

SURGICAL VERSUS NON-SURGICAL TREATMENTS FOR PARAPNEUMONIC EFFUSION OR EMPYEMA

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Objective

- To confirm the superiority of Video-assisted thoracic surgery (VATS) by comparing the effects of surgical and non-surgical treatment for parapneumonic effusion (PPE) or empyema

Methods

- From Apr 2004 to Oct 2020
- St.Vincent’s Hospital
- Retrospectively review
- Acute empyema with PPE
- Pigtail catheter drainage or VATS or both
- Treatment success
 - recovery of CP angle with full expansion of lung

Patient Characteristics

Variable	Group I(n=71)	Group II(n=93)	Group III(n=126)	P value
Age(year)	55.7±17.7	57.7±14.7	68.3±15.5	<0.001
Gender(Male),n(%)	55(77.5%)	78(83.9%)	96(76.2%)	0.363
Underlying disease,n(%)				
HBP	25(35.2%)	38(40.9%)	53(42.1%)	0.628
DM	18(25.4%)	25(26.9%)	40(31.7%)	0.574
CVA	1(1.4%)	9(9.7%)	7(5.6%)	0.081
Malignancy	3(4.2%)	4(4.3%)	2(1.6%)	0.427
COPD	2(2.8%)	2(2.2%)	13(10.3%)	0.019
Tuberculosis	2(2.8%)	1(1.1%)	9(7.1%)	0.068
Bronchiectasis	1(1.4%)	1(1.1%)	5(4.0%)	0.316
Liver chirrosi	2(2.8%)	2(2.2%)	3(2.4%)	0.962
Current smoker,n(%)	31(43.7%)	32(34.4%)	11(8.7%)	<0.001
Chronic alcoholics,n(%)	10(14.1%)	11(11.8%)	5(4.0%)	0.029
Duration of symptoms to admission(days)	12.3±16.8	6.8±9.2	7.5±18.0	0.059
Duration of symptoms to treatment(days)	14.1±16.6	8.1±9.3	10.4±18.0	0.016

Radiologic and laboratory findings

Variable	Group I(n=71)	Group II(n=93)	Group III(n=126)	P value
Laboratory findings				
WBC /mm ²	16197±6753	17151±7623	13112±6523	<0.001
CRP mg/dl	19.9±8.7	15.2±6.6	12.9±7.6	<0.001
Pleural fluid				
pH < 7.2	8(42.1%)	25(31.6%)	35(28.2%)	0.46
Glucose < 40 mg/dL	10(27.8%)	32(34.8%)	30(24.6%)	0.262
Gross pus	4(14.8%)	5(6.0%)	11(8.9%)	0.349
LDH > 1000 IU/L	20(57.1%)	45(49.5%)	47(38.5%)	0.087
bacterial culture positivity	4(6.2%)	7(7.7%)	3(2.5%)	0.216
Multi-loculation on CT	57(80.3%)	66(71.0%)	39(31.0%)	<0.001

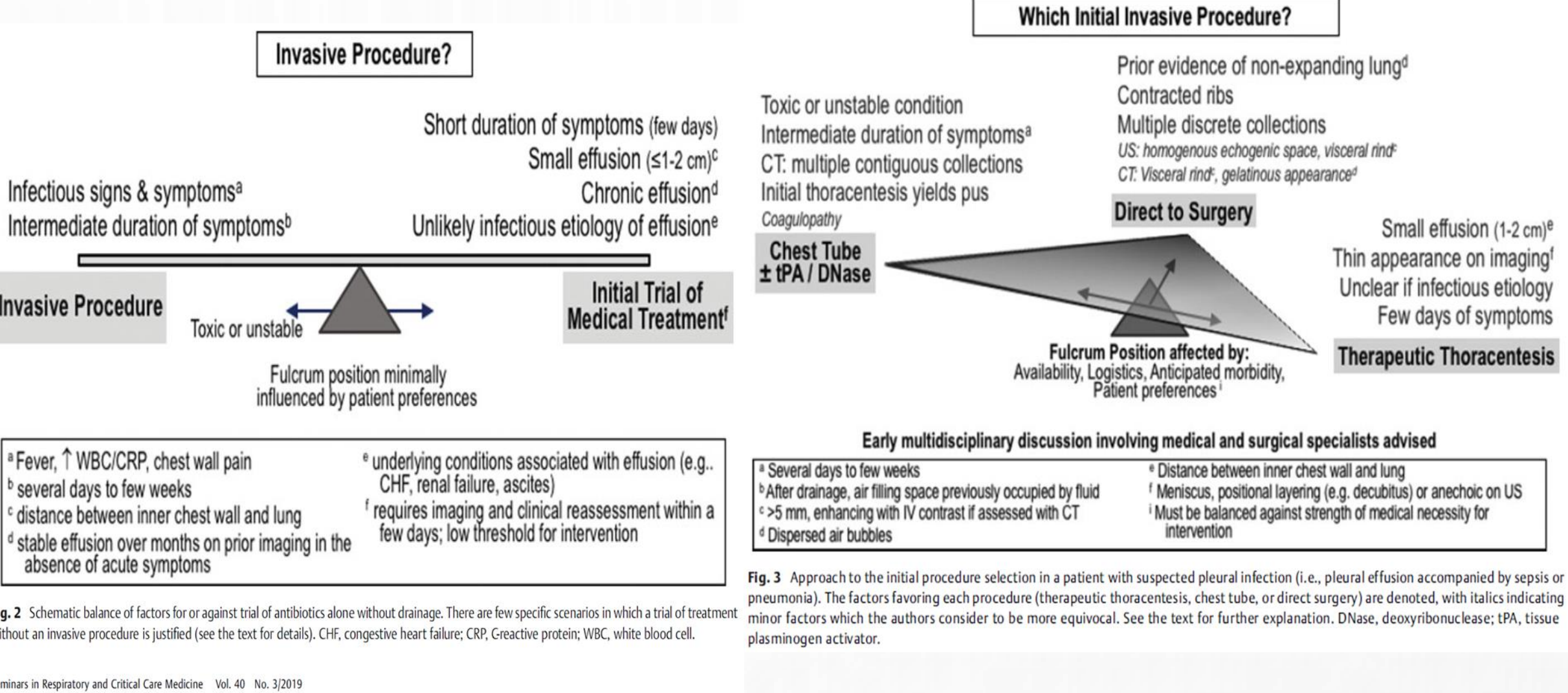
Stage of Empyema

Stage	Group I(n=71)	Group II(n=93)	Group III(n=126)	P value
I	0	0	0	<0.001
II	6(8.5%)	9(9.7%)	51(40.5%)	
III	61(85.9%)	79(84.9%)	65(51.6%)	
IV	4(5.6%)	5(5.4%)	10(7.9%)	

Outcomes

Variable	Group I(n=71)	Group II(n=93)	Group III(n=126)	P value
Difference before and after treatment				
WBC	7739±6329	9401±7150	4254±11782	<0.001
CRP	15.82±9.1	10.4±7.7	9.6±7.9	<0.001
Duration of chest tube/pigtail catheter indwelling, days	6.0±4.2	10.8±6.7	6.7±3.8	<0.001
Duration of tratment to discharge,days	9.4±5.9	14.5±8.1	11.4±5.4	<0.001
Duration of hospitalization,days	12.2±6.1	15.7±8.1	14.3±6.2	<0.001
Treatment success, n(%)	53(74.6%)	62(66.7%)	97(77.6%)	0.074

Dicussion



THORACIC: AATS EXPERT CONSENSUS GUIDELINES: EMPYEMA

The American Association for Thoracic Surgery consensus guidelines for the management of empyema

- VATS should be the first-line approach in all patients with stage II acute empyema
- The main technical considerations include safe access into the chest, drainage of pleural space, and maneuvers to allow full expansion of lung (ie, release of inferior pulmonary ligament)

Video-Assisted Thoracic Surgery for Pleural Empyema

Peter N. Wurnig, MD, Victoria Wittmer, MD, Nestor S. Pridon, MD, and Peter H. Hollaus, MD

Management of complicated parapneumonic effusion and empyema using different treatment modalities

Magdi Ibrahim Ahmad Muhammad

Video-Assisted Thoracoscopic Surgery in the Treatment of Complicated Parapneumonic Effusions or Empyemas*

Outcome of 234 Patients

Shi-Ping Lai, MD; Ming-Chih Chen, MD; Liang-Shun Wang, MD; Jui-Yuh Chen, MD; and Tsong-Po Tsai, MD

Limitation

- Retrospective study
- Selection bias
- In fact, the direction of treatment has been determined by Respiratory physician.

Conclusion

- VATS is a very effective treatment as management of acute empyema.
- In particular, it is valuable as a first-line treatment for patients with complicated PPE and empyema.
- If practically possible, let's try to intervene more actively.

- The VATS procedure facilitates the evacuation of multilocular effusions, the division of a fibrin septum or band, decortication, debridement, irrigation, fluid sampling, and pleural biopsy
- VATS is a safe and effective procedure for treatment of complicated parpneumonic effusion or empyema
- Earlier intervention with VATS to treat complicated parapneumonic effusion or empyema can get better results