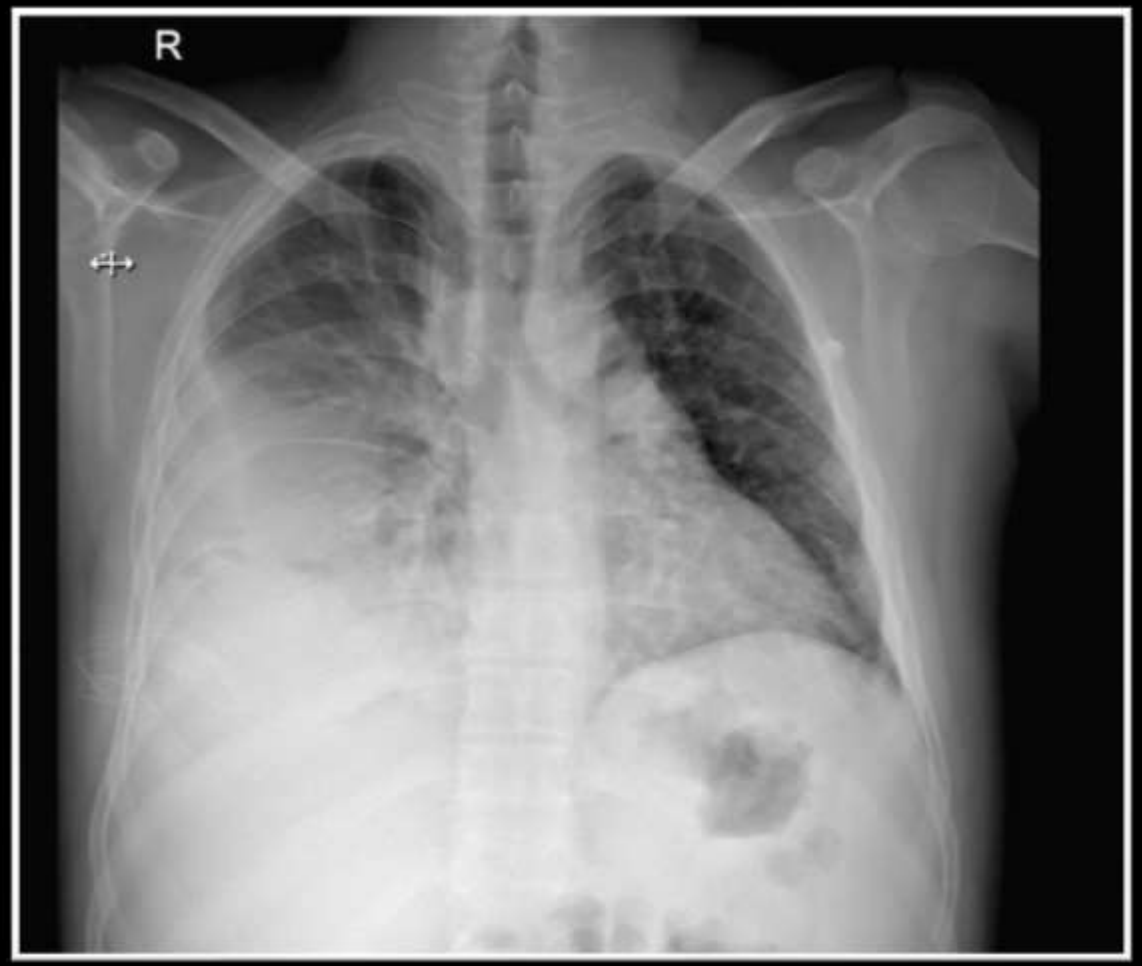
Bilateral vesicular breath sounds with ***diminished intensity at right mammary, Infra scapular & Infra axillary areas. s/o pleural effusion***

Cardiovascular system:

S1,S2 heard, Holosystolic murmur at left 3rd ICS

Rest all systems – No abnormal findings

RADIOLOGICAL INVESTIGATIONS



CXR:

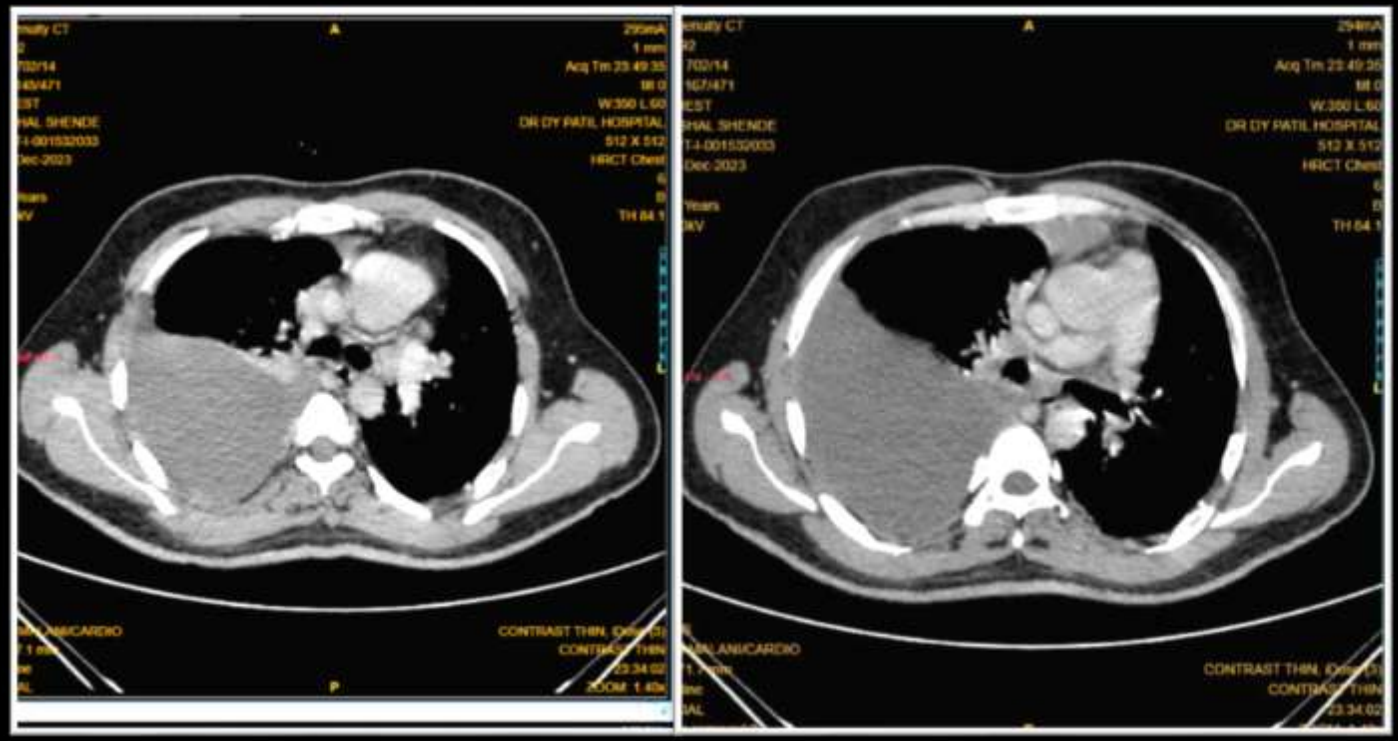
Right Middle & Lower zones homogenous opacity obliterating the right cardio phrenic and costophrenic angles suggestive of Right Pleural Effusion

USG THORAX :

Right Gross Pleural Effusion (>1000cc) with internal septations.

HRCT and CTPA

Gross right pleural effusion.
No evidence of thrombus.



2D ECHO

LVEF- 60%
Dilated RA and RV
Severe PAH– RVSP 80 mm hg
Small PFO with right to left shunt

LABORATORY INVESTIGATIONS

Hb, PCV	**13.9, 41.2**	**LFT**	**WNL**
TLC	**14600**	**Serum Na^+**	**138**
Platelets	**1.4 lacs**	**Serum K^+**	**3.8**
PBS	**Normocytic Normochromic**	**INR**	**1.20**
Blood Urea	**27**	**Serum Creatinine**	**0.95**

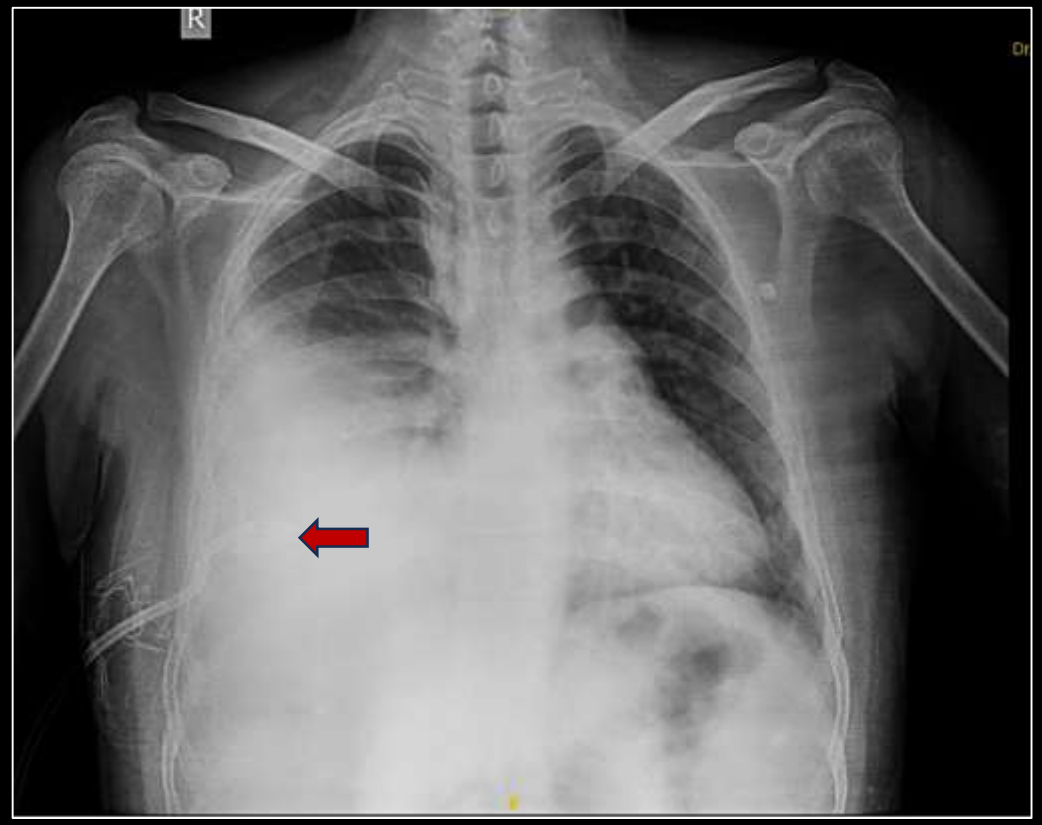
DIAGNOSIS

Right Loculated Pleural Effusion
Congenital Heart Disease
Eisenmenger syndrome

MANAGEMENT

- Right Sided 14F Pigtail
  Insertion done on 20/12/2023

  - IV Antibiotics
  - Adequate Analgesia
  - Oxygen Therapy



Pleural Fluid Analysis

Appearance	Reddish	TLC	1800
DLC	N 15/L 75	ADA	31.6
Serum LDH	596 IU/ml	P/f LDH	260IU/ml
Serum Protein	7.7 g/dl	P/f Protein	14.5g/dl
Serum Glucose	112 mg/dl	P/f Glucose	48 mg/dl

Pleural fluid hematocrit- 51.2

CLINICAL COURSE

- Total drain aspirated post pigtail insertion – 100ml
- No drain observed thereafter despite the tube being patent and positioned correctly.
- In view of no drainage, patient was decided to be managed on IPFT.
- Patient was given 2.5 Lac IU Streptokinase.

CLINICAL COURSE

Intrapleural Fibrinolytic Therapy (IPFT) 1st cycle

↓

Drain Post IPFT (Right pigtail) – 1150ml

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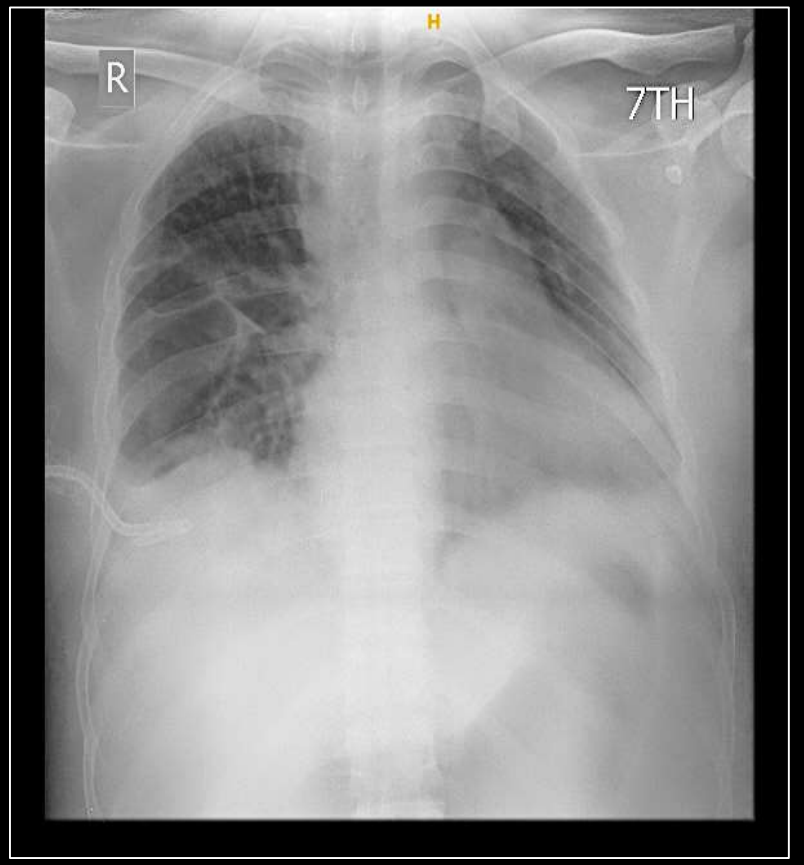
Cumulative drain after 3 days – 2250ml

CLINICAL COURSE

PRE IPFT - 18/12/23

POST IPFT – 21/12/23



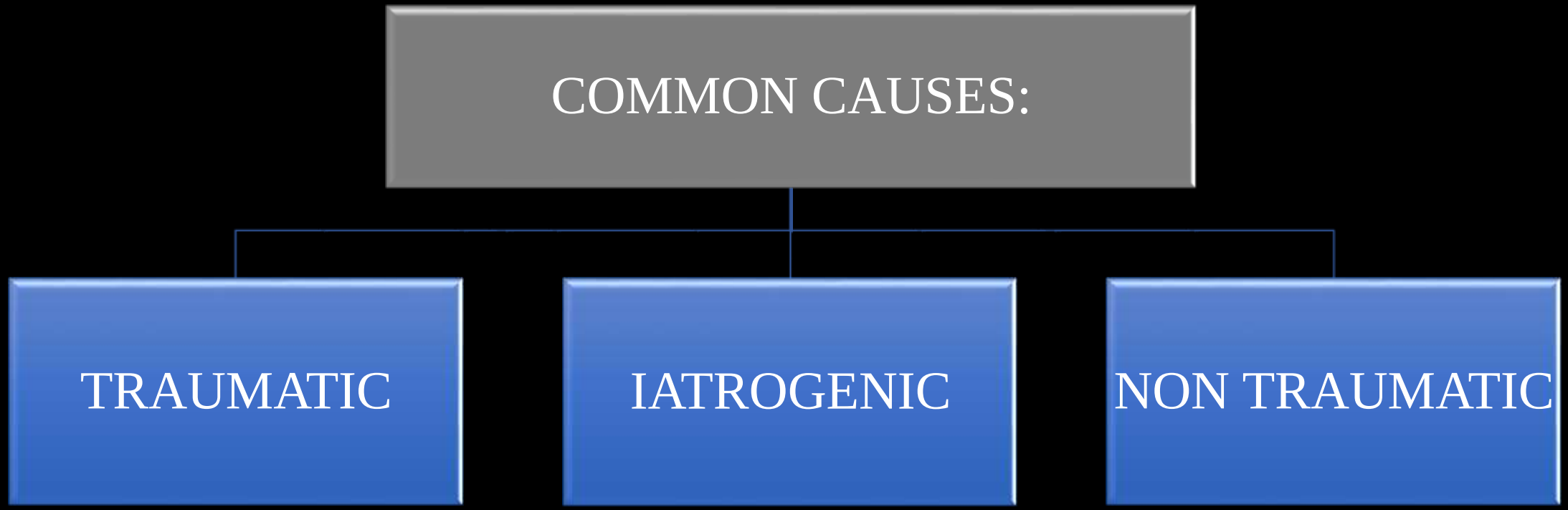
CLINICAL COURSE

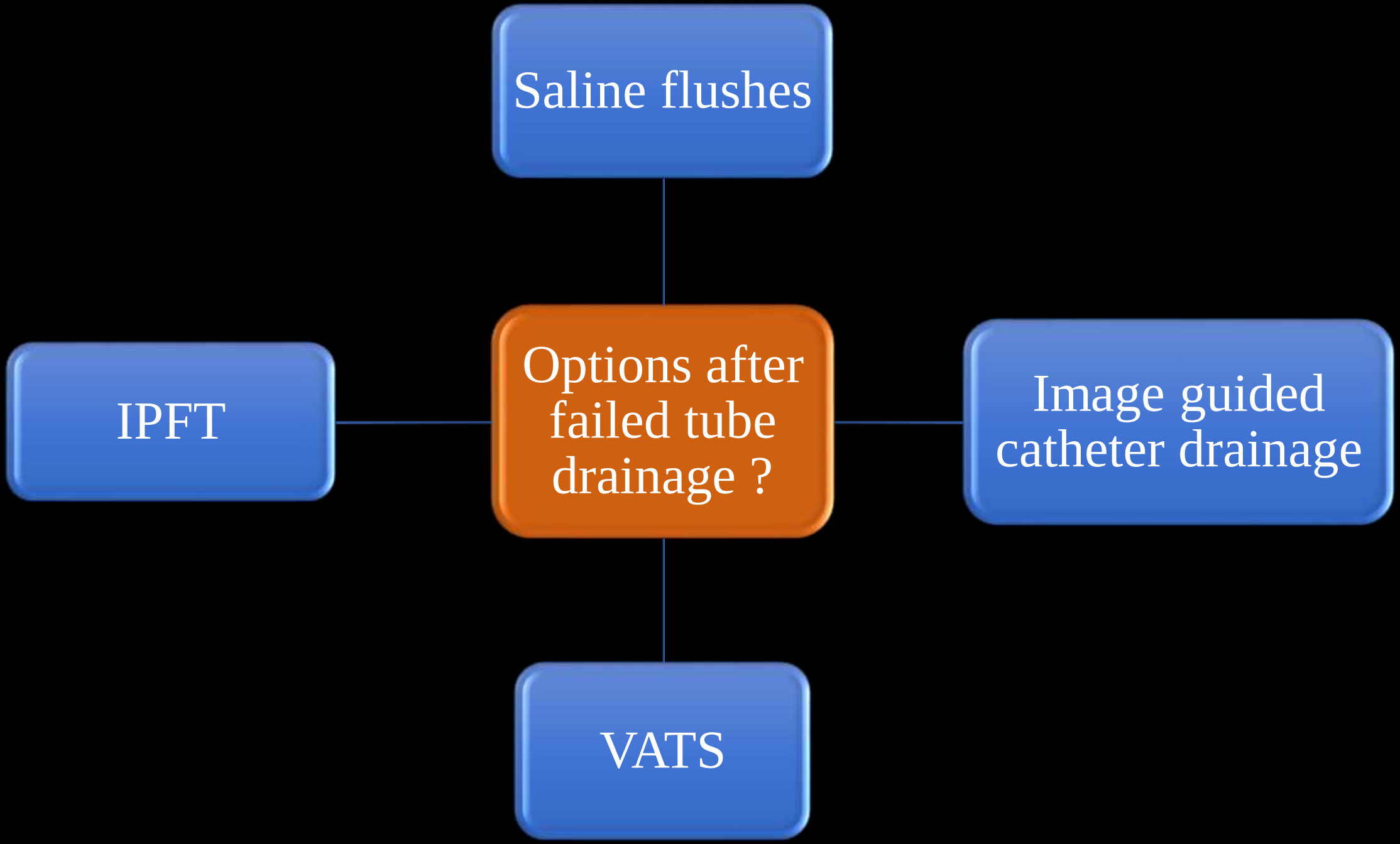
PRE IPFT

POST IPFT

DISCUSSION

Haemothorax is a collection of blood in the pleural cavity




Saline flushes
IPFT
Options after failed tube drainage ?
Image guided catheter drainage
VATS

IPFT IN HEMOTHORAX

AUTHORS	PATIENT GROUP	KEY RESULT
JERJES-SANCHEZ et al, 1993-1995 Prospective study	48 Patients Loculated Hemothorax	Success rate – 92%
Kimbrell et al, 2003-2005 Prospective study	25 Patients Traumatic Hemothorax	Success rate – 88% 2 required surgical intervention
Skeete et al 1999-2003 Retrospective study	48 Patients, tPA used. Loculated pleural effusions	Success rate – 78%

Original Article

A Five-Year Study of Intrapleural Fibrinolytic Therapy in Loculated Pleural Collections

M.S. Barthwal[1], V. Marwah[2], M. Chopra[3], Y. Garg[2], R. Tyagi[4], K. Kishore[5], A. Vijay[6], V. Dutta[7], C.D.S. Katoch[3], S. Singh[5] and D. Bhattacharya[1]

Department of Pulmonary Medicine, Military Hospital (Cardiothoracic Centre), Armed Forces Medical College[1], Pune; Army Hospital (R&R)[2], New Delhi; Military Hospital[3], Ranchi; Indian Naval Hospital[4], Mumbai; Command Hospital[5], Lucknow; Command Hospital[6], Chandimandir and Base Hospital[7], Delhi Cantt, India

Abstract

Background. Pleural fluid loculations due to complicated parapneumonic effusion (CPE), empyema, tubercular effusion and traumatic hemothorax can be managed either by video-assisted thoracoscopic surgery (VATS) or intrapleural fibrinolytic therapy (IPFT). The former is more invasive, not easily available and is also more expensive. On the other hand, IPFT is less invasive, cheaper, easily accessible and if used early, in loculated pleural collections, break loculations and early pleural peel, thereby facilitating pleural space drainage.

Objective. To study the efficacy of IPFT in facilitating pleural space drainage in loculated pleural collections of diverse aetiologies.

Methods. A five-year retrospective, observational study of 200 patients, with loculated pleural collections and failed tube drainage and managed with IPFT was carried out. Responders were defined as those with significant volume of fluid drained and significant radiological resolution.

Results. There were 106 (53%) cases of CPE, 59 (29.5%) cases of tubercular effusion, 23 (11.5%) cases of empyema and 12 (6%) cases of hemothorax. Responders were 148 (74%) in number. The distribution of responders as per type of loculated pleural collection was as follows: CPE 88 (83%), tubercular 37 (62.7%), empyema 14 (60.8%) and traumatic hemothorax 11 (91.6%). The adverse effects were mild and included chest pain in six patients and low-grade transient fewer in three cases.

Conclusions. Intrapleural fibrinolytic therapy is a safe and cost-effective option in the management of selected patients with loculated pleural effusions. **[Indian J Chest Dis Allied Sci 2016;58:17-20]**

Clotted hemothorax – 12 (6%) Success rate – 91%

TAKE HOME MESSAGE

- Intrapleural fibrinolytic therapy should be regarded as the first option for clotted haemothorax.
- Less invasive, easily accessible and cost effective.

THANK YOU