

# FIBRINOLYTIC THERAPY IN A CASE OF LUNG ABSCESS



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# CHIEF COMPLAINTS

36 year male, occasional smoker and history of alcohol consumption

No-comorbidities

## CHIEF COMPLAINTS

- **Burning sensation** in retrosternal region and epigastrium
- **Dry cough**
- **Vomiting** on & off after meals
- No h/o fever/weight loss/loss of appetite/wheeze/palpitation/hemoptysis
- Past surgical history:Nil

# COURSE IN HOSPITAL

Admitted in gastrointestinal surgery department with similar complaints



Patient vitally stable, not requiring oxygen



Diagnosed as a case of **Esophageal Diverticulum**, Operated on 10/01/24

# COURSE IN HOSPITAL contd...

10/01/24- Thoracoscopy with esophageal diverticulectomy done. Under GA + Epidural anaesthesia



Post-operative vitals stable with right ICD In situ

- **POD-07** : Fever , cough
- **POD-13** : ICD removed since no drain
- **POD-15** : Vomiting
- **POD-16** : Continued to have cough with foul smelling brownish colour discharge with postural variation more during lying on the left side.

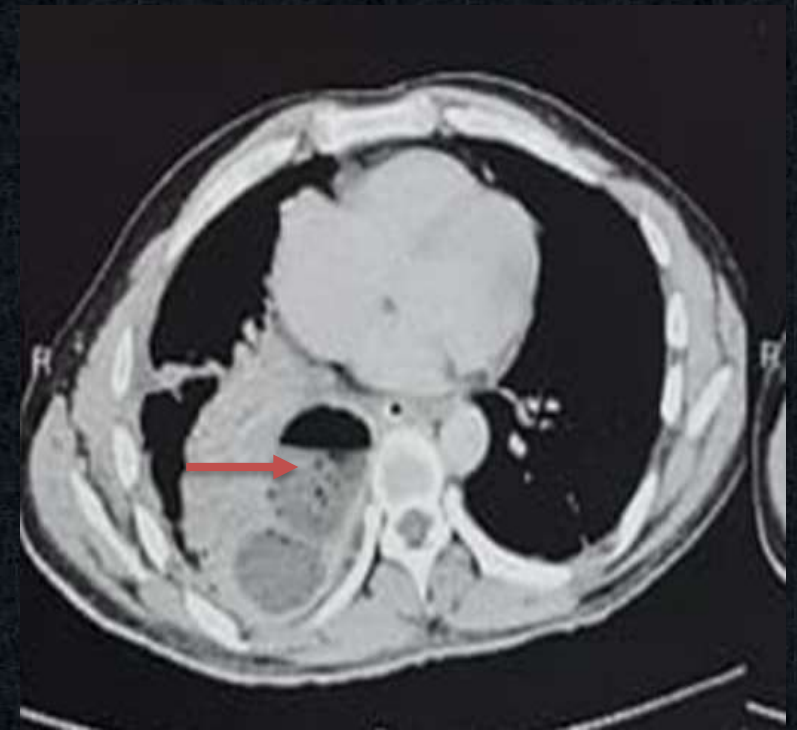
**USG Thorax**  
Moderate Right  
sided pleural  
effusion with  
Internal echoes

CHEST X- ray



Right sided pleural effusion  
with air fluid level

CECT THORAX



Lung Abscess

**Patient was transferred to Respiratory medicine for further management**

# Clinical Examination

Patient was moderately built and nourished  
General physical examination :NAD

## VITALS:

- **Temp:** febrile
- **PR:** 142/min. All peripheral pulses were felt equally.
- **RR:** 40 breaths/min
- **BP:** 142/90mmHg
- **Spo2:** 95% on 6 L O2 via Face Mask Mild hypoxemia present

# Clinical Examination

## Respiratory system: Right Pleural Effusion

Other System examinations were WNL

### DIFFERENTIAL DIAGNOSIS

Right side lower lobe Lung Abscess

Right parapneumonic effusion

## USG THORAX

Moderate Right Sided pleural effusion(400-500)cc with Thick echogenic debris and multiple internal septations.

CHEST X- ray



Right sided pleural effusion

CECT Thorax



Lung Abscess



*Pig tail insertion*  
*done under guidance*

**200ml light brownish foul smelling pus** aspirated in 1st day  
Consistency-Turbid



# INVESTIGATION

## Pus analysis

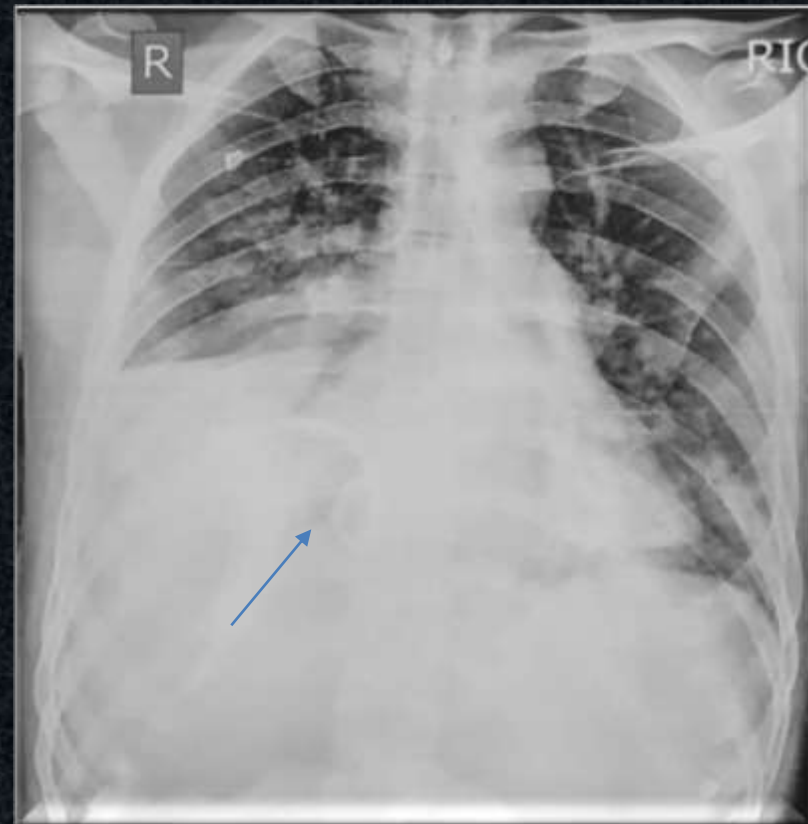
COLOUR	Light brownish
CONSISTENCY	TURBID
NEUTROPHIL	80%
LYMPHOCYTE	10%
MESOTHELIAL CELLS	10%
ADA	193
LDH	3140
TLC	>50000
RBC	MODERATE

BLOOD C/S	NO GROWTH
URINE C/S	NO GROWTH
PUS GM/ZN/CS	NO GROWTH
SPUTUM GM/ZN/CS	NO GROWTH

28/1/24  
Before Drainage



30/1/24  
Post Pig Tail



After 200ml of initial drainage, there was No drainage inspite of the catheter being patent and properly positioned



Repeat usg thorax showed significant collection



***Fibrinolytics Therapy***

*02/02/24: Fibrinolytic therapy given with inj. streptokinase 1 lakh IU administered through the pig tail*

# Protocol of Fibrinolytic therapy

0.8ml(1 LAKH IU)STK is Taken (dose is less because it is intraparenchymal) & diluted to 20ml NS and then instilled into the pig tail and clamp it for 2 hours.



Fibrinolytic therapy is administered in cycles. 1st cycle comprises of 3 doses, each dose contains 1 Lakh IU and diluted in 20ml NS, administered 8 hours apart.

After 1 <sup>st</sup> cycle	Net drainage
After 1 <sup>st</sup> dose	48ml
After 2 <sup>nd</sup> dose	35ml
After 3 <sup>rd</sup> dose	35ml

**Total Net drain after 1<sup>st</sup> cycle : 119ml**

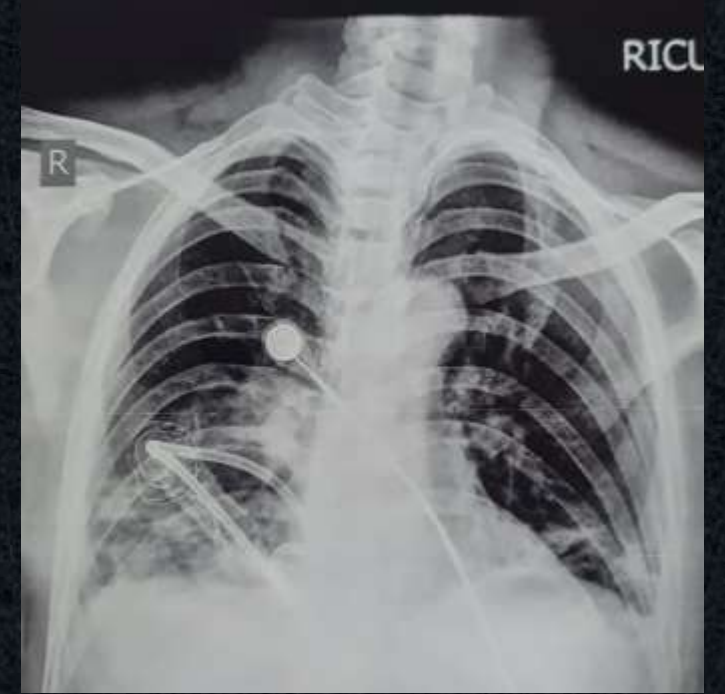
30/1/24  
(POST PIG TAIL)



31/1/24  
(PRE FIBRINOLYTICS)



2/2/24  
(POST FIBRINOLYTICS)



**Significant Clinical and Radiological improvement noted after fibrinolytics.**

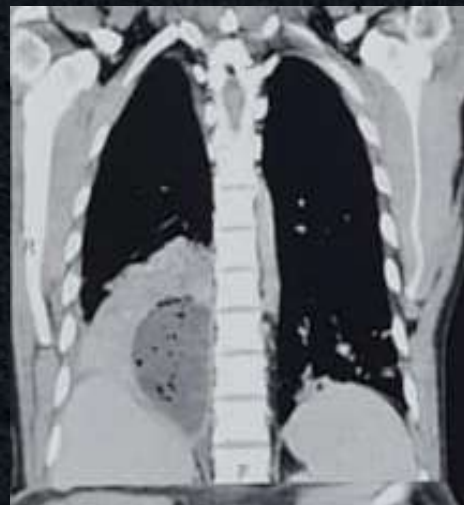
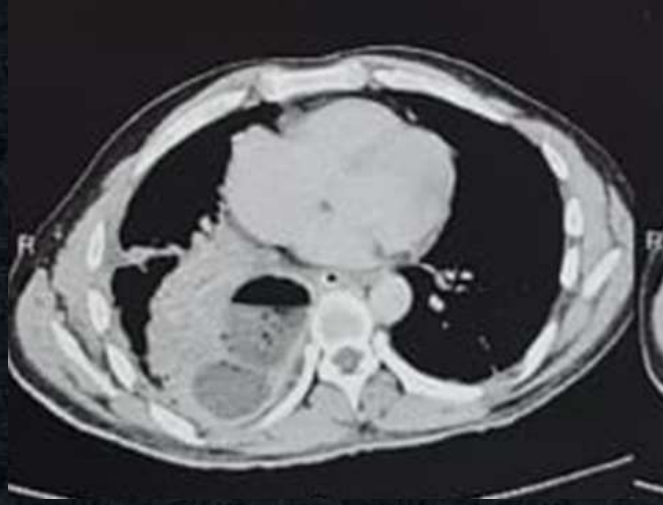


# CECT THORAX



**31/1/24  
(PRE FIBRINOLYTICS)**

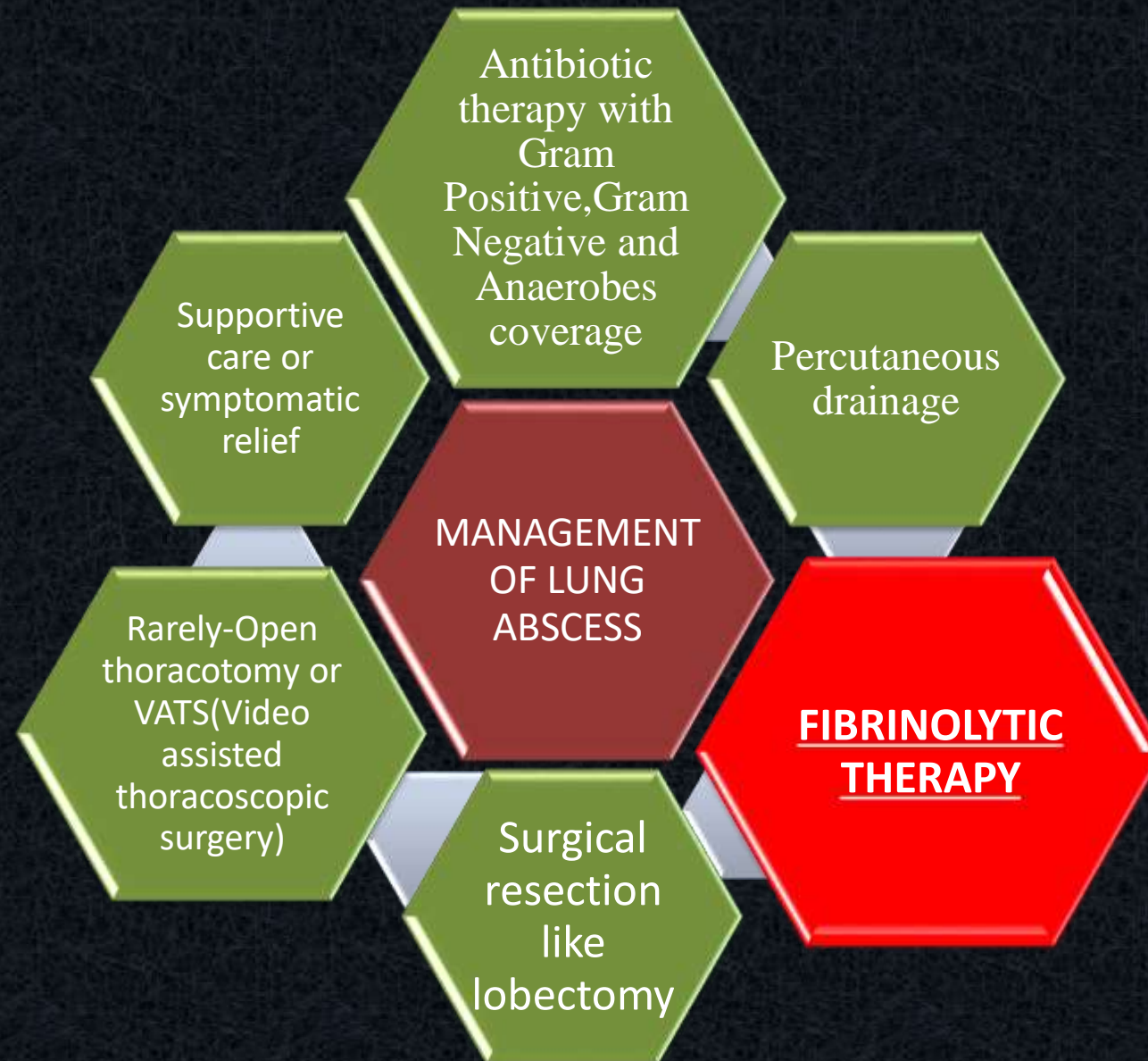
**2/2/24  
POST FIBRINOLYTICS**



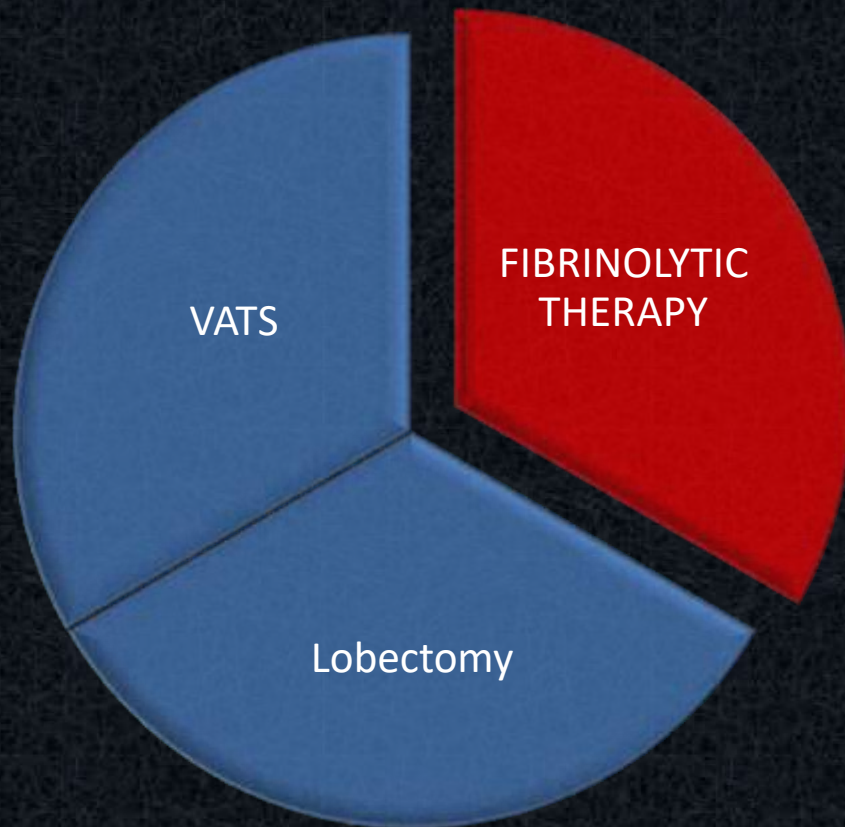
# After 3 weeks-On Follow Up



# Management of Lung Abscess



**In cases where the collection or abscess size is significant and loculated or thick pus  
& if no drainage even after flushing the catheter**



# Rationale of Fibrinolytics

Fibrinolytics breaks  
down the loculations

Causing  
fibrinolysis

Facilitate  
the drainage

# Discussion

## Intracavitary urokinase for enhancement of percutaneous abscess drainage: phase II trial

J R Haaga <sup>1</sup>, D Nakamoto, T Stellato, R D Novak, M L Gavant, S G Silverman, M Bellmore

Affiliations [+](#) expand

PMID: 10845505 DOI: 10.2214/ajr.174.6.1741681

### Abstract

**Objective:** To evaluate the effectiveness of urokinase as an abscess-cavity irrigant during percutaneous abscess drainage.

**Subjects and methods:** In a prospective study, approved by the Food and Drug Administration and the review board at our institution, urokinase and saline were used as abscess-cavity irrigants. In the study group of 42 patients, half the patients were randomly placed into the urokinase group and the other half were placed into the control saline group. Doses used varied with the size of the abscess. Data collected from patient charts were evaluated with standard statistical methods.

**Results:** The results indicate definite benefits of the urokinase treatment. The length of stay ( $p = 0.0025$ ) and treatment costs ( $p = 0.0021$ ) were significantly less for the urokinase group. Other clinical parameters, including the febrile course, elevated WBC, and days of drainage, trended in a favorable fashion.

**Conclusion:** Urokinase injected intracavitarily is an effective technique for shortening the treatment time and improves the clinical course for patients treated with percutaneous drainage techniques.

## Safety of intracavitary urokinase with percutaneous abscess drainage

J M Lahorra <sup>1</sup>, J R Haaga, T Stellato, T Flanigan, R Graham

Affiliations [+](#) expand

PMID: 8416619 DOI: 10.2214/ajr.180.1.8416619

### Abstract

**Objective:** Percutaneous drainage of abscesses is an effective treatment, but the success rate is lower for abscesses that have septa and are multilocular. Several clinical and in vitro studies suggest urokinase may be useful in such cases. Our study was designed to determine the safety of urokinase administered into an abscess cavity during the course of percutaneous drainage.

**Subjects and methods:** Our study included 26 consecutive patients with 31 abscesses treated with percutaneous drainage. Exclusion criteria included age less than 18 or more than 95 years, CNS disorders (e.g., tumor, vascular problems), coagulation impairments, hepatic failure, pregnancy, and abscesses in the spleen, pancreas, or interloop area. Three doses were used: group 1 (nine patients), 1000 IU of urokinase per centimeter of abscess diameter; group 2 (11 patients), 2500 IU of urokinase per centimeter of abscess diameter; and group 3 (nine patients), 5000 IU of urokinase per centimeter of abscess diameter. These doses were administered every 8 hr for 3 days along with percutaneous drainage. Charts were reviewed to determine success and to detect adverse clinical events. Studies included sequential CT scans; serial serum determinations of hematocrit, prothrombin time, partial thromboplastin time, platelet count, fibrinogen levels, and levels of fibrin degradation products; and serial laboratory analysis of purulent material for fibrinogen and fibrin degradation products. Percutaneous drainage was considered successful if no surgical intervention was required.

**Results:** Our results showed no significant change in hematologic studies and no bleeding complications. Analysis of purulent material indicated that urokinase remained active in the abscess

This Fibrinolytic therapy in Lung Abscess has been in use outside India for last so many years as shown in various studies in the form of case reports.

## Complex abdominal and pelvic abscesses: efficacy of adjunctive tissue-type plasminogen activator for drainage

Michael D Beland <sup>1</sup>, Debra A Gervais, Diane A Lewis, Peter F Hahn, Ronald S Arellano, Peter R Mueller

Affiliations [+](#) expand

PMID: 18372451 DOI: 10.1148/radiol.2472070761

### Abstract

**Purpose:** To retrospectively evaluate the effectiveness and safety of tissue-type plasminogen activator (tPA) for drainage of abdominal and pelvic abscesses refractory to simple catheter drainage.

**Materials and methods:** This HIPAA-compliant study was approved by the Institutional Review Board; informed consent was waived. Forty-three patients (17 men, 26 women; mean age, 46 years; age range, 10-89 years) with a total of 46 abscesses underwent percutaneous drainage with 8.5-14-F catheters. Etiology was postoperative in 28 abscesses (60.9%) and varied in 18 (39.1%). Intracavitary tPA was initiated on the basis of viscous contents yielding minimal drainage at initial placement or if follow-up imaging showed a large residual collection despite satisfactory catheter position. A treatment cycle was 4-6 mg of tPA in 0.9% saline administered twice daily for 3 days. Drainage success was defined as evacuation of the abscess without surgery. Safety was evaluated on the basis of complications. Statistical analysis was performed by using the Student t test and Fisher exact test.

**Results:** Forty-six abscesses were initially drained by 51 catheters. Complete evacuation was achieved in 41 (89.1%) abscesses, whereas five (10.9%) required surgical drainage. Three (60%) of these five had a documented fistula, a higher ( $P = .02$ ) percentage than in successfully drained abscesses. Three (6.5%) of the 46 abscesses recurred (12-95 days after catheter removal). There were no tPA-linked bleeding complications despite four patients receiving full systemic anticoagulation and 24 receiving prophylactic anticoagulation.

# Discussion

Official publication of Indian Chest Society



## Lung India

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[Lung India](#). 2016 Jul-Aug; 33(4): 417–419.

doi: [10.4103/0970-2113.184876](https://doi.org/10.4103/0970-2113.184876)

## Fibrinolytics in loculated abscess cavities - A report of two cases

[MS Barthwal](#), [Rahul Tyagi](#),<sup>1</sup> and [Kislay Kishore](#)<sup>2</sup>

# 1<sup>ST</sup> Extra pleural fibrinolytics CASE REPORT from INDIA published in Lung India



[Lung India](#), 2016 Jul-Aug; 33(4): 417-419.

doi: [10.4103/0970-2113.184876](#)

PMCID: [PMC4948230](#)

PMID: [27578935](#)

## Fibrinolytics in loculated abscess cavities - A report of two cases

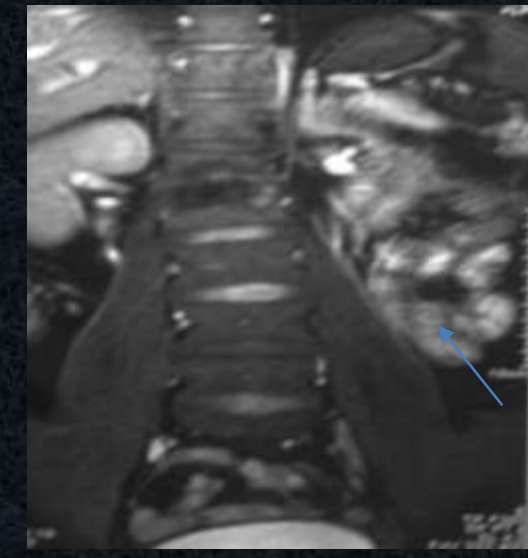
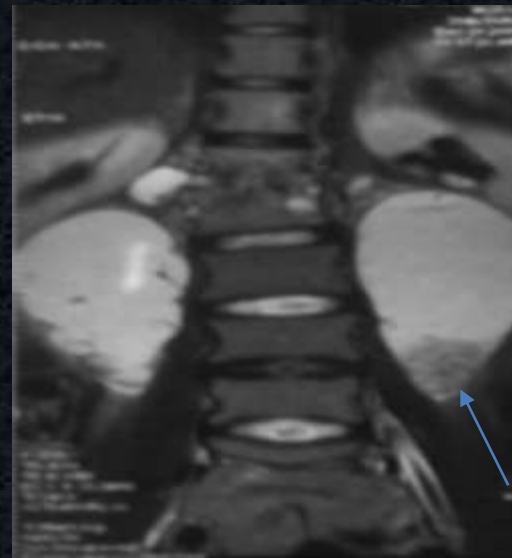
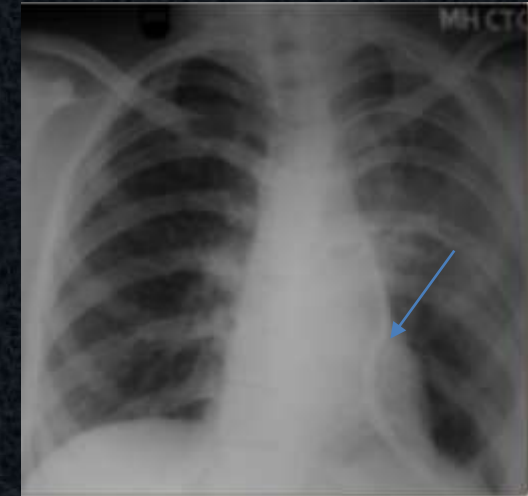
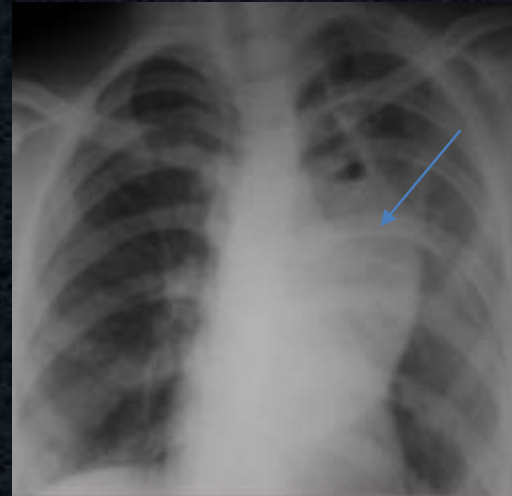
[MS Barthwal](#), [Rahul Tyagi](#),<sup>1</sup> and [Kislay Kishore](#)<sup>2</sup>

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### Abstract

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The efficacy of fibrinolytic therapy in two loculated abscesses is being reported. First case had a postoperative mediastinal abscess in left paraspinal location and the second case had two bilateral tubercular psoas abscesses. Both cases were managed with pig tail catheter drainage of abscesses and fibrinolytic therapy with instillation of urokinase followed by aspiration. Both cases had significant drainage, clinical and radiological resolution. There were no adverse effects in either case.





## *Take Home Message*

*Fibrinolytic therapy has been used for intrapleural loculated collection of various etiologies.*

*But it can also be used for extrapleural loculated collection with the same rationale*

*It is safe, simple, cost effective, lesser invasive and easily accessible adjuvant therapy*

**THANK YOU.....**