

POST RESECTIONAL EMPYEMA

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- ▶ **Uncommon yet serious complication**
- ▶ **Resection is short of pneumonectomy**
- ▶ **Upper vs lower lobectomy**
- ▶ **BPF = Empyema**
- ▶ **Incidence**
 - ▶ **Post lobectomy 0.01% - 2%**
 - ▶ **Post pneumonectomy 2-16%**
 - ▶ **Right > Left**

INTRODUCTION

PRE-OP

- **Active tuberculosis**
- **Contaminated pleural space**
- **Poor nutritional status**
- **Pre-op chemo/radiation**
- **Re-op, completion Pn**

INTRA-OP

- **Entry into cavity**
- **Extensive bronchial dissection and disruption of blood supply**
- **Trans-empyema Pn**
- **Long bronchial stump, > 2cm**

POST- OP

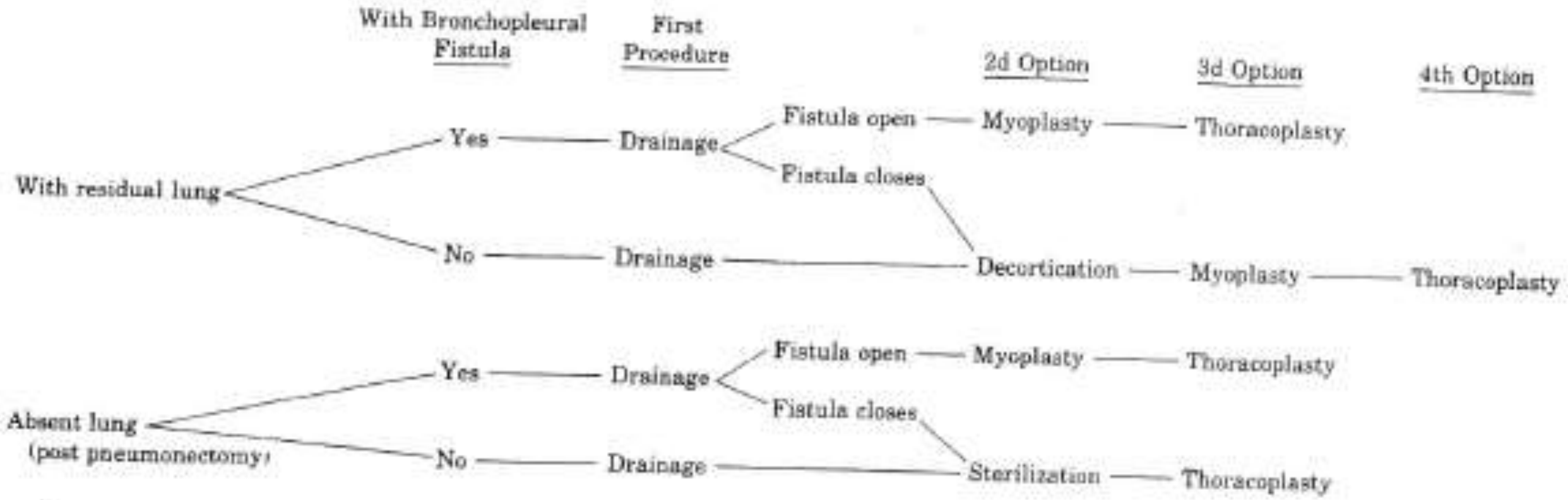
- **PPV required**
- **Prolonged chest tube drainage**
- **Tumour at bronchial margin**

RISK FACTORS FOR BPF/EMPYEMA

- ▶ **Mostly develop early in post op period**
- ▶ **Considered in any patient with clinical features of infection**
- ▶ **Expectoration and/or purulent discharge**
- ▶ **Radiographic findings**

PRESENTATION





MANAGEMENT

without BPF

drainage

assess underlying lung

decortication

myoplasty / thoracoplasty

completion pneumonectomy

***POST-RESECTIONAL EMPYEMA
WITH RESIDUAL LUNG***

BPF

drainage

closes

assess underlying lung

completion pneumonectomy

decortication

myoplasty / thoracoplasty

open

completion pneumonectomy

myoplasty / thoracoplasty

***POST-RESECTIONAL EMPYEMA
WITH RESIDUAL LUNG***

without BPF

drainage



**sterilisation
(Clagett)**



failed

thoraco / myoplasty

***POST-RESECTIONAL EMPYEMA
POST-PNEUMONECTOMY***



with BPF

drainage

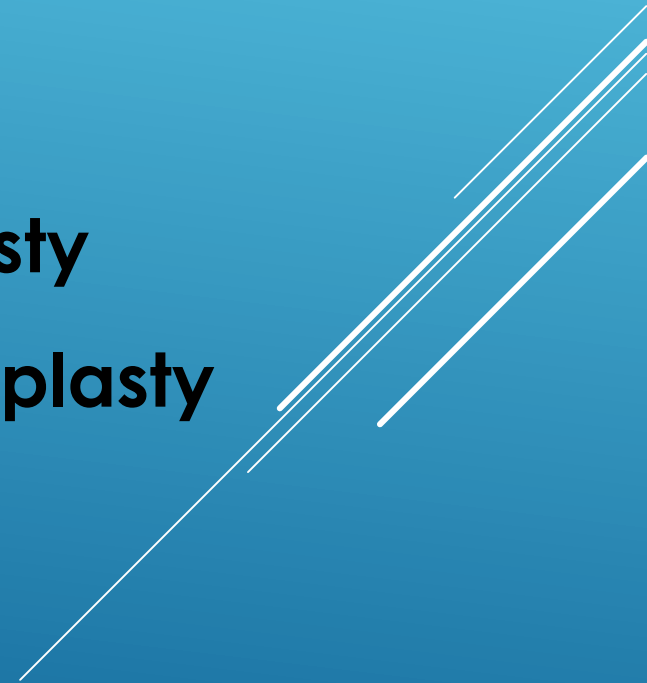
closes

open

sterilisation
(Clagett)

Myoplasty
thoracoplasty

POST-RESECTIONAL EMPYEMA
POST-PNEUMONECTOMY



- ▶ **Prompt pleural drainage, control sepsis and its sequelae**
- ▶ **Identify BPF**
- ▶ **Optimise residual lung function, prevent soiling**
- ▶ **Nutritional and ventilator support as required**
- ▶ **Closure of BPF, particularly important because it removes the source of contamination and prevents aspiration to the remaining lung.**

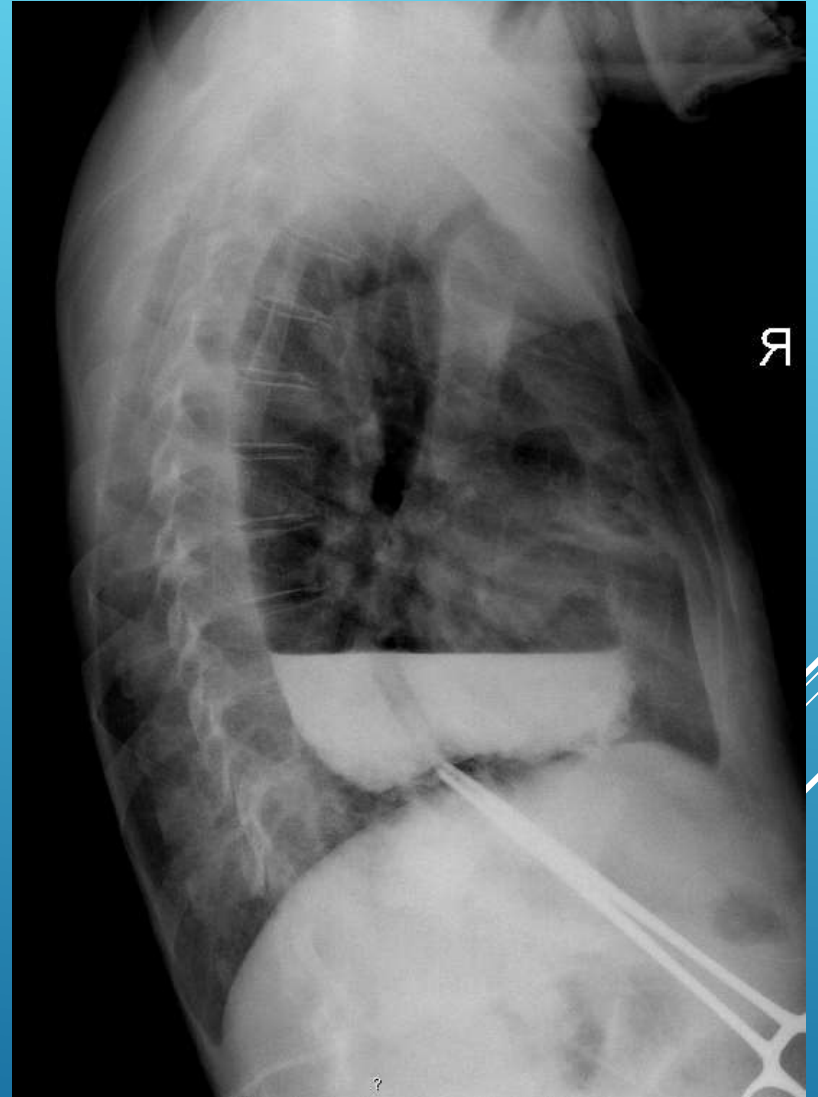
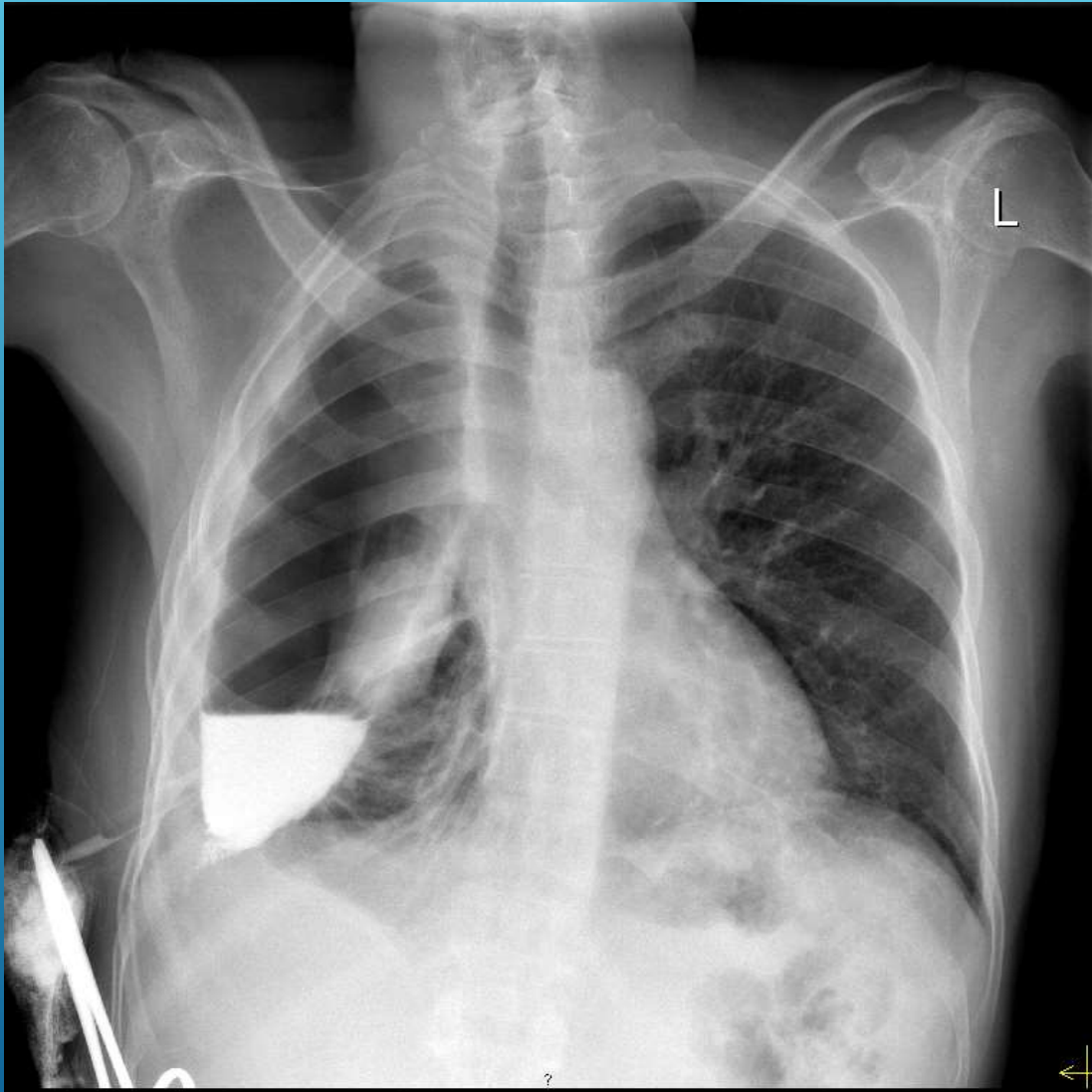
PRINCIPLES OF MANAGEMENT

- ▶ **Prompt pleural drainage**
- ▶ **After upper lobectomy**
- ▶ **Options for drainage**
 - ▶ **Under water drainage**
 - ▶ **Sinogram & Rib Resection**
 - ▶ **VATS**
 - ▶ **Eloesser Flap**

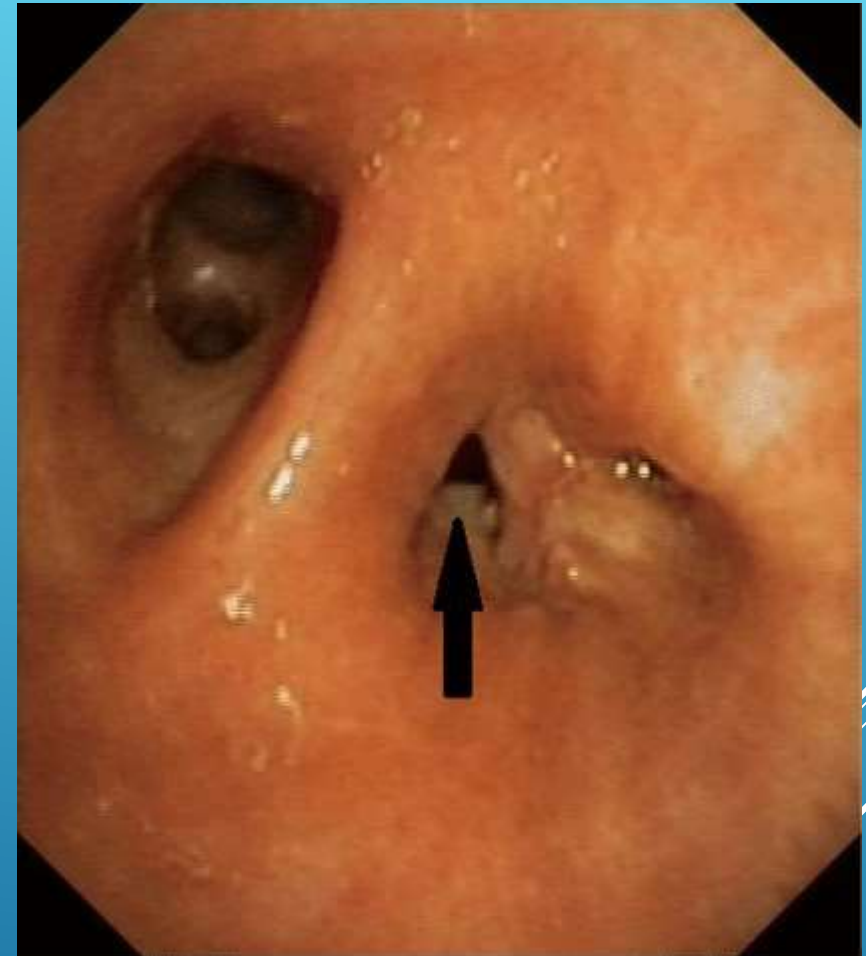
DRAINAGE

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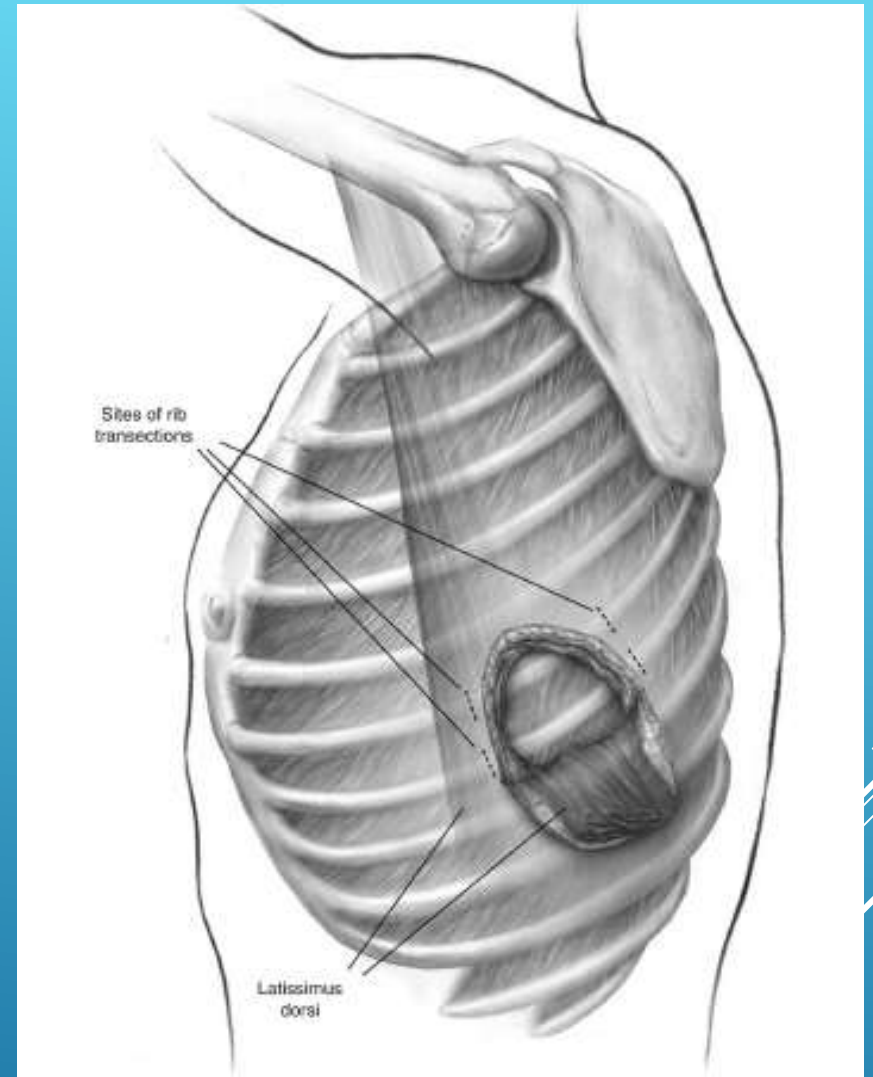
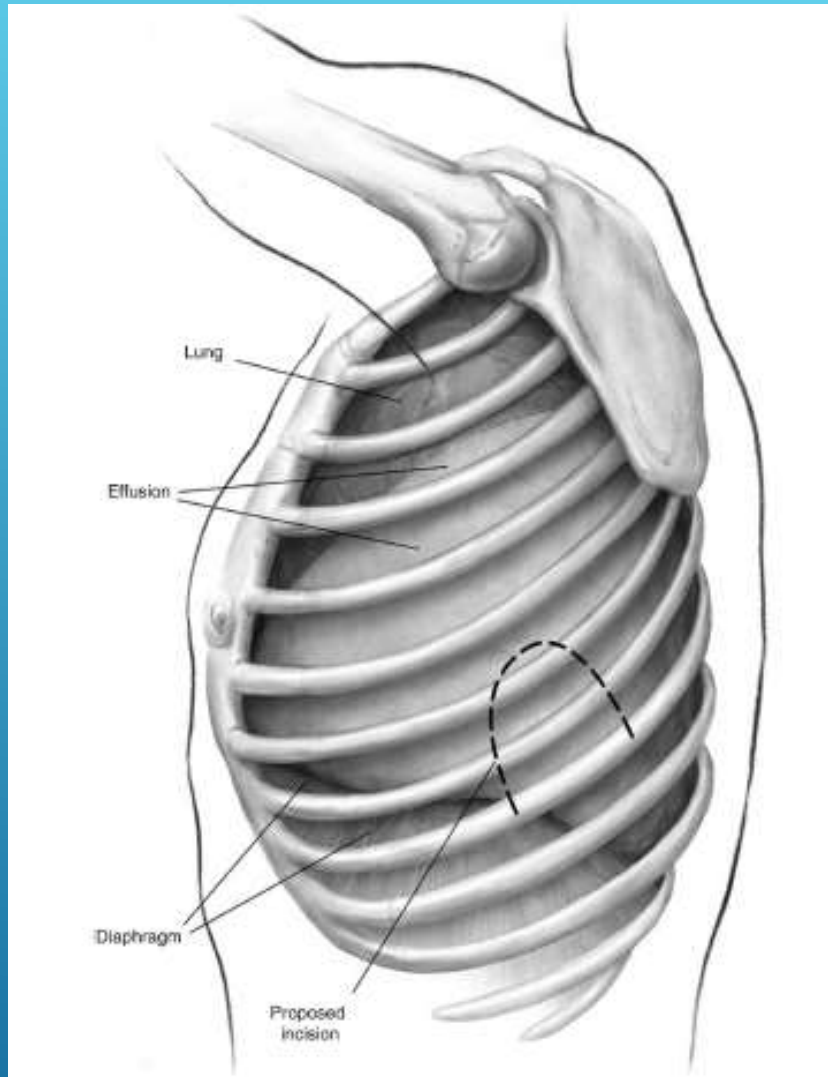




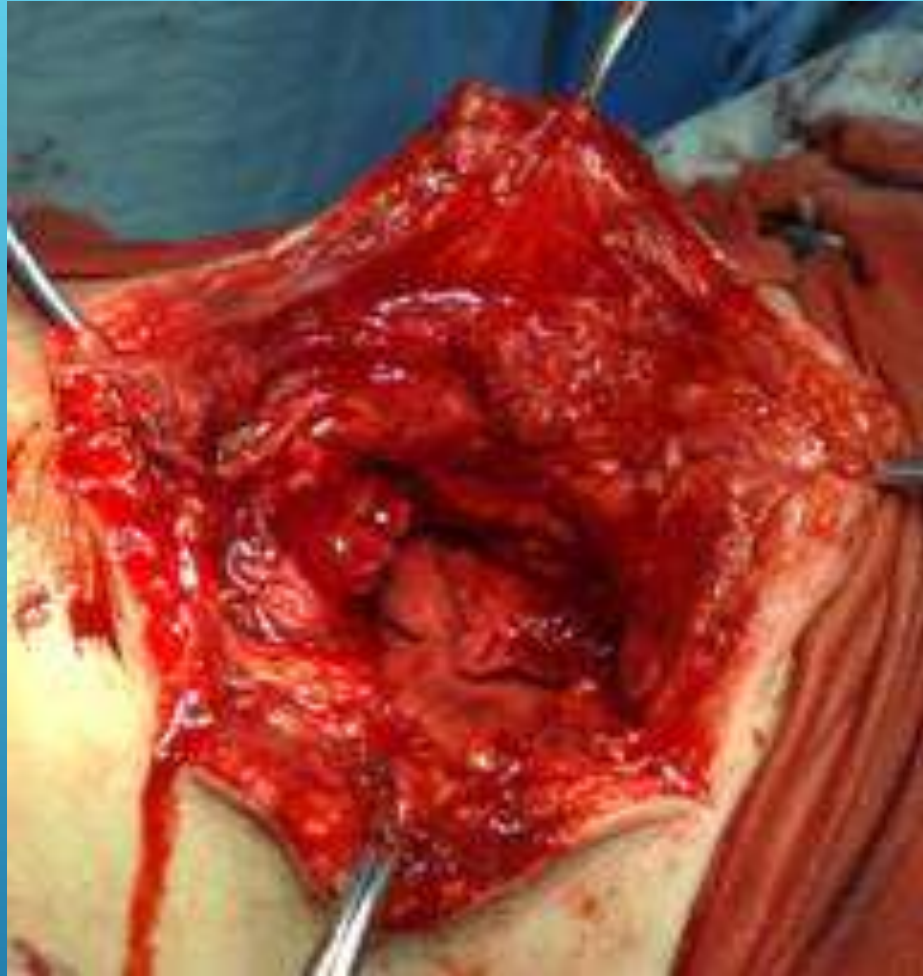
- ▶ **Visualisation can be difficult**
- ▶ **Techniques to aid**



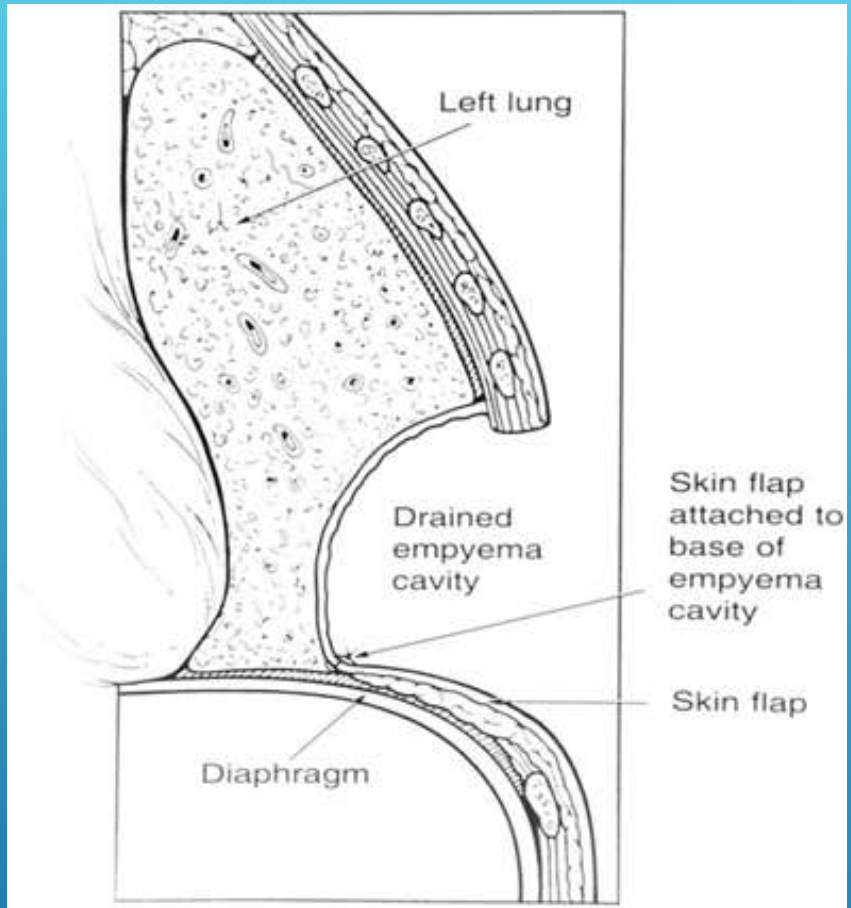
BRONCHOSCOPY



PERMANENT DRAINAGE



FLAP PREPARATION



FLAP SUTURE

- ▶ **Exclude BPF**
- ▶ **Directed antibiotic therapy**
- ▶ **Downsizing of intercostal tube**

STERILIZATION OF THE SPACE

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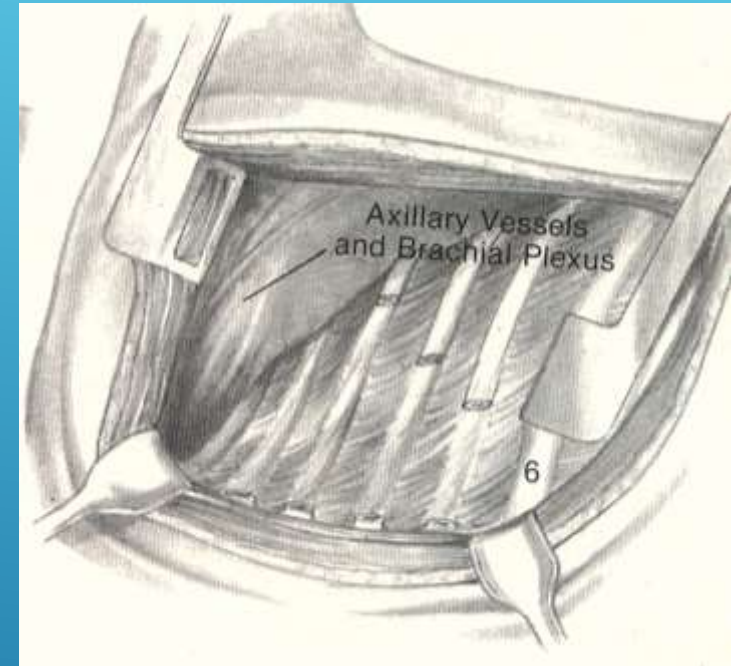
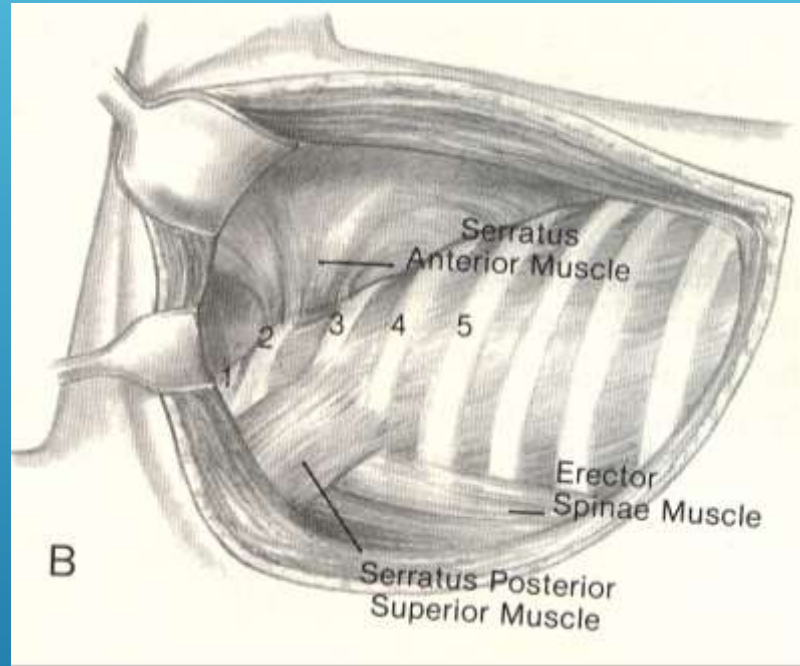
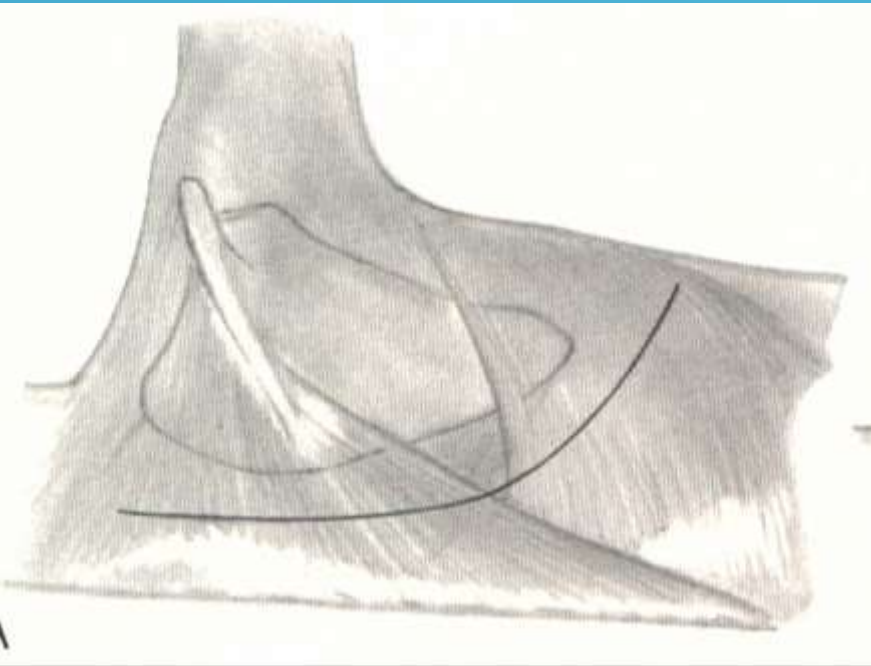
- ▶ **BPF difficult to treat and carries a high mortality**
- ▶ **Early BPF**
- ▶ **Late BPF**
- ▶ **Muscle Flaps**

CLOSURE OF FISTULAS

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- ▶ A thoracoplasty is used to obliterate a space that no other operations can close. —*John Alexander, 1937*
- ▶ The purpose of thoracoplasty

THORACOPLASTY

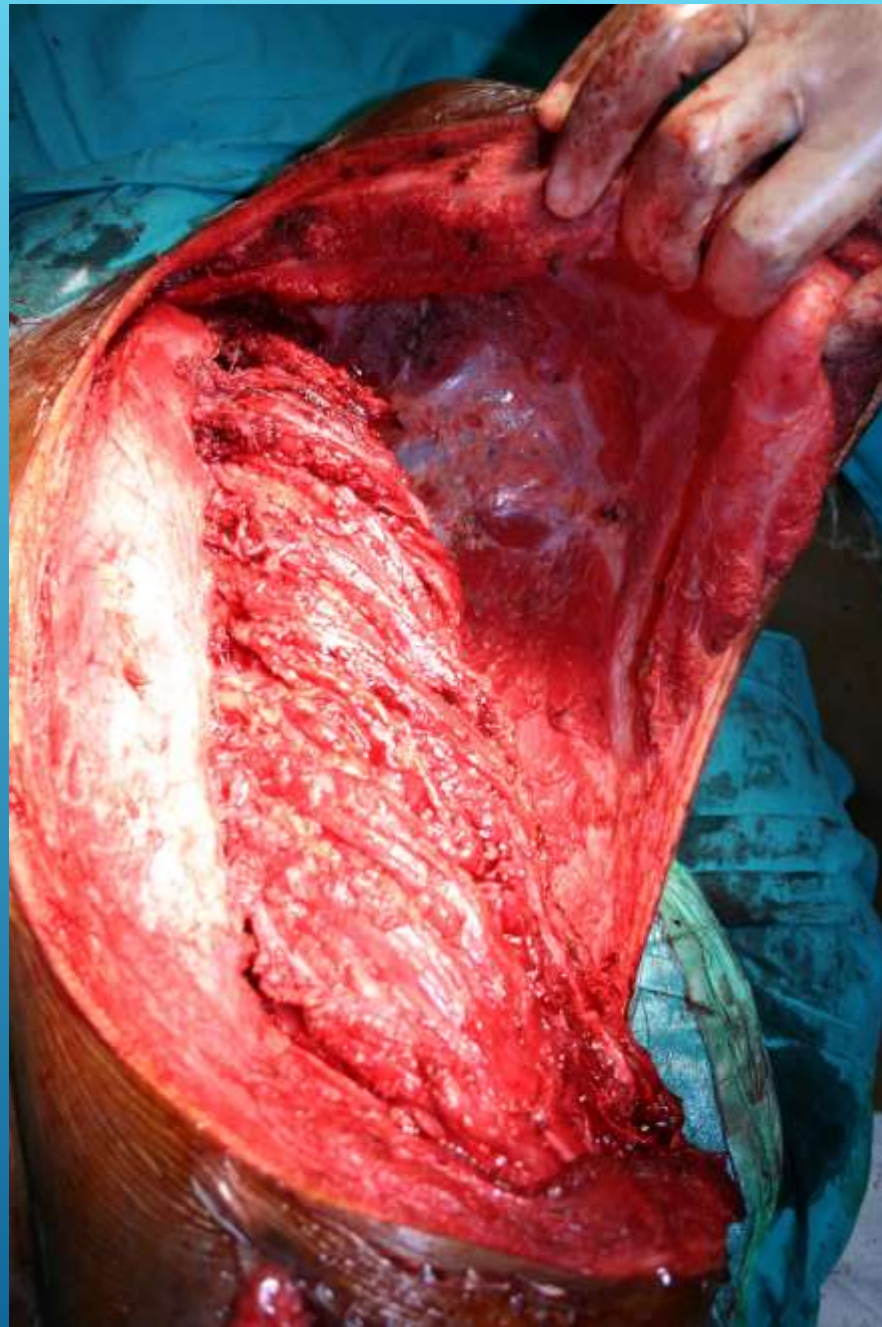


TECHNIQUES MODIFIED ALEXANDER (ROBERTS)









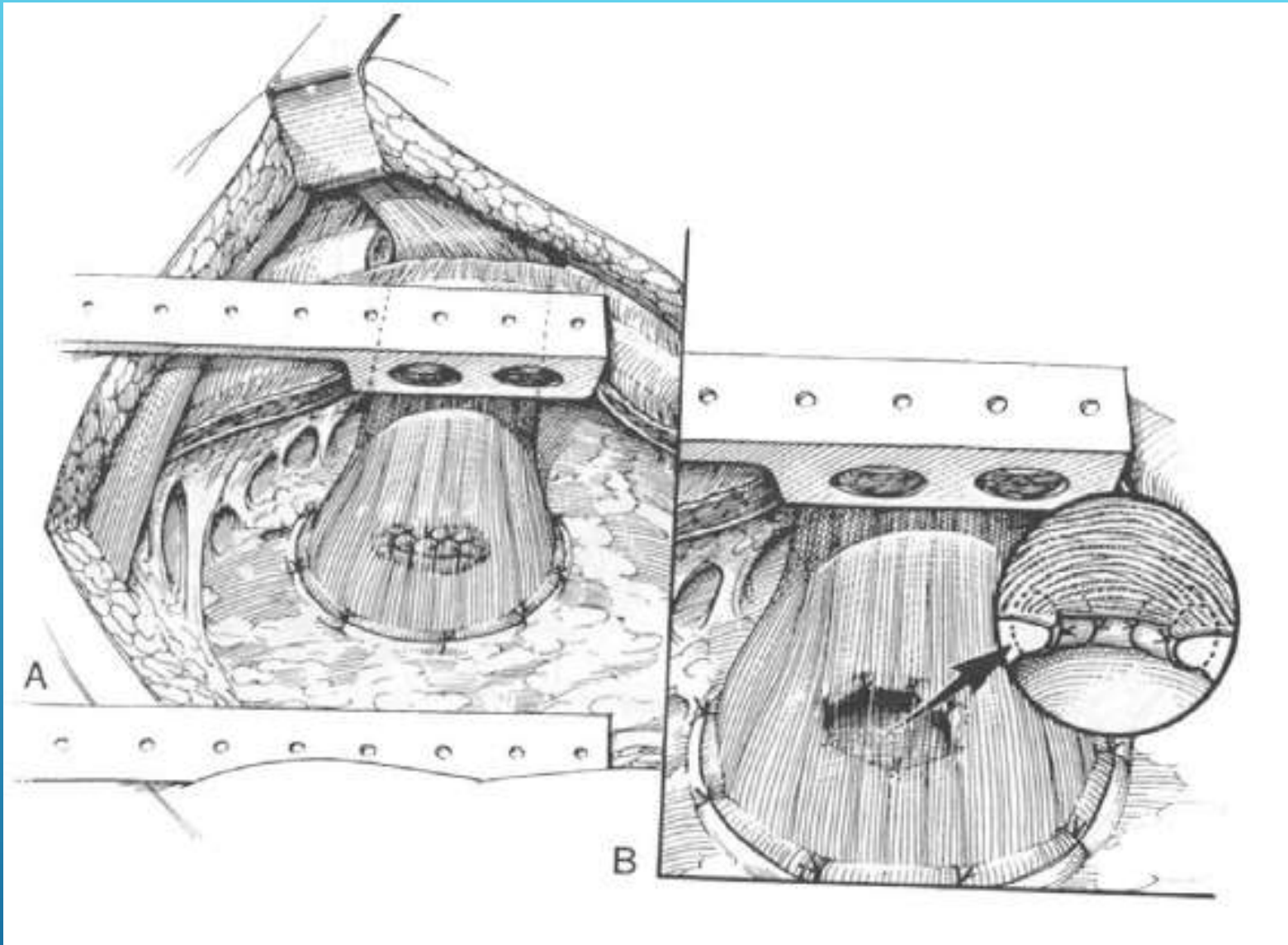


Postpneumonectomy Empyema: Results After the Clagett Procedure

Salman Zaheer, MD, Mark S. Allen, MD, Stephen D. Cassivi, MD,
Francis C. Nichols III, MD, Craig H. Johnson, MD, Claude Deschamps, MD, and
Peter C. Pairolero, MD

Divisions of General Thoracic Surgery and Plastic and Reconstructive Surgery, Mayo Clinic College of Medicine, Rochester, Minnesota

CLAGETTS PROCEDURE



Successful Endobronchial Seal of Surgical Bronchopleural Fistulas Using BioGlue

Harpreet Ranu, MRCP, Timothy Gatheral, MRCP, Abhijat Sheth, FRCS, Edward E. J. Smith, FRCS, and Brendan P. Madden, MD, FRCP

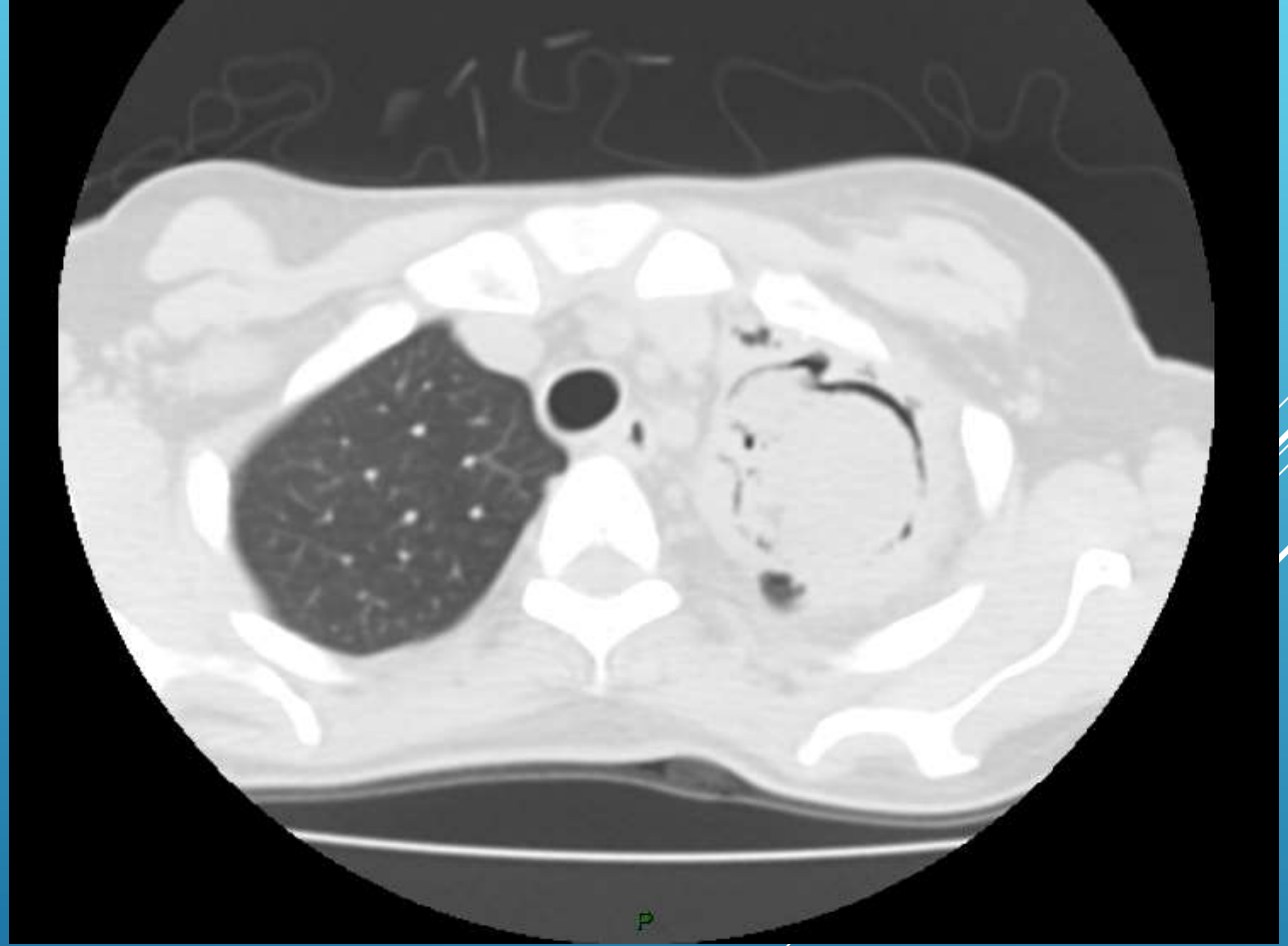
Department of Cardiothoracic Surgery, St. George's Hospital, London, United Kingdom

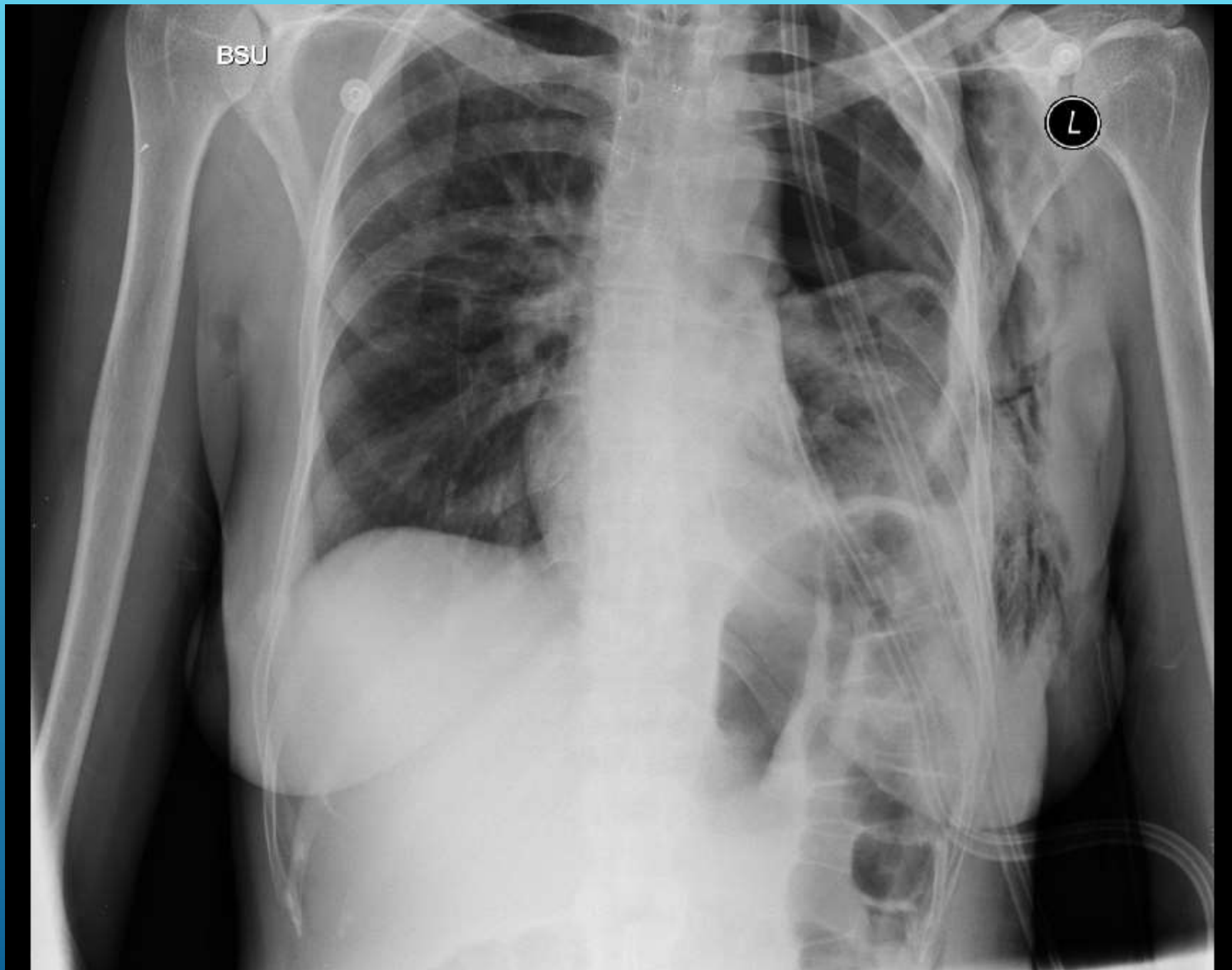
Postoperative bronchopleural fistula is uncommon, but it is associated with a high mortality and morbidity, and a prolonged hospital stay. Surgical treatment is gold standard, but it can prove challenging especially in the presence of infection. We describe three cases of bronchopleural fistula that developed after surgery for lung cancer in 1 patient and for bronchiectasis in 2 patients. All were successfully treated endoscopically by direct application of albumin-glutaraldehyde tissue adhesive (BioGlue; Cryolife Inc, Kennesaw, GA) through a rigid bronchoscope. Complete resolution was obtained in each patient within 24 hours.

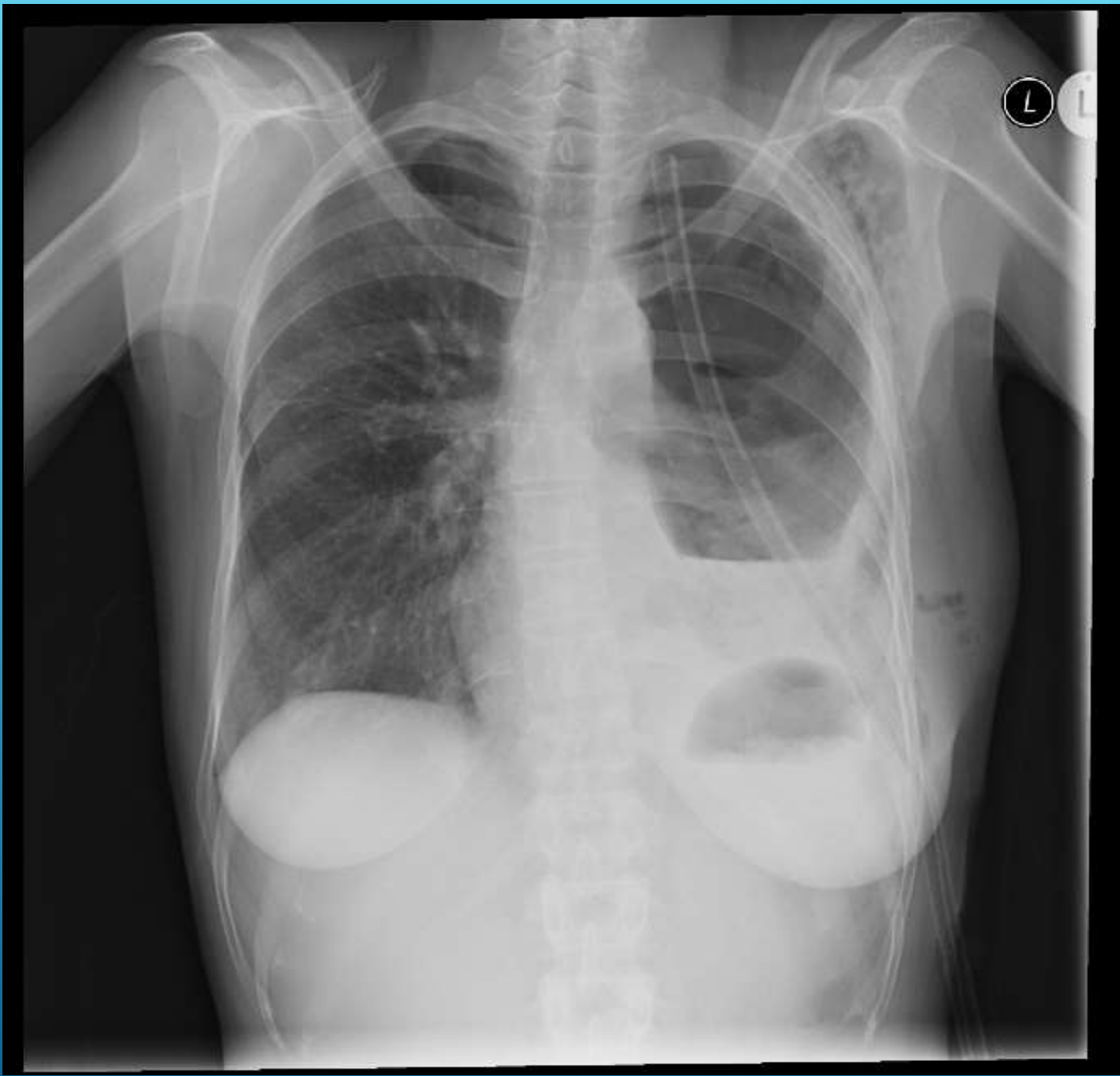
(Ann Thorac Surg 2009;88:1691-2)

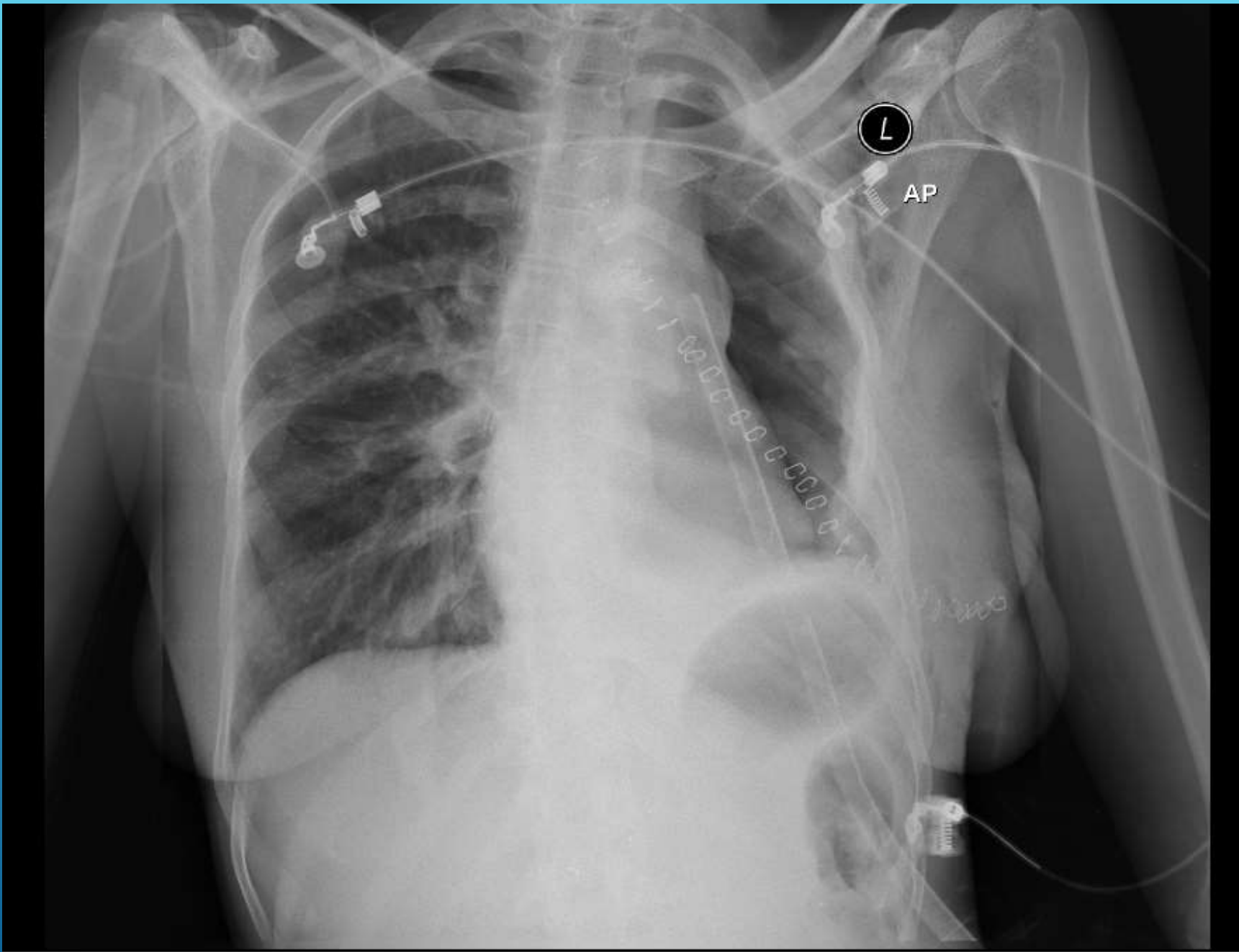
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NOVEL TECHNIQUES

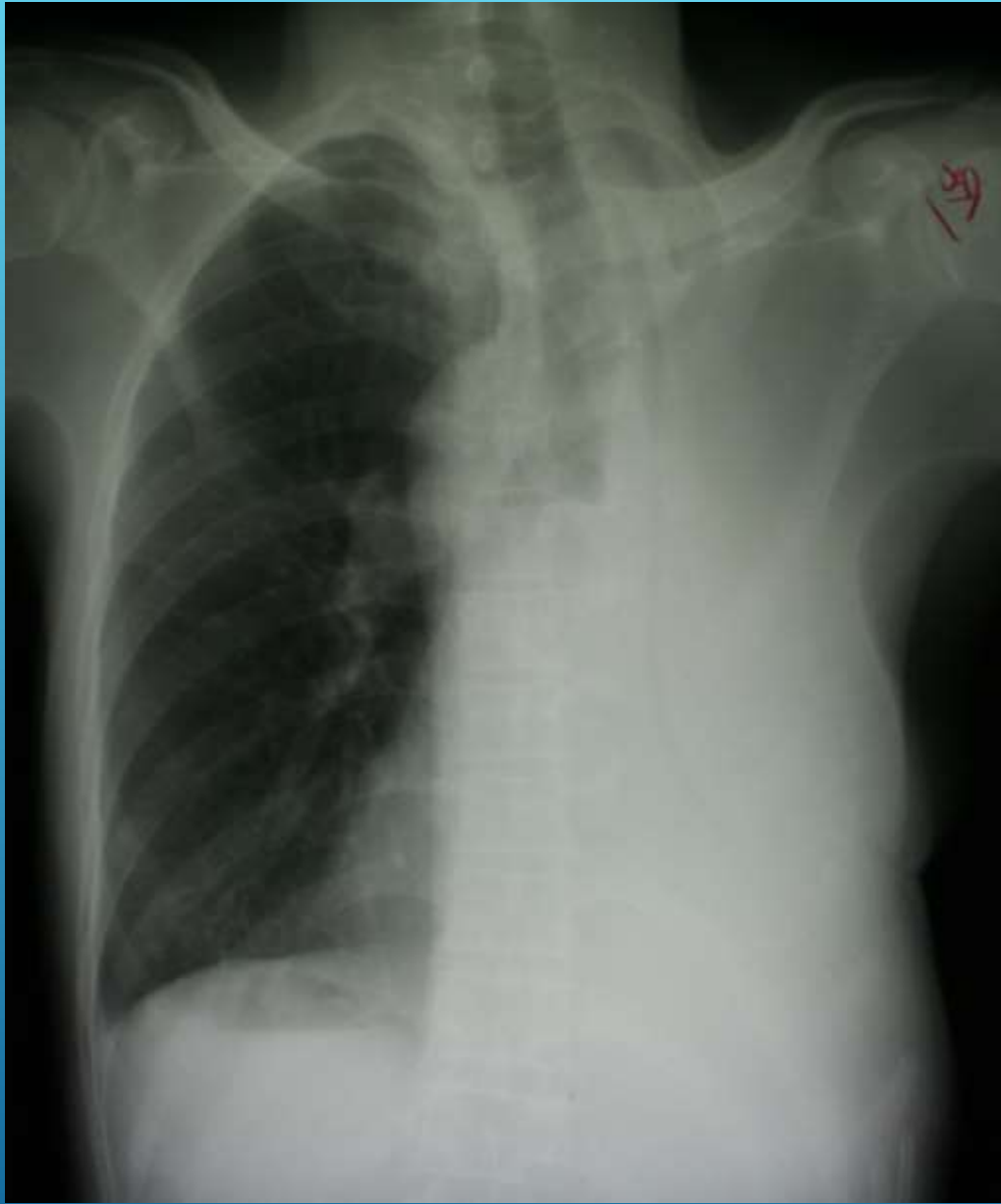












Post resectional empyema should be recognized early because it carries significant morbidity and mortality. A high index of suspicion together with appropriate investigations are essential to diagnose post resectional empyema. Although numerous management protocols and surgical procedures have been advocated, the principle strategy continues to be efficient drainage and infection control, fistula closure and reinforcement, as well as pleural space obliteration.

CONCLUSION



THORACIC SURGERY Rocks

THANK YOU