Good surgical practices

in broncho-pulmonary primary cancer treatment

These good surgical practices are based on scientific medical proves and not only on intuition or clinic experience

This medicine is called in france “factual medicine” and by anglo saxon “evidence-based medicine”

Scientific Medical Proves Level

Level N°1: High scientific level randomised controlled studies

Level N°2: Low scientific level randomised controlled studies

Level N°3: Prospective studies

Level N°4: Retrospective studies or cases report

Good Surgical Practices in broncho-pulmonary primary cancer treatment

This study is validate by the French Society Thoracic & Cardio-Vascular Surgery

This study include

Surgical thoracic approches

Pulmonary resections

Lymphadenectomy

Extended resections

Bronchial suture protection

Surgical Thoracic Approches

* Conventional thoracic surgery

Post. Lat. , Lat. or Ant.Thoracotomy

* Mini invasive surgery

- Video Thoracoscopic Surgery (VTC)
- Video Assisted Thoracic Surgery (VATS)
- Video Assisted Mini-Thoracotomy

VIDEO ASSISTED THORACIC SURGERY (VATS)

V.A. MINI THORACOTOMY

A mini-thoracotomy about 5 to 6 cm long

A telescope connected to a video-camera

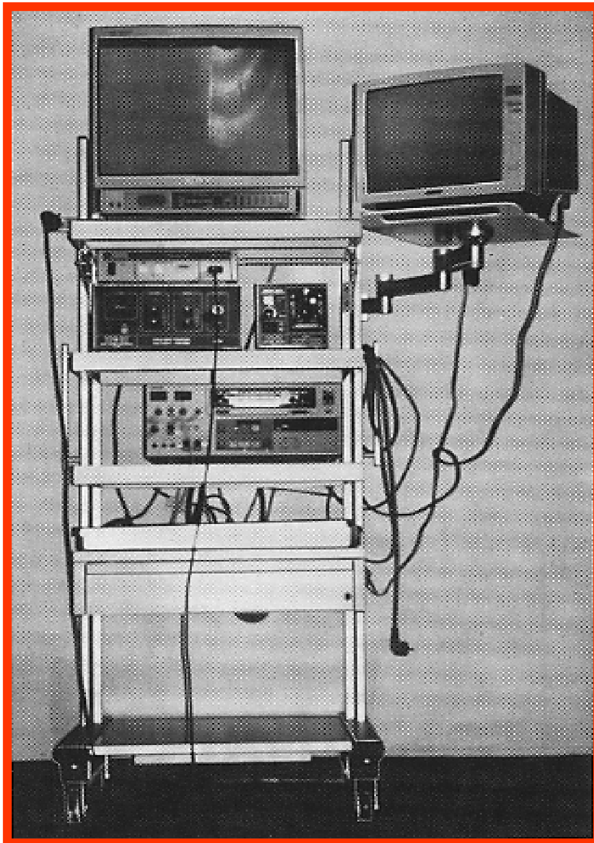
Double vision in the operating field

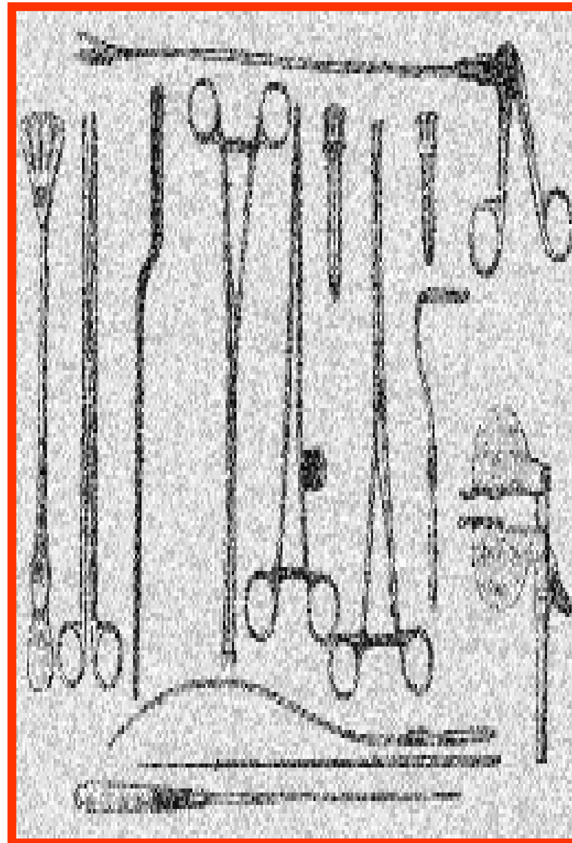
Dissection, sutures and extraction are performed through the mini-thoracotomy

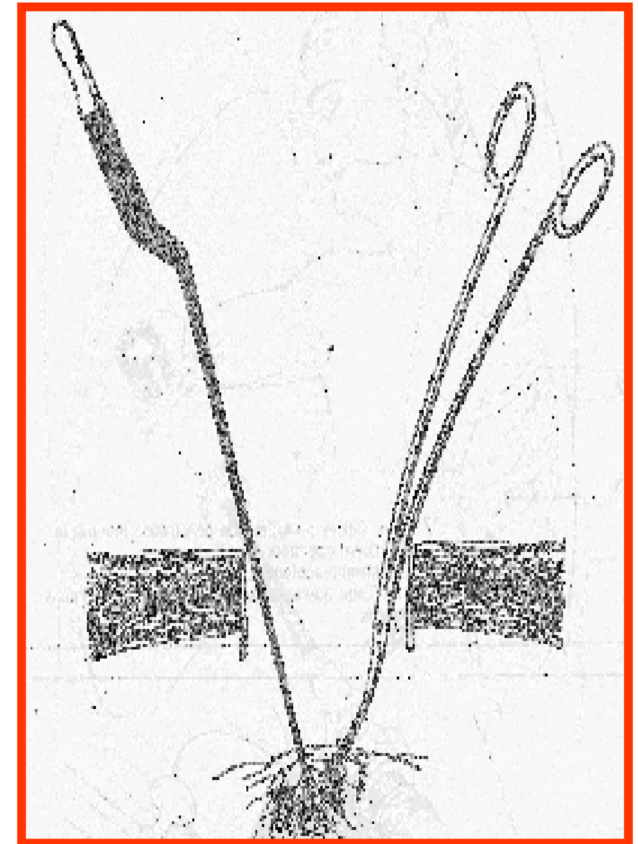
« Total Sécurity »

VATS

Equipment & Surgical Instrumentation



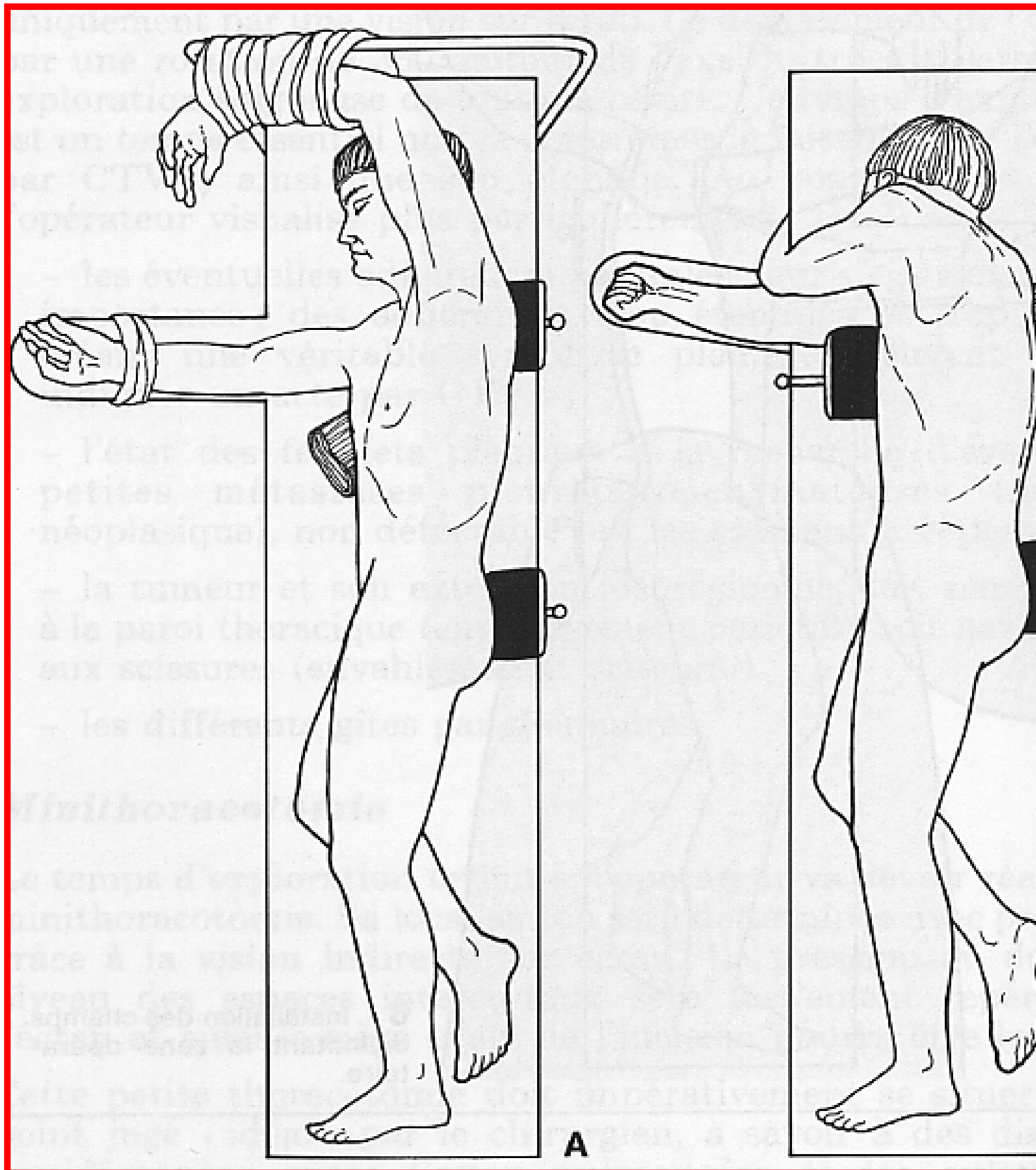


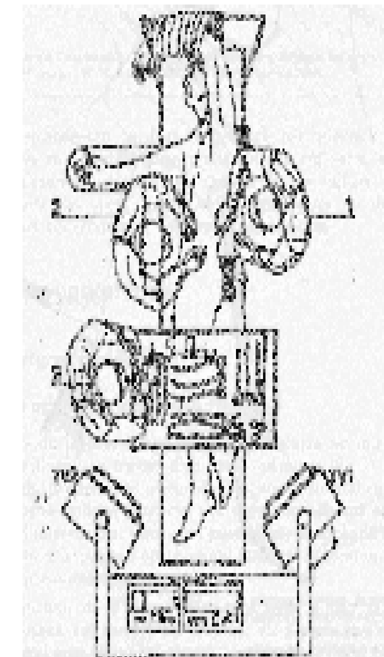


VATS

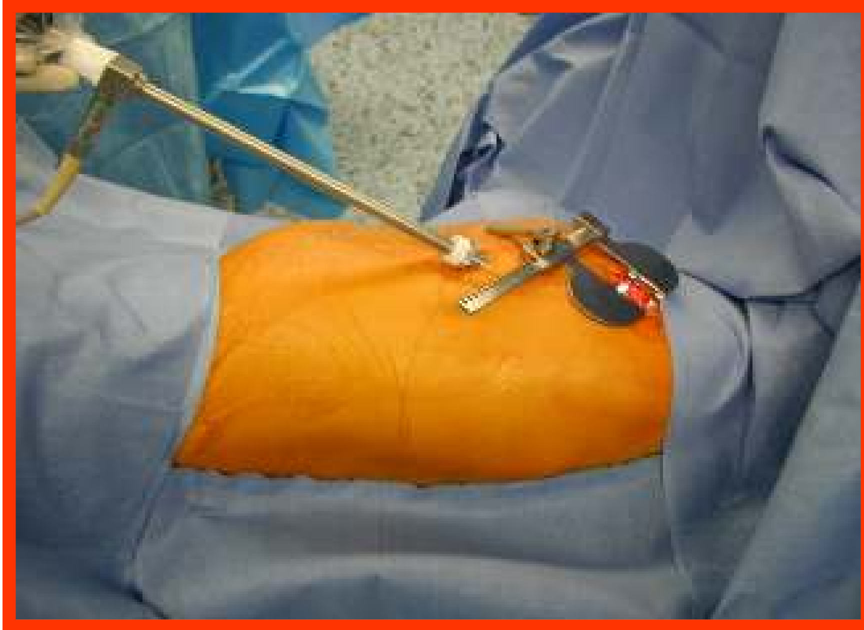
General Anesthesia

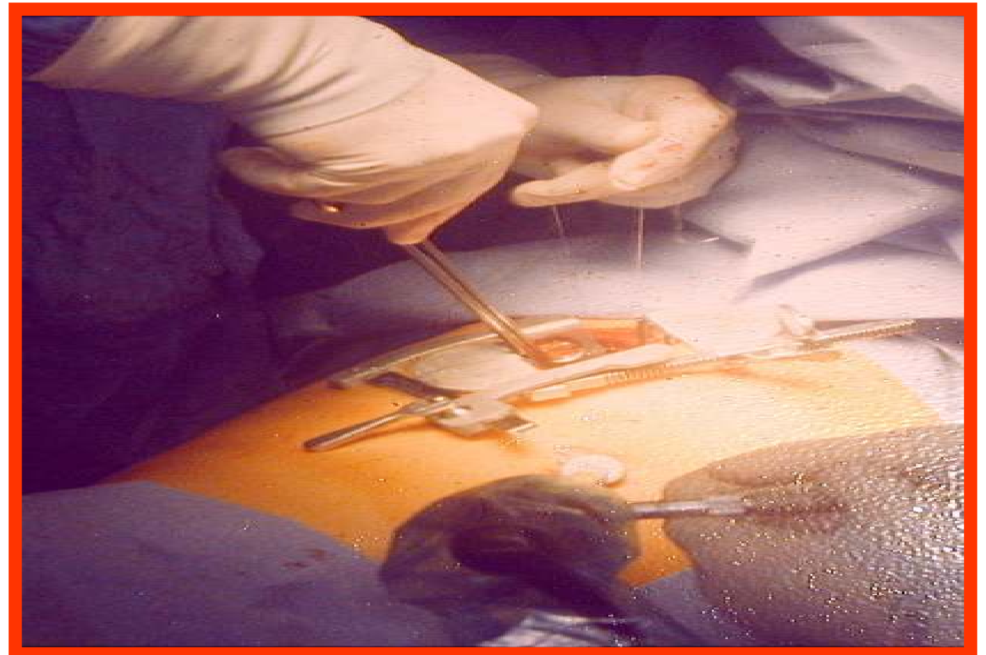
Selective intubation



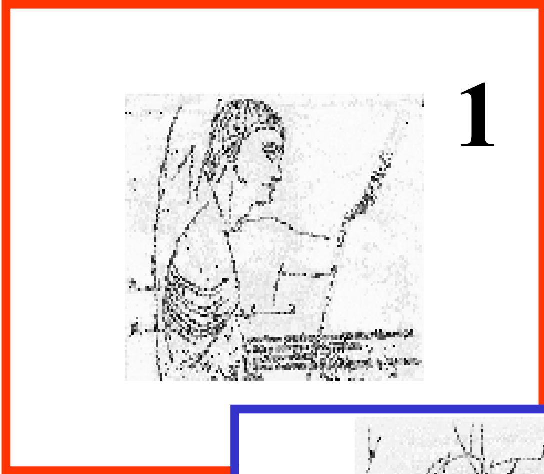


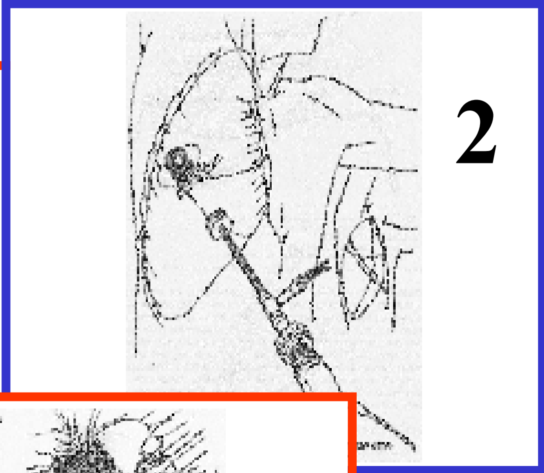
VATS : Technique

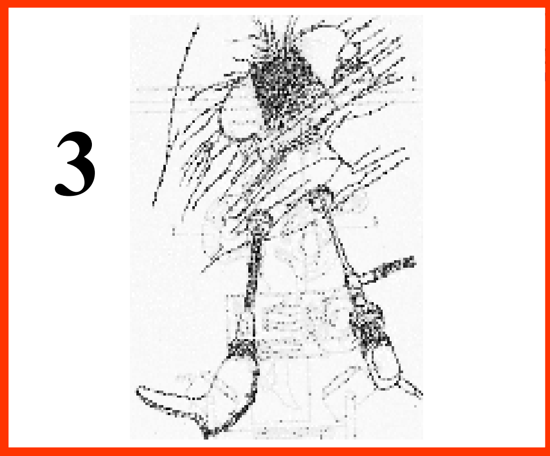


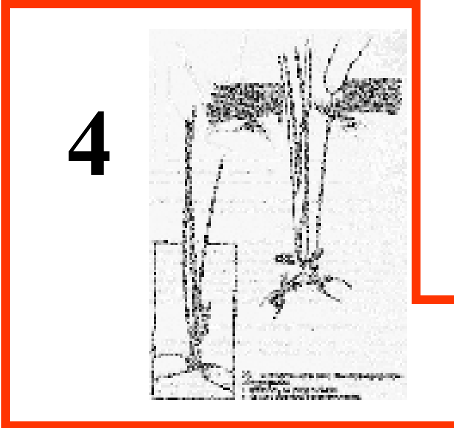


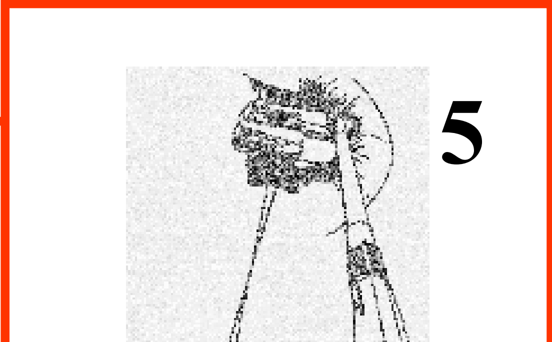
VATS Technique

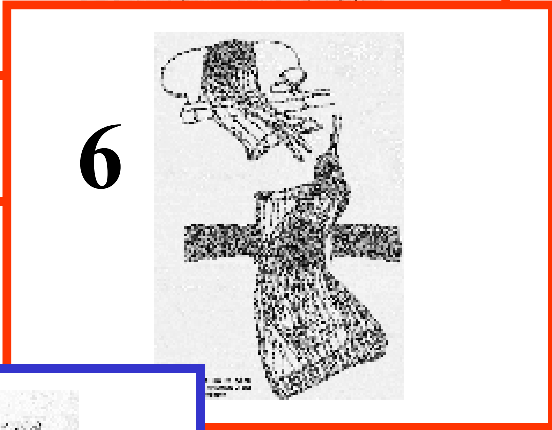


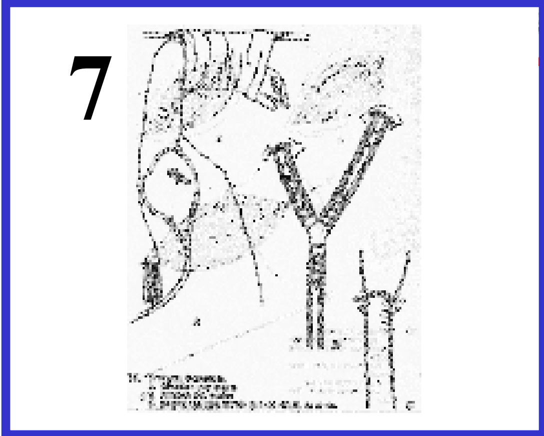












Conclusions of the study

* Muscle sparing thoracotomy (MST) versus PLT (prove level n°2) :

- less post operative pain in MST
- same functional respiratory recuperation
- operative field is better in PLT
- surgical security and indications are the same in these two techniques
-results between MST and PLT in a long follow up are the same about :

  thoracic pain, fonctional respiratory and shoulder mobility

Wath about VATS ?

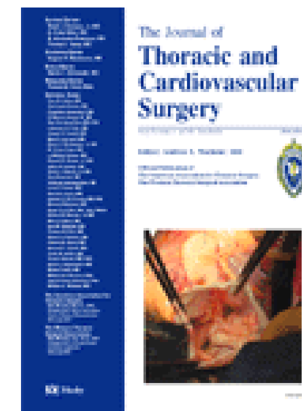
Major resections by Mini-thoracotomy (VATS)

Lobectomy-video-assisted thoracic surgery versus muscle-sparing thoracotomy. A randomized trial.

Two bénéfits

Less pain in post-op period

Esthetic benefit



TJ. Kirby *et al.* J Thorac Cardiovasc Surg 1995; 109: 997-1001

Major pulmonary resections by VATS

Table 3. Mean Daily Values From the Visual Analog Scale

Time	VAMT	MST	p Value
Pain reference	0.79 ± 0.33	0.41 ± 0.38	NS
Day 1	1.88 ± 0.67	3 ± 0.94	<0.05
Day 2	1.18 ± 0.44	2.67 ± 0.98	<0.003
Day 4	1.04 ± 0.38	2.13 ± 0.9	<0.008
Day 8	0.68 ± 0.39	1.29 ± 0.68	NS

MST = muscle-sparing thoracotomy; NS = not significant; VAMT = video-assisted minithoracotomy.

rates, including the operative mortality as well as any cancer-related and unrelated death, were 62.8% (confidence interval (CI): 56.8–68.7%) vs. 62.9% (CI: 51.4–74.4%), respectively ($P = 0.60$). The advent of VATS did not influence the patients' survival: 5-year survival rate was 63.9% (CI: 55.3–72.5%) for the period from 1990 to 1992, and 58.8% (CI: 51.7–65.9%) for the period from 1993 to 1999 ($P = 0.65$). Subgroups survival analysis according to the T status did not show any statistically significant difference between the two groups. **Conclusions**: VATS lung resection with lymph node dissection achieved a 5-year survival similar to that achieved by the conventional approach. VATS is a valuable option for the management of selected patients with an early-stage NSCLC. © 2002 Elsevier Science B.V. All rights reserved.

This study include

Surgical thoracic approches

Pulmonary resection

Lymphadenectomy

Extended resection

Bronchial suture protection

PULMONARY RESECTION

We must remember

* **Mortality in post operative period** up to 30 days **(prove level n°2)** is:

  2 to 5% after lobectomy and 5 to 15% after pneumonectomy

* **Survival at 5 years** in stage1after complete RO resection it's about 60% or more **(prove level n°2)**

* **Local recurrences** risk after limited resection for a non small cell lung cancer stage 1 is more 30% compared to major pulmonary resection **(prove level n°1).**

* **Gold standard resection** in lung cancer disease is major pulmonary resection **(prove level n°1).**

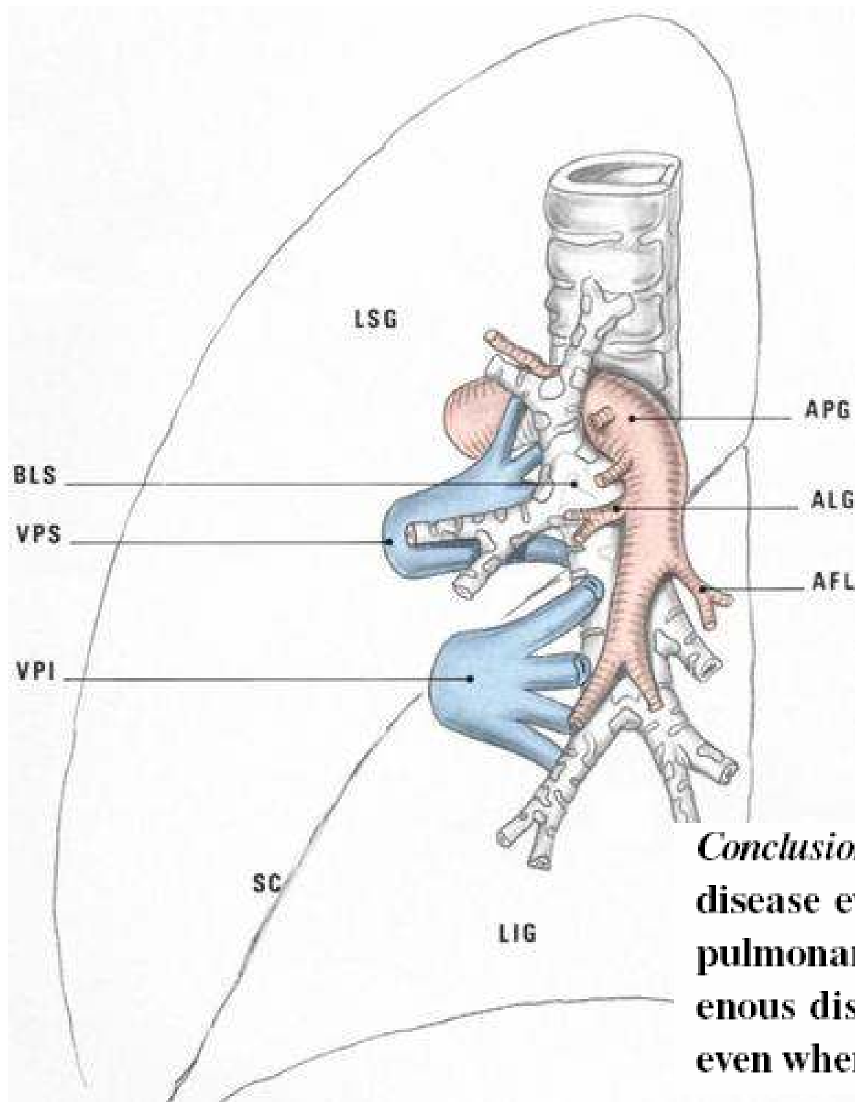
* **Two good alternatives:**

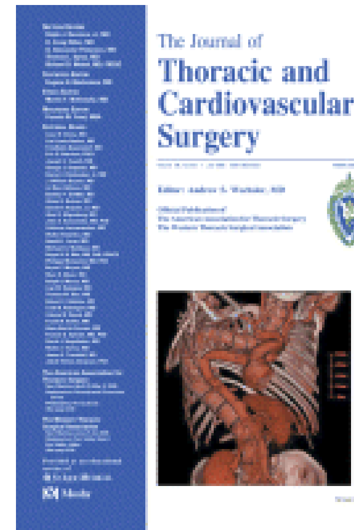
  - Limited resection versur major resection in small tumor in patient with high surgical risk **(prove level n°3).**

  - Bronchoplastic and/or angioplastic lobectomy versus pneumonectomy **(prove level n°2).**

Vasculary sequence during operation

THE SEQUENCE OF VESSEL LIGATION AFFECTS TUMOR RELEASE INTO THE CIRCULATION





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Prove level n°4

30 pts randomisés en 2 groupes selon la séquence des ligatures vasculaires au cours d'une lobectomie pour cancer

Conclusions: Many patients with non–small-cell lung cancer have systemic disease even when they were thought to have resectable tumors. Ligating the pulmonary vein before ligating the artery may lessen intraoperative hematogenous dissemination. Most small-cell lung cancers represent systemic disease even when considered resectable. (J Thorac Cardiovasc Surg 1998;116:107-13)

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LYMPHADENECTOMY

Conclusions

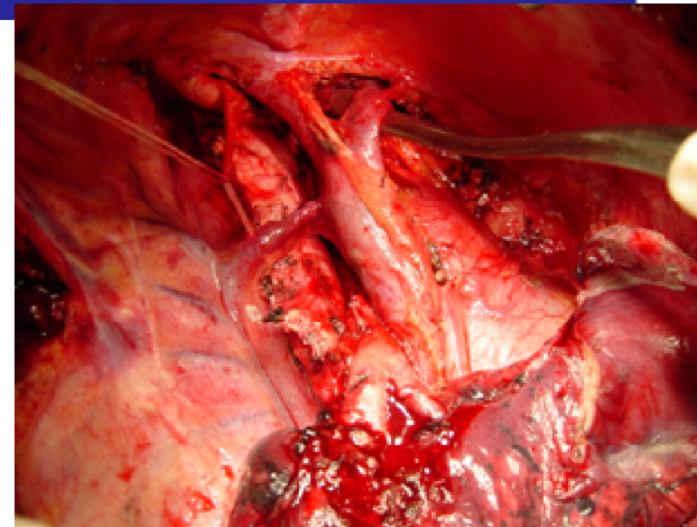
* Systematic lymphadenectomy (SL) : in this technique, scissural, hilary and mediastinal lymph node stations are dissected.

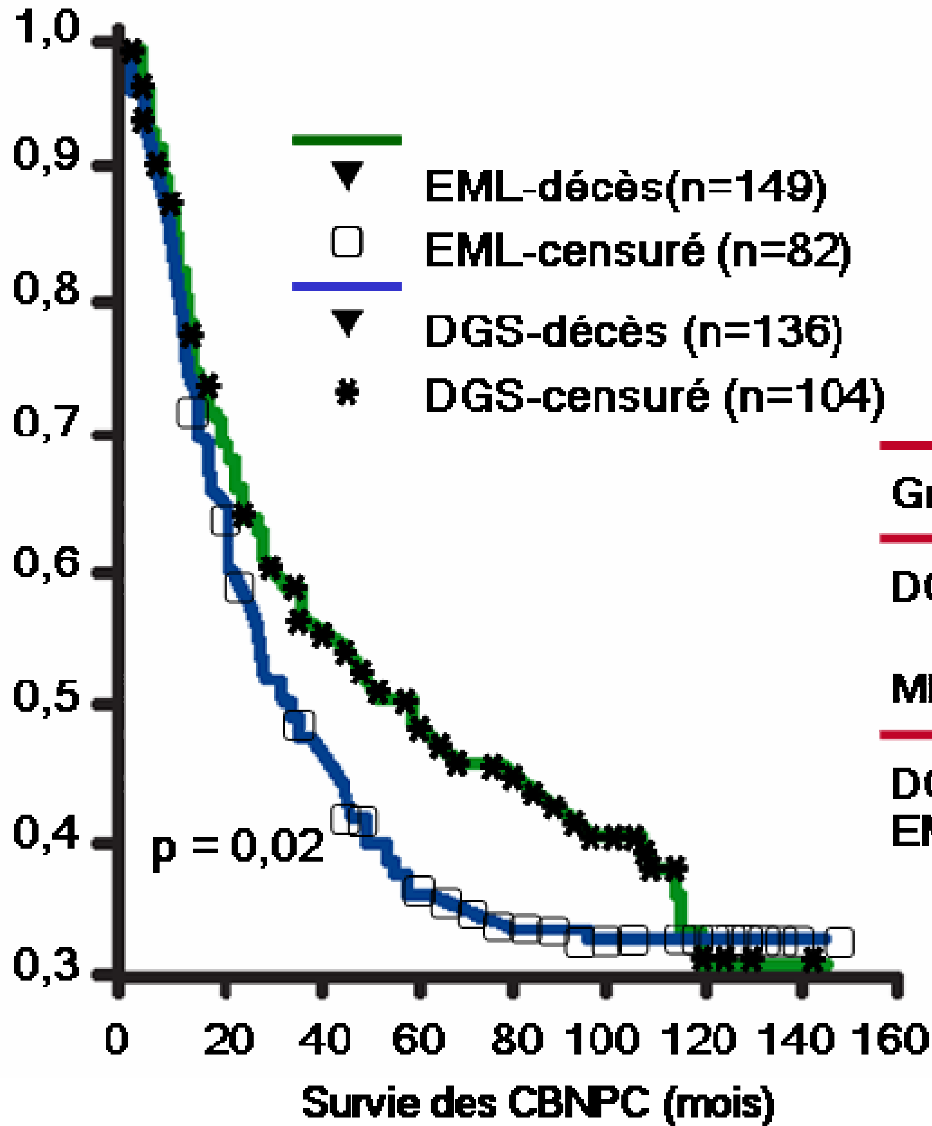
* Lymph node stagging is better by SL than lymph node sampling (Prove level n° 2).

* SL improve the global survival and reduce recurrences and metastasis risk (Prove level n°1)

* SL don't increase the post operative morbi-mortality (chylothorax, recurrential paralysis, bronchus fistula, haemorrhagic risk and acute respiratory distress syndrome) (Prove level n°1).

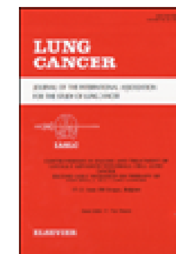
Lynphadenectomy evaluation





Group of trt	N	Recurrences (%)	Metastases (%)
DGS	240	7 (2,9%)	54 (22,5%)
MLS	231	11 (4,8%)	71 (30,7%)

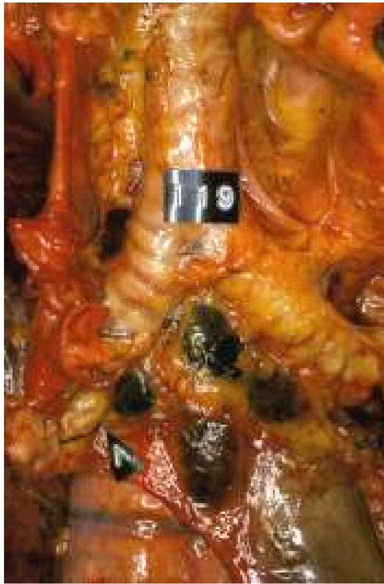
DGS. Dissection ganglionnaire sytématique
EML. Echantillonnage de ganglions lymphatiques médiastinaux

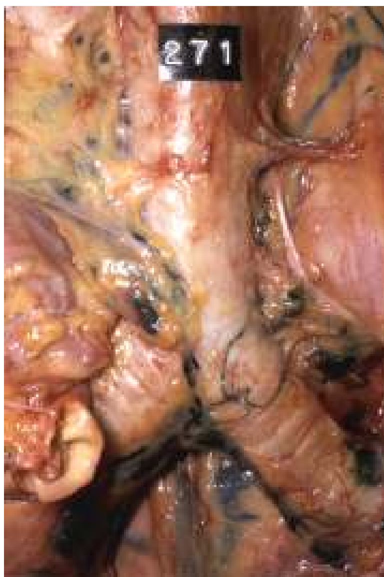


Prove level n°1

Wu Y. *et al.* Lung Cancer 2002; 36: 1-6

Lymphadenectomy evaluation

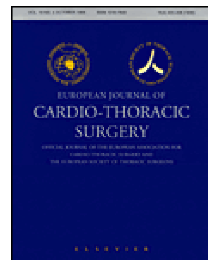




A good mediastinal lymphadenectomy

In minimally - 10 lymph nodes or more are dissected

- 2 or more ipsilateral lymph node stations must be explored



Does the extent of lymph node dissection influence outcome in patients with stage I non-small-cell lung cancer?☆

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European Journal of Cardio-thoracic Surgery 27 (2005) 680-685

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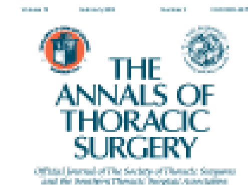
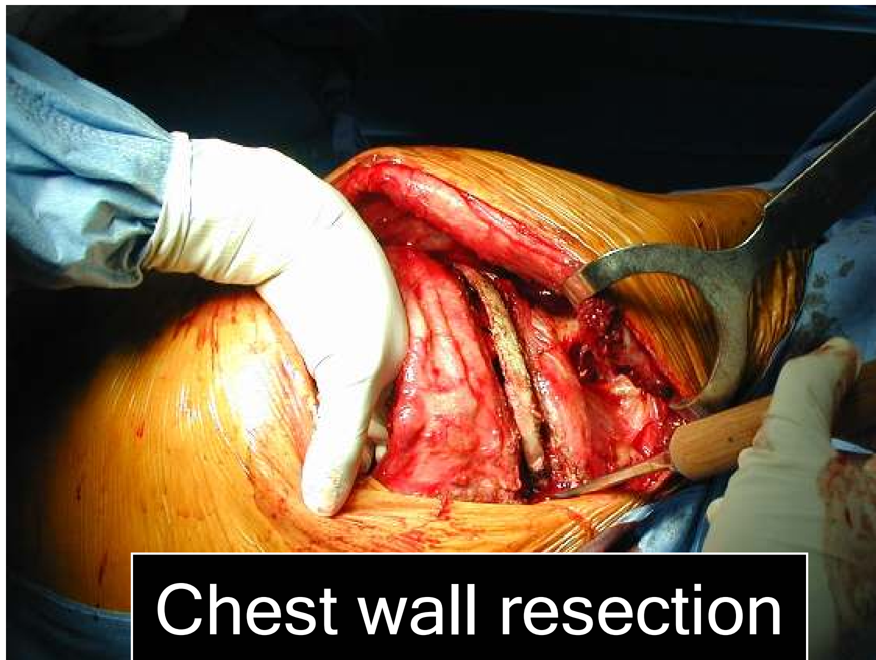
En – bloc - resection

Lung Cancer Invading the Chest Wall: A Plea for En-Bloc Resection but the Need for New Treatment Strategies

Christophe Doddoli, MD, Benoit D'journo, MD, Françoise Le Pimpec-Barthesm
Antoine Dujon, MD, Christophe Foucault, MD, Pascal Thomas, MD, and
Marc Riquet, MD, PhD

Department of Thoracic Surgery, Hôpital Sainte-Marguerite, Marseille, Department of Thoracic Surgery, Hôpital Européen Georges Pompidou, Paris, Thoracic Surgery Unit, Centre Médico-Chirurgicale du Cèdre, Boisguillaume, and UPRES EA 2201, IFR Jean Roche, Marseille, France





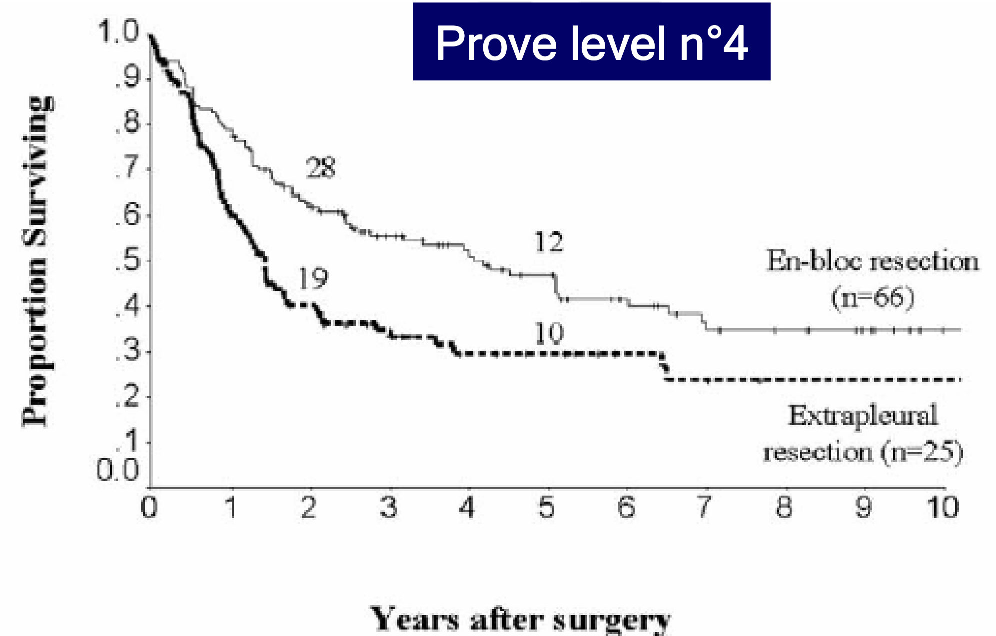


Fig 3. Overall survival according to the type of resection for tumors involving only parietal pleura in stage IIB patients.

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Bronchial suture protection

Material: - Biologic glue not very or not efficace

- Intercostal muscle, mediastinum flat, pericardium, pleurea

Indications : systematic suture protection after,

* pneumonectomy (Right side +++)
* bronchoplastic lobectomy (ex: sleeve resection)
* pre operative radiotherapic treatment
* and in case of diabetes

(Prove level n°2 - essentially expert opinion)