

PLACE DE LA CHIRURGIE dans le TTT des pleurésies purulentes

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Conflits d'intérêts : NEANT



PROBLEMATIQUE: Absence de consensus clair .. Colice GL : Chest 2000

- 60.000 nouveaux cas par an USA et UK
- 22 % mortalité , 15 a 20 % opérés , 45 % échec TTT médical
Maskell NA : NEJM 2005
- EPITHOR : 450 cas opérés par VAST sur 7 ans , 2 % mortalité

MOYENS :

- TTT médical : ABTTT + ponctions +/- drainage +/- Fibrinolyse
- TTT chirurgical : Thoracotomie ou VATS
Lavage , débridement +/- décortication

TTT INITIAL : dépend du plateau technique en place

Seule recommandation : Drain ! Thorax 2003

Fribrinolytiques ?? Tokuda Chest 2006

PLACE DE LA CHIRURGIE dans le TTT des pleurésies purulentes ?

- Quelle pleurésie
 - exsudative : non
 - fibrinopurulente : oui
 - cloisonnée : oui
- Quelle chirurgie ?
 - Thoracotomie ?
 - VATS ?
- Quand ?



A Randomized Trial of Empyema Therapy

Table 1—Initial Characteristics of the Two Treatment Groups

	VATS (n=11)	CT-SK (n=9)
No. male	7	8
Age, yr	42±20	43±13
Chronic illness	3	0
Serum albumin, g/dL	2.76±0.24	2.64±0.24
WBC	13.9±1.6	19.0±1.0
Effusion size*	2.9±0.3	3.3±0.2
Loculations	10 (91%)	8 (89%)
Pleural fluid pH	7.20±0.12	7.26±0.15
Positive pleural culture	8 (73%)	4 (44%)

*Effusion size scale: 1=costophrenic angle obscured; 2=entire diaphragm obscured; 3=up to hilum; 4=above hilum.

WAIT M.A. et al; CHEST 1997;111:1548-51

A Randomized Trial of Empyema Therapy

Table 3—Patient Outcomes

	VATS	CT-SK
Hospital days	8.7±0.9	12.8±1.1*
ICU days	1.8±1.1	4.2±1.8 [†]
Chest tube days	5.8±1.1	9.8±1.3 [‡]
No. of chest tubes	1.7±0.1	2.1±0.7
Mortality	1	1
Complications	0	1
1° Treatment success	10 (91%)	4 (44%) [§]
1° Failure	1 (9%)	5 (56%) [§]
Cost	\$16,642±2,841	\$24,052±3,466

*p=0.009.

[†]p=0.26.

[‡]p=0.03.

[§]p=0.05, Fisher's Exact Test.

^{||}p=0.11.

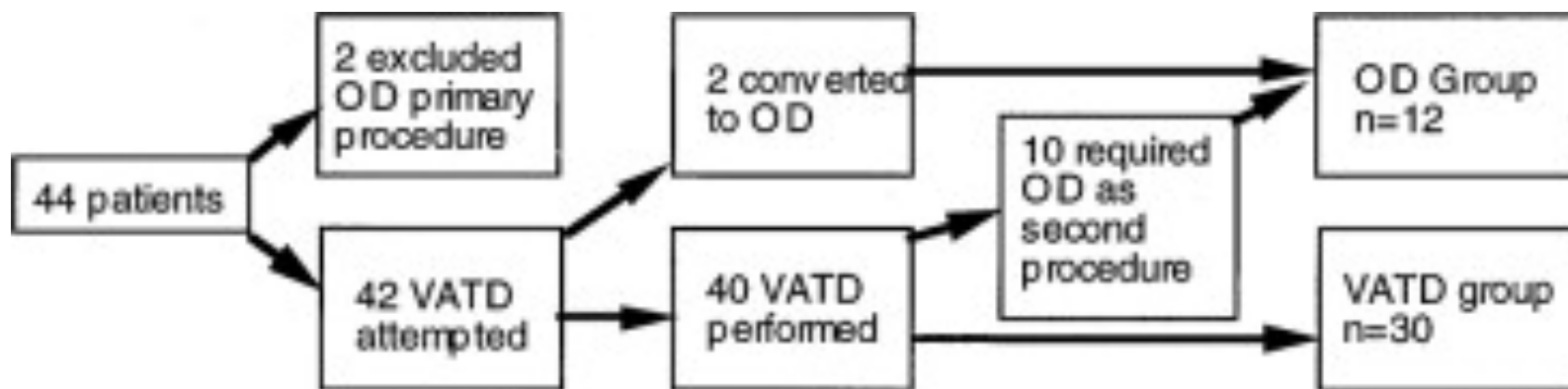
WAIT M.A. et al; CHEST 1997;111:1548-51

A Randomized Trial of Empyema Therapy

In summary, because empyemas evolve and change over time, it is difficult to recommend one type of treatment as a routine, initial therapy. However, in patients presenting with large, loculated empyemas, early VATS works well and is preferable to CT-SK.

WAIT M.A. et al; CHEST 1997;111:1548-51

Thoracoscopic Debridement of Empyema Thoracis



Lawrence DR et al , AnnThoracic Surg 64, 5, 1997, 1448 - 1450

Thoracoscopic Debridement of Empyema Thoracis

Table 2. Summary of Results

Variable	Video-Assisted Thoracoscopic Debridement	Open Decortication	<i>p</i> Value
Age (y)	50.8 ± 3.7	53.3 ± 6.2	NS
Chest drainage (% of patients)	70.0	66.7	NS
Intravenous antibiotics (% of patients)	70.0	66.7	NS
Preoperative symptoms (days)	37.6 ± 11.8	40.1 ± 11.6	NS
Preoperative treatment (days)	13.7 ± 2.4	11.5 ± 3.4	NS
Postoperative intercostal drainage (days)	4.0 ± 0.3	8.5 ± 2.0	0.004
Postoperative stay (days)	5.3 ± 0.4	10.3 ± 2.1	0.001
30-Day mortality	0	0	...

NS = not significant.

Lawrence D R et al , Ann Thoracic Surg 64, 5, **1997**, 1448 - 1450

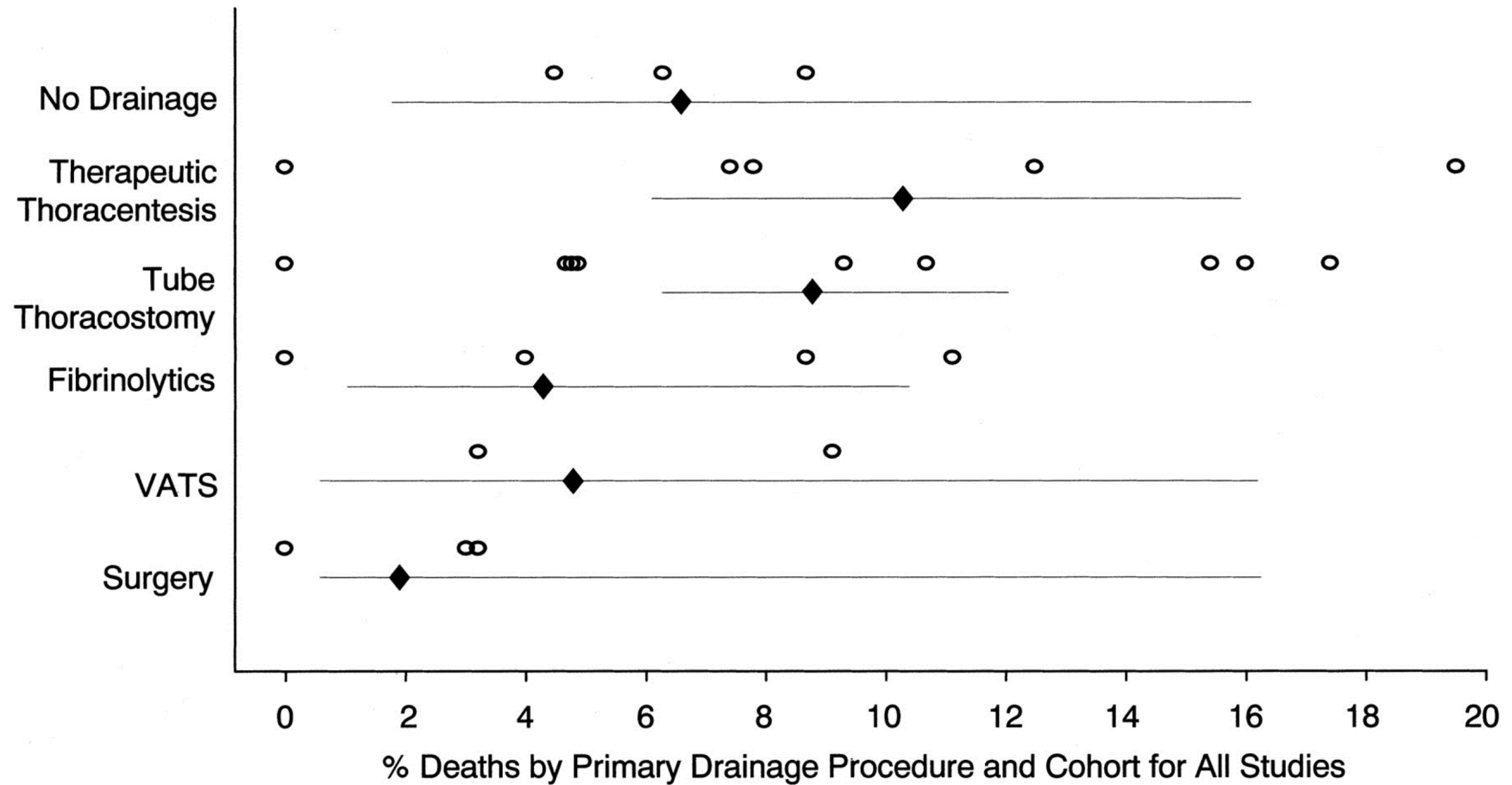
Medical and Surgical Treatment of Parapneumonic Effusions

An Evidence-Based Guideline

COLICE et al .Chest. 2000

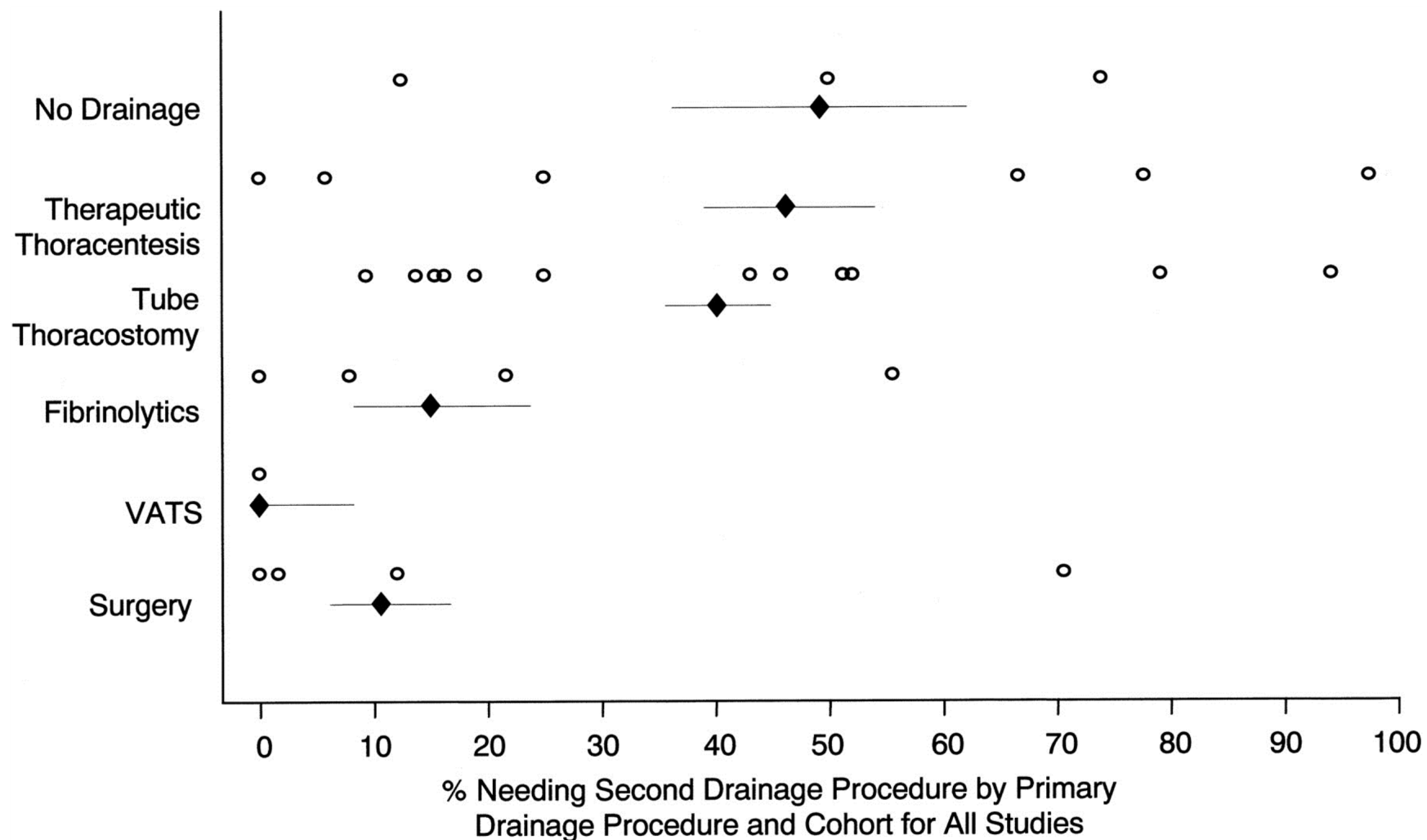
Auteurs (Nbre)	Nbre pts	2° op	2° op en %
Surveillance (3)	61	30	49
Ponctions (6)	175	81	46
Drains (13)	434	175	40
Fibrinolyse IP (5)	94	14	15
VATS (2)	42	0	0
Thoracotomie (5)	159	17	10

Medical and Surgical Treatment of Parapneumonic Effusions* :



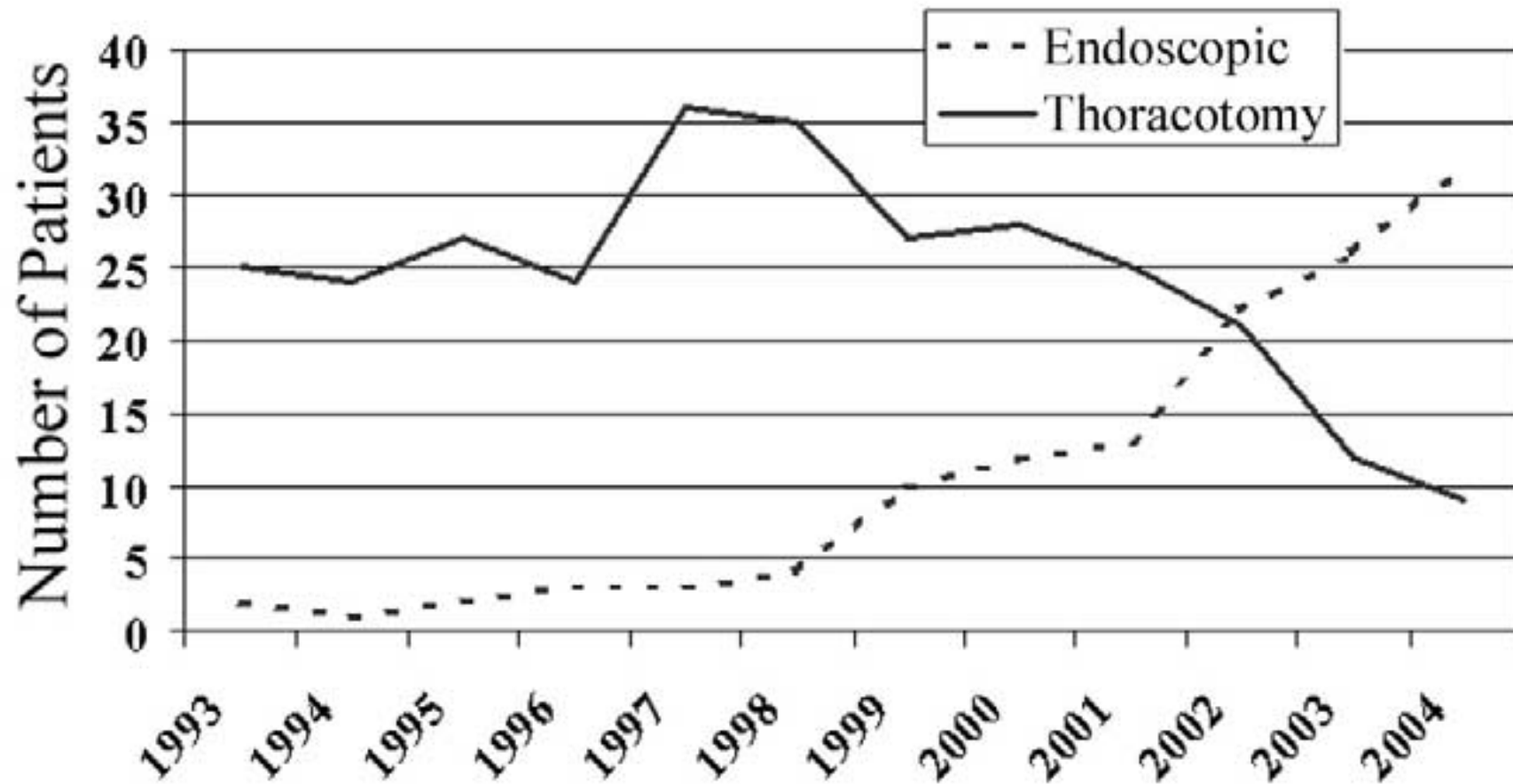
COLICE et al .Chest. 2000;118(4):1158-1171.

Medical and Surgical Treatment of Parapneumonic Effusions



COLICE et al .Chest. 2000;118(4):1158-1171.

Video-Assisted Thoracic Surgery for Pleural Empyema



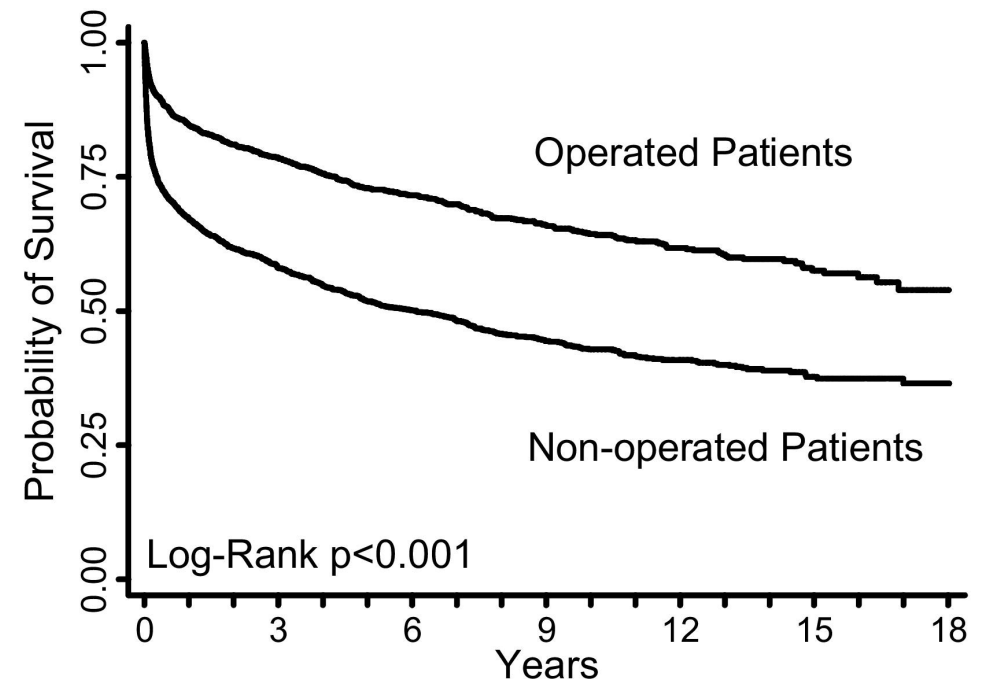
Wurnig P.N et al (Ann Thorac Surg 2006;81:309 –13)

Management of pleural space infections: A population-based analysis

TABLE 2. Patient characteristics and outcomes by management

	Operative (n = 2281)	Nonoperative (n = 2143)	P value
Characteristics			
Age (y, mean ± SD)	52.9 ± 17.6	61.5 ± 18.6	<.001
Male sex (%)	70.1	62.7	<.001
Comorbidity index (mean ± SD)	0.8 ± 1.6	1.4 ± 2.1	<.001
Medicaid/charity (%)	19.4	13.8	<.001
Outcomes			
30-d Mortality (%)	5.4	16.6	<.001
Readmission (%)	3.0	5.9	<.001
Discharge to ICF (%)	21.8	30.1	<.001
LOS (d, mean ± SD)	15.5 ± 12.5	12.6 ± 10.9	<.001
Costs (\$, mean ± SD)	32,112 ± 36,060	22,318 ± 32,174	<.001

SD, Standard deviation; ICF, institutional care facility; LOS, length of stay.



FARJAH F et al . J Thorac Cardiovasc Surg. 2007;133:346-51

WITHDRAWN: Surgical versus non-surgical management of pleural empyema.

- Update 2002 puis 2005 !
- Une seule étude randomisée
- VATS > StreptoKinase
- « Larger studies are needed. »
- “the inclusion criteria and the study has too few participants to draw conclusions.”

Coote N , Kay ES , Cochrane Database Syst Rev 2009 Oct 7;(4):

Is video-assisted thoracoscopic surgical decortication superior to open surgery in the management of adults with primary empyema

- Best evidence papers
- 68 articles sélectionnés
- 14 retenus
- 1 étude randomisée : Wait 1997
- 13 études rétrospectives de cohortes :
Landreneau 1996 -> Tong 2010

Concluent à la supériorité de la VATS > OPEN !

Chambers et al .Interact Cardiovasc Thorac Surg 2010;11(2):171-7

CHU ROUEN : 18 patients consécutifs / VATS (SFCTCV 2010)

patients	<i>n</i> =18
durée moyenne d'hospitalisation	15,4 jours (8-25)
durée d'hospitalisation en médecine	7,6 jours (1-17)
durée d'hospitalisation en chirurgie	7,8 jours (2-14)
durée d'hospitalisation post-opératoire	6,3 jours (3-11)
mortalité opératoire à J30	0%
durée de drainage	3,8 jours (3-5)
taux d'echec	0%
Séquelles pleurales radiologiques à 1 mois	
- <i>Mineures</i>	82% (<i>n</i> =14)
- <i>Absence</i>	18% (<i>n</i> =4)
Douleurs (Echelle Visuelle Analogique)	
-24H post-op	5.7
-à la sortie du service	3.5

PROTOCOLE DE RECHERCHE BIOMEDICALE : VIDMED

- Etude randomisée comparant le **drainage chirurgical vidéothoroscopique** au **drainage médical** dans la prise en charge des pleurésies infectieuses en première intention
- 2013/009/HP
- Version n°3 du 03/06/2013
- n°RCB : 2013-A00258-37
-
-
- **Investigateur Coordonnateur :**
- Dr Jean-Marc BASTE
- Service de chirurgie thoracique et cardio-vasculaire
- CHU de Rouen
- 1 rue de Germont
- 76031 Rouen Cedex
- Tél. : 02 32 88 89 90
- Fax : 02 32 88 58 06

Is video-assisted thoracoscopic surgery the best treatment for paediatric pleural empyema?

- 274 articles -> **14 retenus comparent VAST et TT médical**

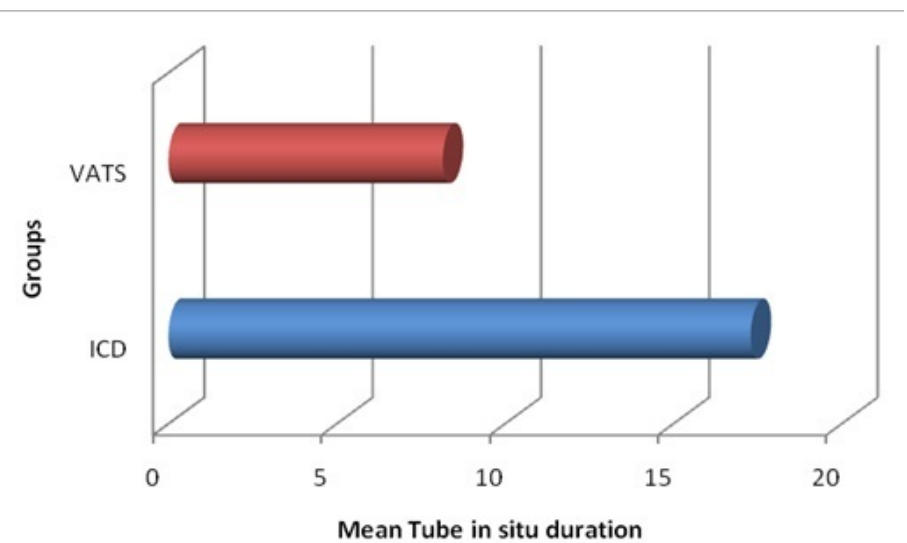
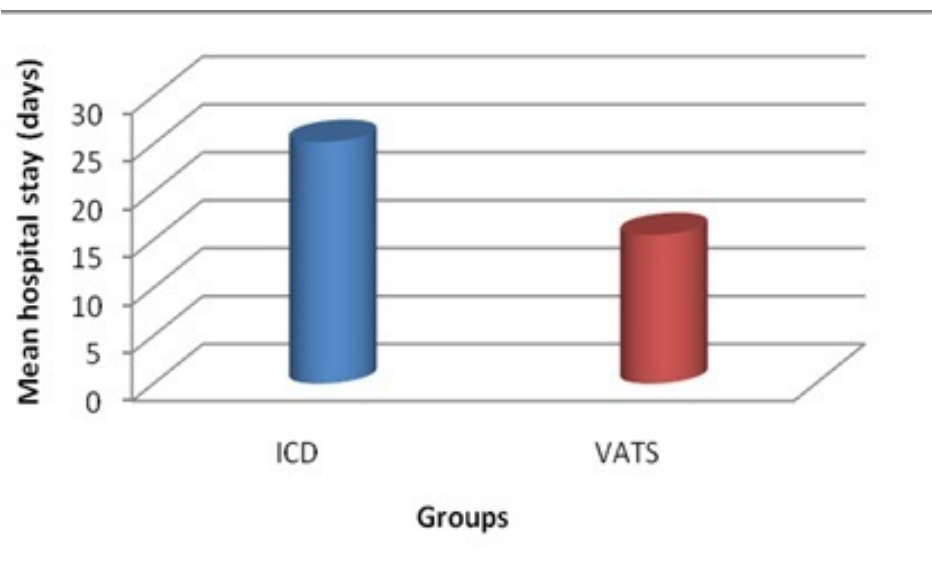
Primary operative therapy had a lower:

- aggregate in-hospital mortality rate (0% vs. 3.3%)
- re-intervention rate (2.5% vs. 23.5%)
- length of stay (10.8 days vs. 20.0 days)
- duration of tube thoracostomy (4.4 days vs. 10.6 days)
- duration of antibiotic therapy (12.8 days vs. 21.3 days)

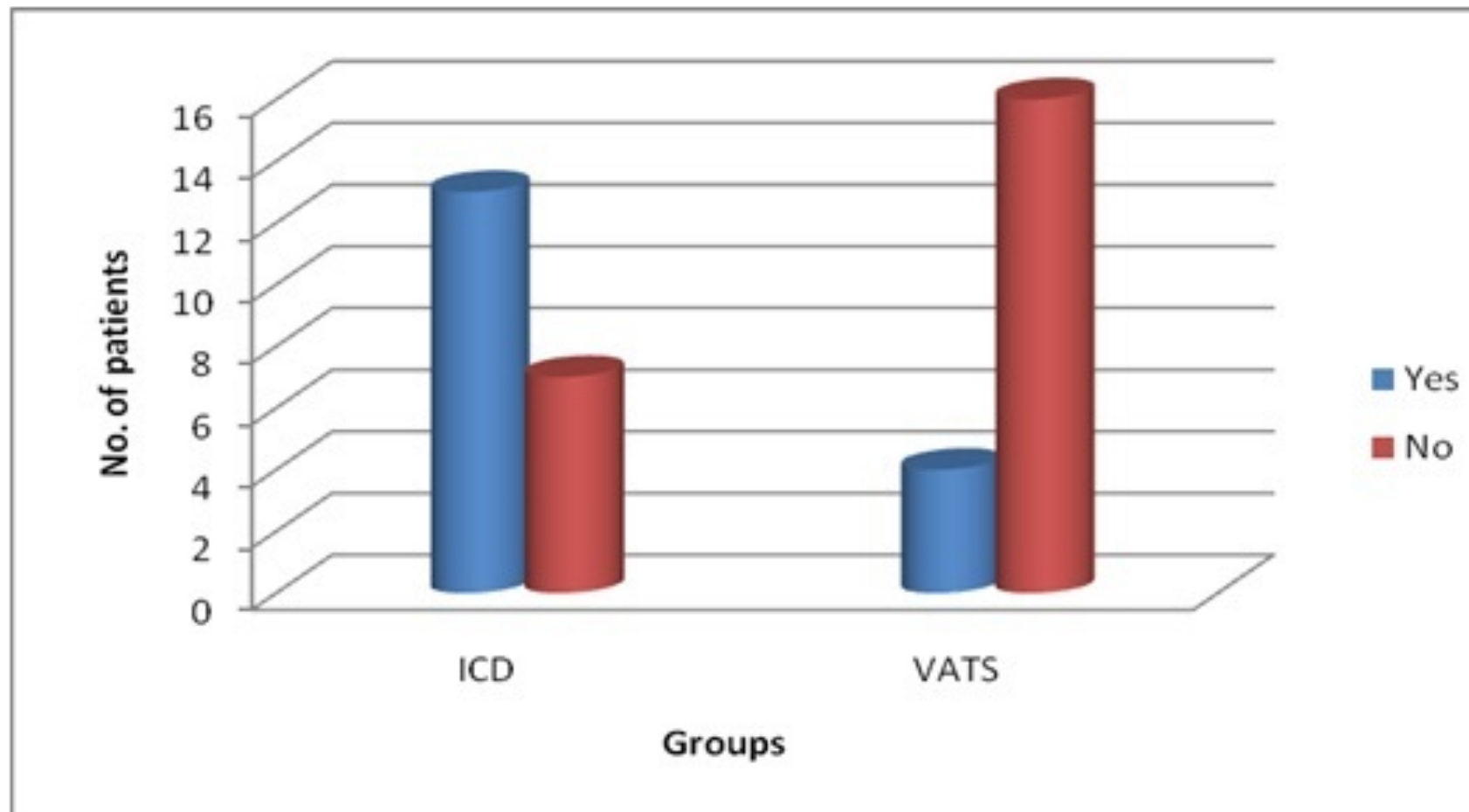
Scarci M ,Interact Cardiovasc Thorac Surg. 2011;13(1):70-6

ICD Versus VATS as Primary Treatment in Fibrinopurulent Stage

Prospective non Rando : 40 adultes et enfants.
20 pts dans chaque groupe.2008-2010

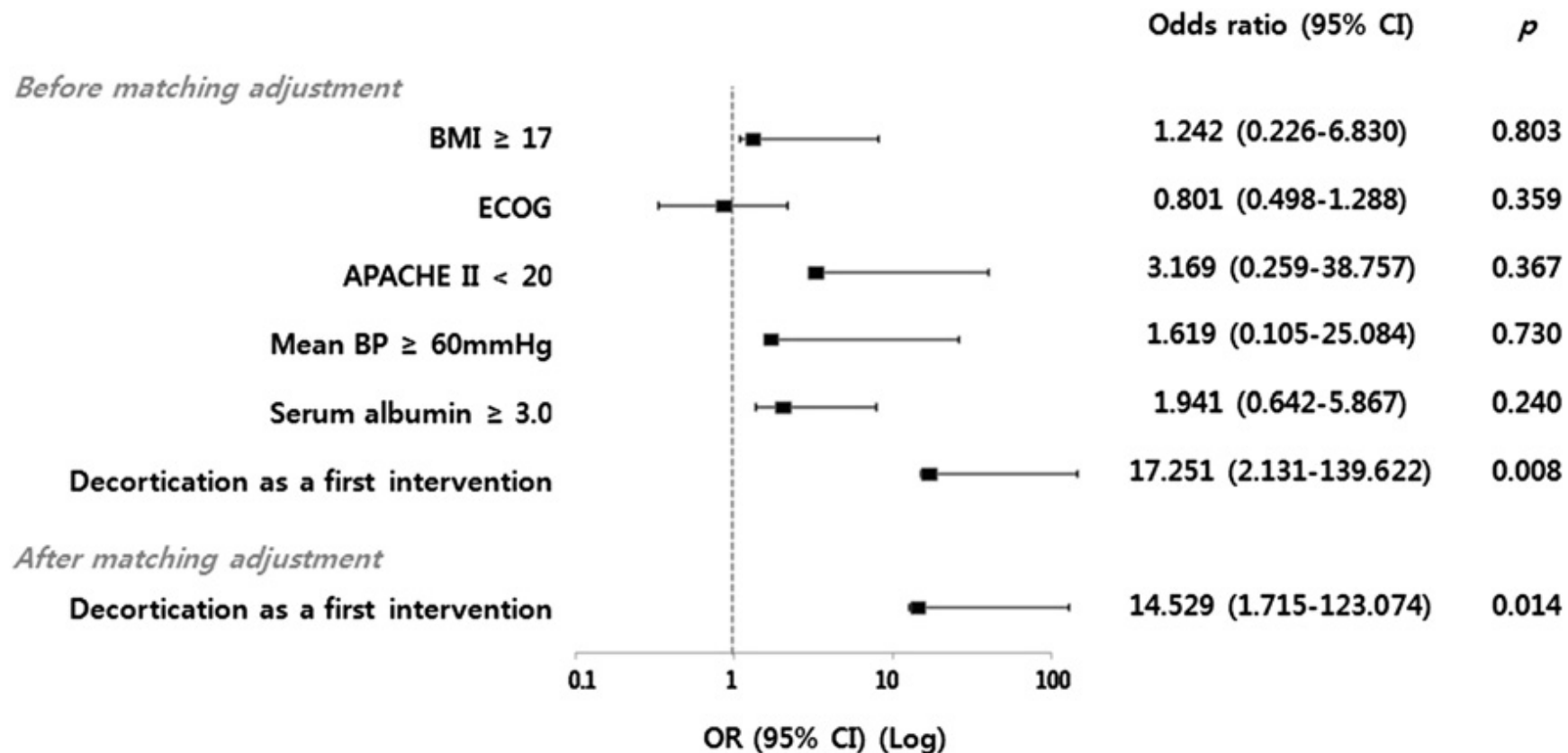


ICD Versus VATS as Primary Treatment in Fibrinopurulent Stage of Empyema Thoracis



Bar diagram showing the comparison of failure (no. of patients)

Surgical decortication as the first-line treatment for pleural empyema (rétrospectif : 111 pts dont 27 opérés)



Shin J A et al. J Thorac Cardiovasc Surg.2013;145:933-39

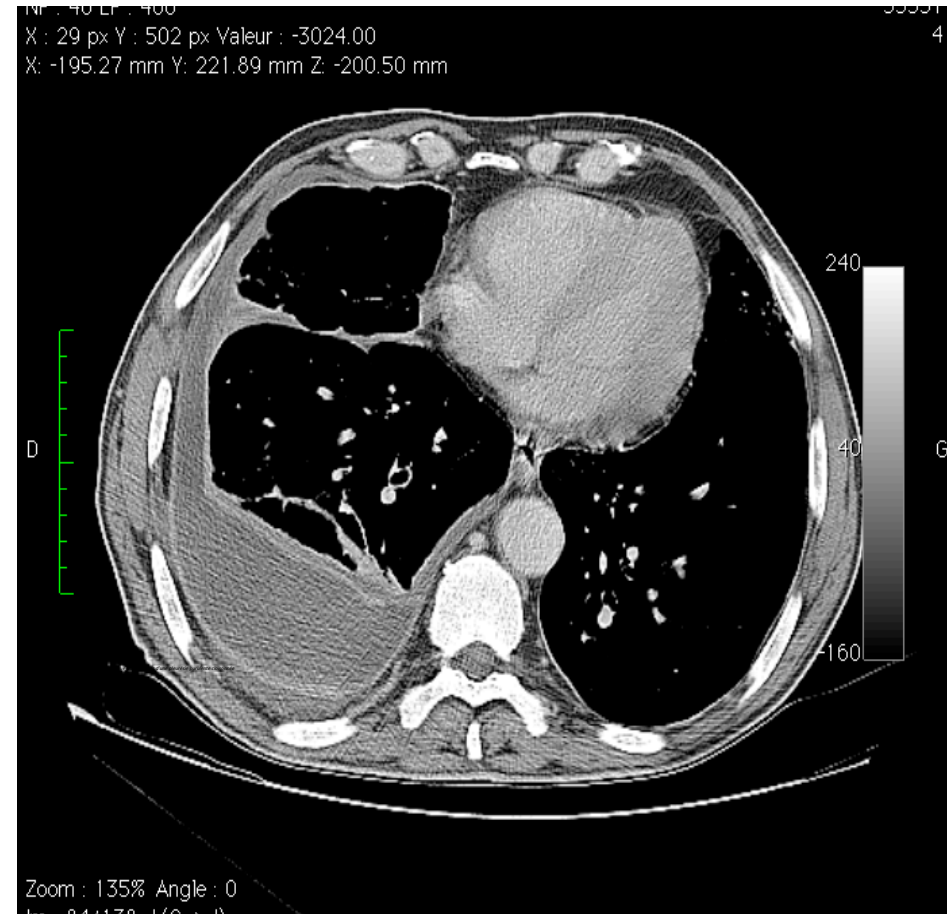
Proposition de TTT précoce par VATS

VATS :

- Mini invasif
- Peu morbide
- Prélever
- Laver
- Drainer
- Décloisonner
- Kiné précoce +++

Proposition de TTT : Quelle Pleurésie ?

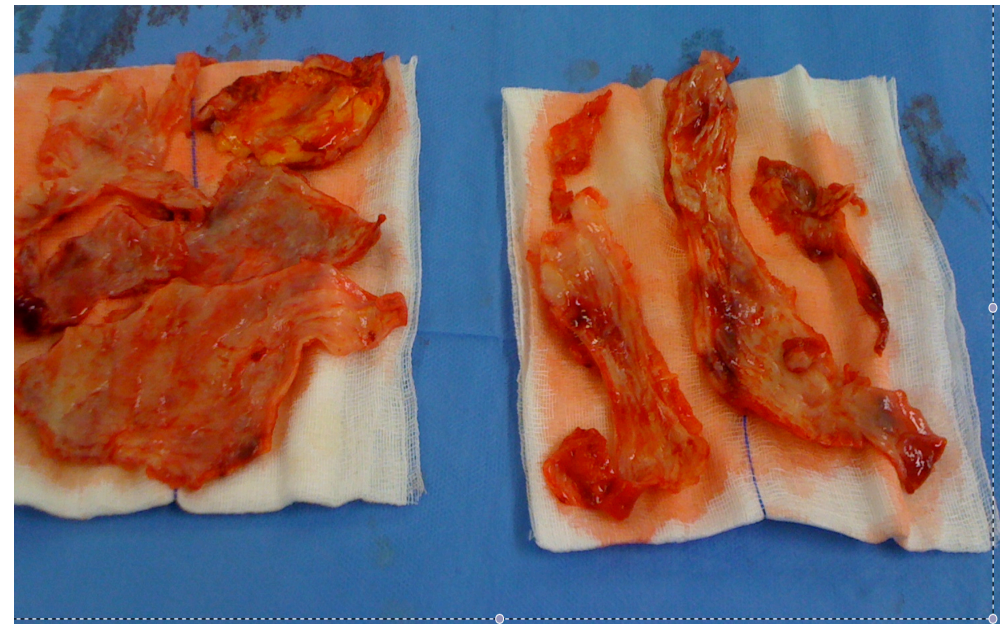
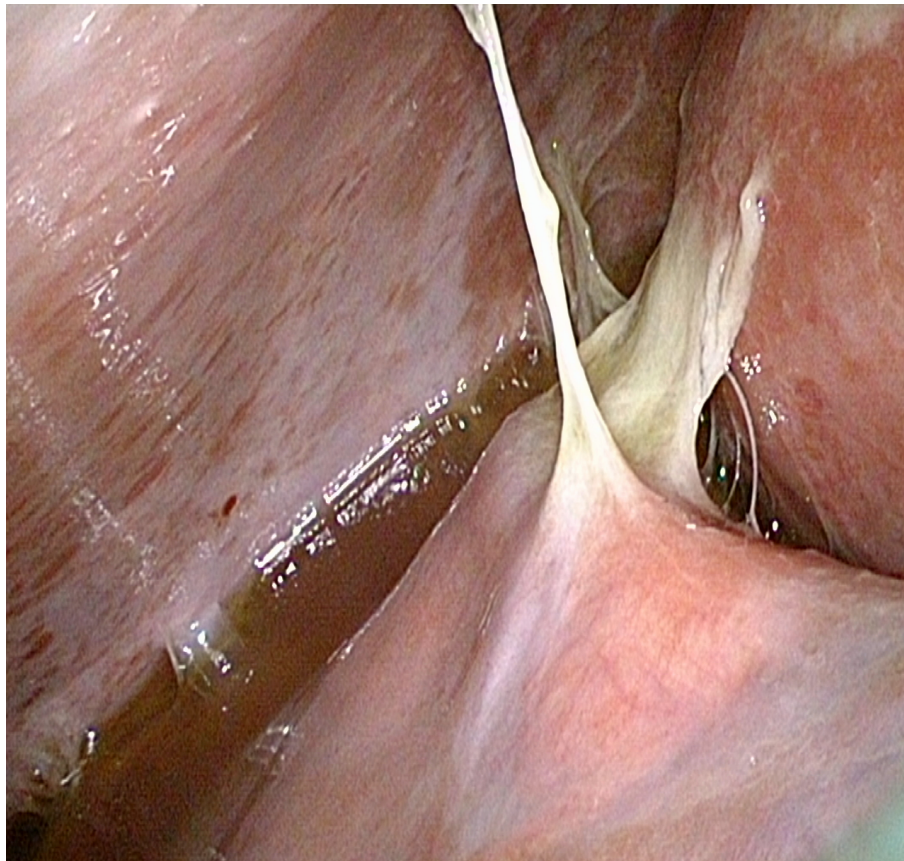
- Durée d'évolution
- Epanchement > 25%
- PolyN altérés
- Ph < 7.2
- Pus
- TDM +++ :
- Pachypleurite
- Début cloisons



=> VATS

QUAND ? : Précoce sinon Conversion !

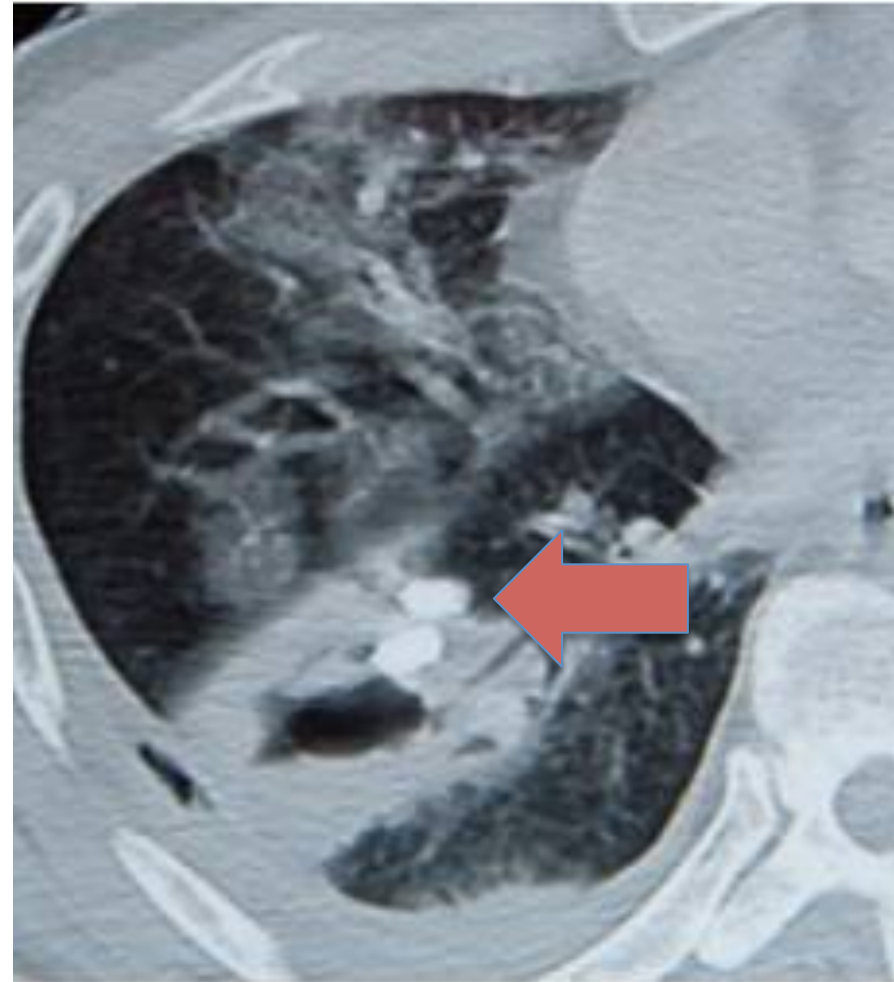
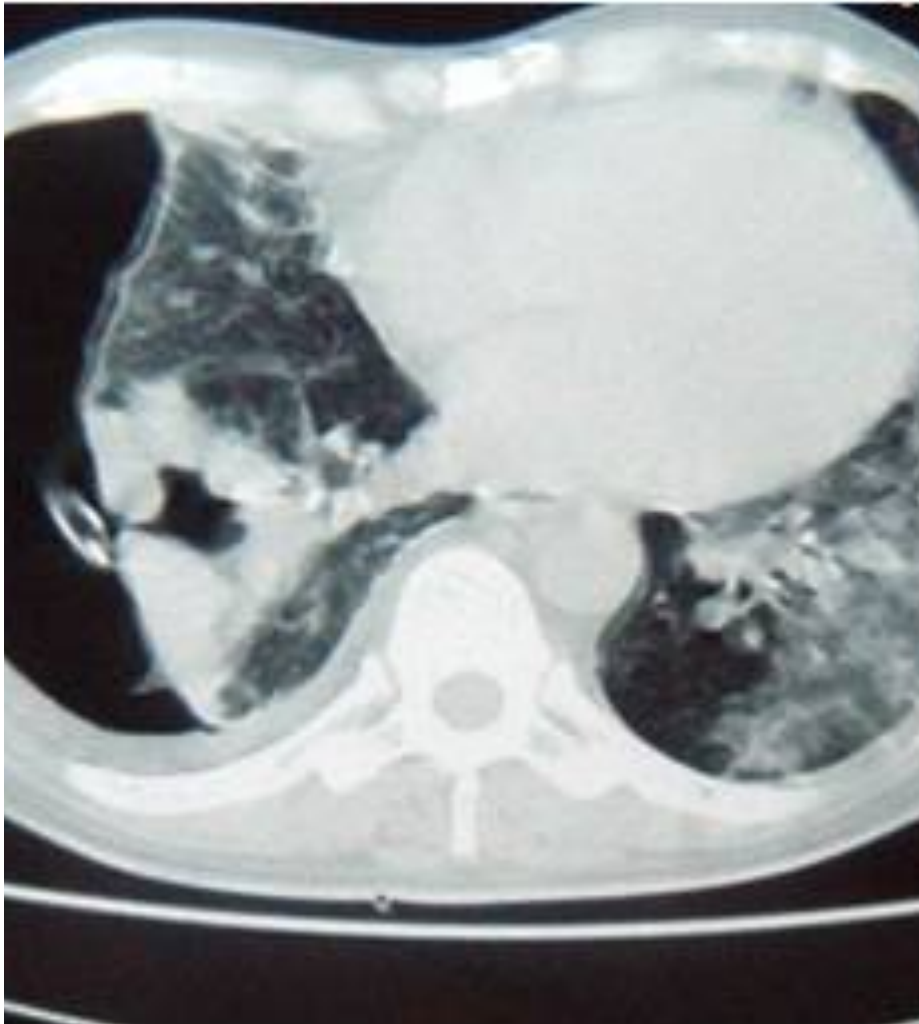
- Précoce



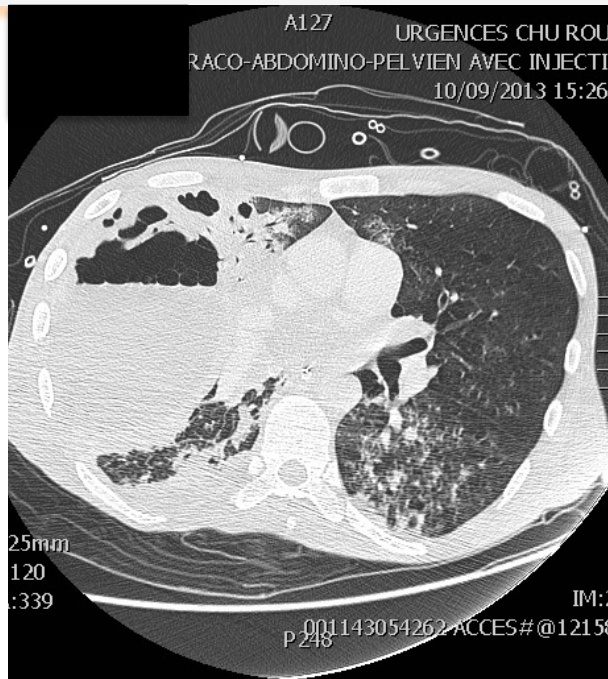
VAST pour pleurésie : Résultat à 1 mois



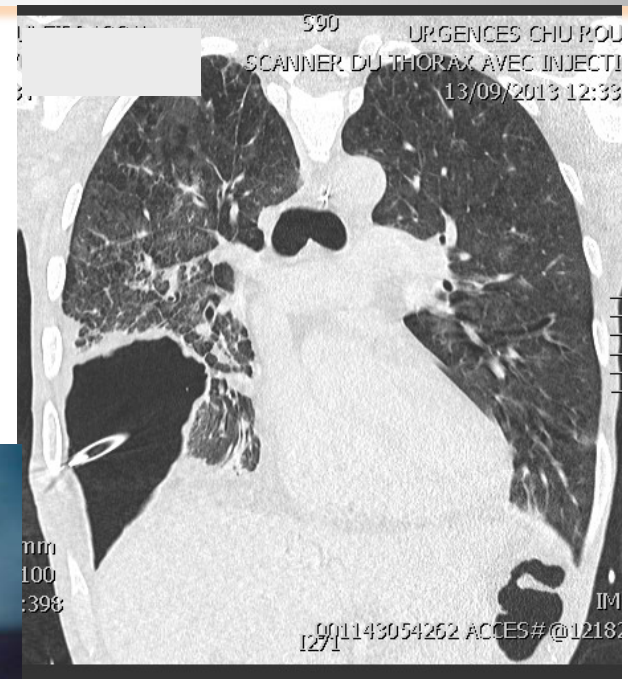
PLEURESIES avec Pneumopathie Nécrosante : WATANABE



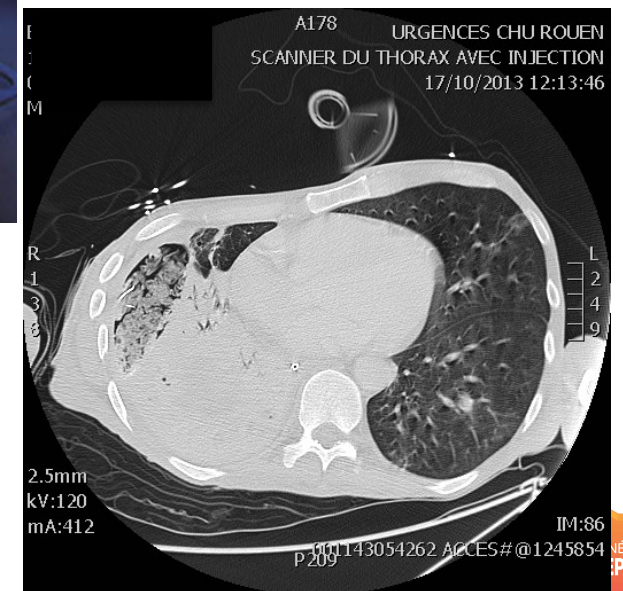
PLEURESIES avec Pneumopathie Nécrosante : VAC



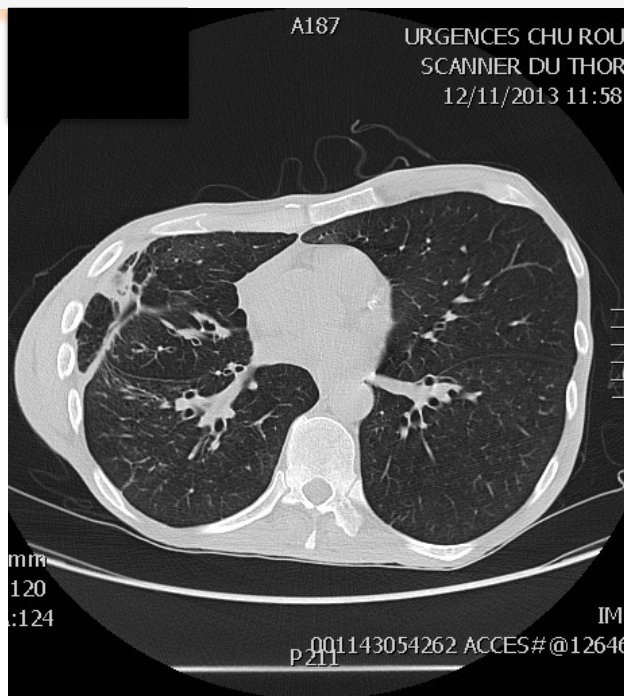
**VATS
+ DRAIN**



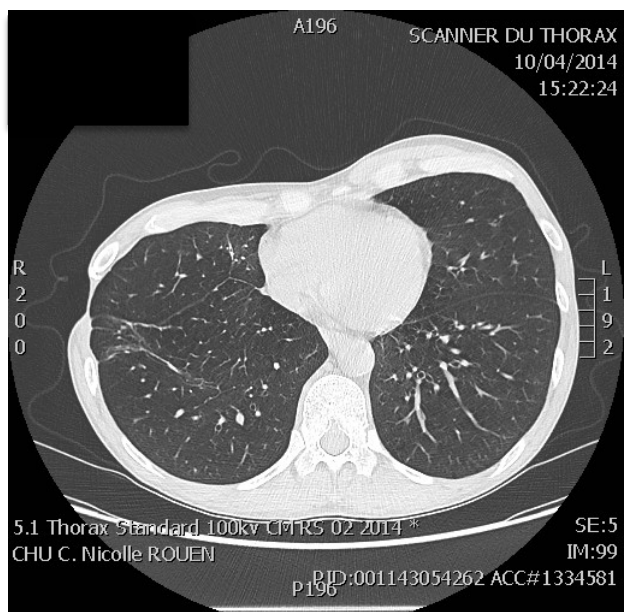
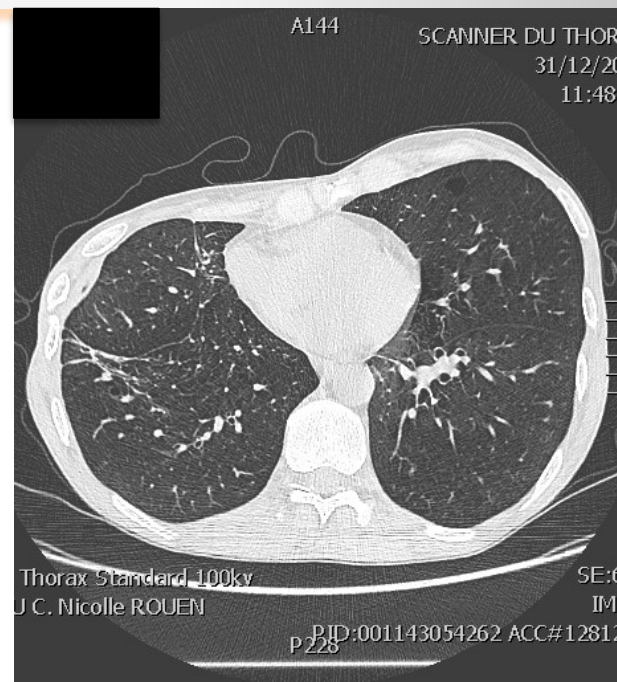
**STOMIE
MECHAGE
Puis
VAC 45 J**



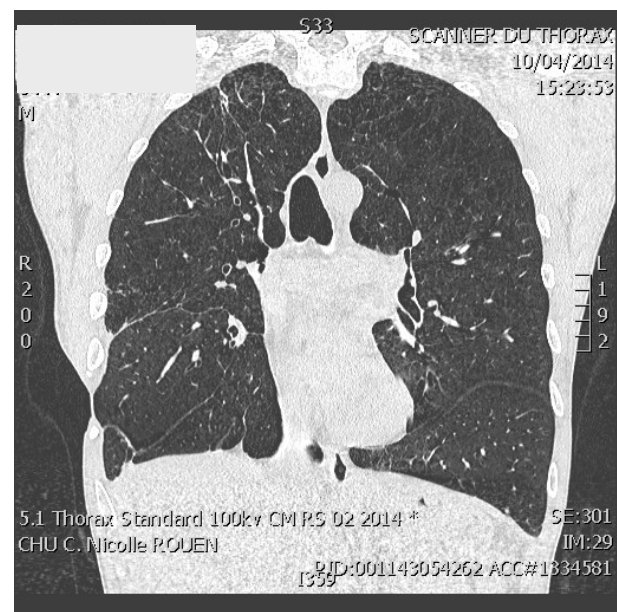
PLEURESIES avec Pneumopathie Nécrosante



ARRET
TRACHEO
et VAC
à 2 mois



Revu à 6 mois



CHIRURGIE ET PLEURESIE PURULENTE

- Prise en charge Médico Chirurgicale : STAFF
- VATS en première attention ou très précoce
- Eviter d'attendre -> décortication par thoracotomie
- Si ponctions ou drain sous AL → TDM de contrôle rapide
- Si échec -> Vidéo en urgence

- Participer à VIDMED !!!

SAINES LECTURES

- 1. Maskell, N.A., et al., *U.K. Controlled trial of intrapleural streptokinase for pleural infection*. N Engl J Med, 2005. 352(9): p. 865-74.
- 2. Cameron, R. and H.R. Davies, *Intra-pleural fibrinolytic therapy versus conservative management in the treatment of adult parapneumonic effusions and empyema*. Cochrane Database Syst Rev, 2008(2): p. CD002312.
- 3. Tokuda, Y., et al., *Intrapleural fibrinolytic agents for empyema and complicated parapneumonic effusions: a meta-analysis*. Chest, 2006. 129(3): p. 783-90.
- 4. Bouros, D., S. Schiza, and N. Siafakas, *Utility of fibrinolytic agents for draining intrapleural infections*. Semin Respir Infect, 1999. 14(1): p. 39-47.
- 5. Sasse, S., et al., *The effects of early chest tube placement on empyema resolution*. Chest, 1997. 111(6): p. 1679-83.
- 6. Karmy-Jones, R., et al., *Rigid thorascopic debridement and continuous pleural irrigation in the management of empyema*. Chest, 1997. 111(2): p. 272-4.
- 7. Wait, M.A., et al., *A randomized trial of empyema therapy*. Chest, 1997. 111(6): p. 1548-51.
- 8. Rasik Shah, A Suyodhan Reddy, and Nitin P Dhende *Video assisted thoracic surgery in children* J Minim Access Surg. 2007 Oct-Dec; 3(4): 161–167. Received January 12, 2008; Accepted January 12, 2008
- 9. Gates, R.L., et al., *Does VATS provide optimal treatment of empyema in children? A systematic review*. J Pediatr Surg, 2004. 39(3): p. 381-6.
- 10. Coote, N. and E.S. Kay, *WITHDRAWN: Surgical versus non-surgical management of pleural empyema*. Cochrane Database Syst Rev, 2009(4): p. CD001956.
- 11. Aziz, A., et al., *Comparative analysis of chest tube thoracostomy and video-assisted thoracoscopic surgery in empyema and parapneumonic effusion associated with pneumonia in children*. Surg Infect (Larchmt), 2008. 9(3): p. 317-23.
- 12. Sharon Ben-Or, Richard H. Feins, Nirmal K. Veeramachaneni, and Benjamin E. Haithcock *Effectiveness and Risks Associated With Intrapleural Alteplase by Means of Tube Thoracostomy* Ann. Thorac. Surg., 2011; 91: 860 – 864
- 13. Rahman NM, Maskell NA, West A, Teoh R, et al. *Intrapleural Use of Tissue Plasminogen Activator and DNase in Pleural Infection* N Engl J Med 2011; 365:518-526.
- 14. Farjah F, Symons RG, Krishnadasan B, Wood DE, Flum DR. *Management of pleural space infection: A population-based analysis* J Thorac Cardiovasc Surg 2007;133:346-51.
- 15. Whitehead J, *Sample size calculations for ordered categorical data*, Statistics in Medecine, 1993. 12(24): p. 2257-2272
- 16. Colice GL, Curtis A, Deslauriers J, Heffner J, Light R, Littenberg B, Sahn S, Weinstein RA, Yusef RD. *Medical and surgical treatment of parapneumonic effusions : an evidence-based guideline*; Chest. 2000 Oct;118(4):1158-71. .