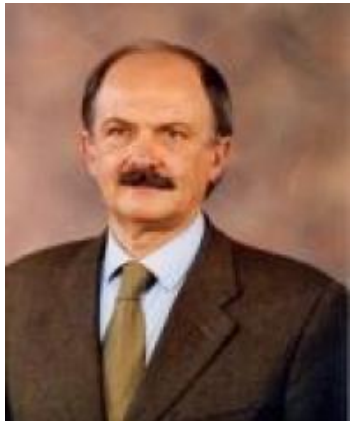
SINGLE-PORT VATS LOBECTOMY IN THE TREATMENT OF NSCLC

Dr Dong Minh Hung

Bach Mai Hospital was established in 1911
The largest hospital in the Northern of Vietnam
with 3000 patients beds

Thoracic Surgery Dep established in 2018
50 patients beds
starting with uniport VATS technique in 2019

H. Morriston Davies (1879–1965).



Giancarlo Roviaro

Franca Melfi

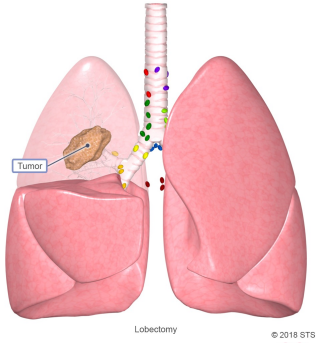
Diego Gonzalez Rivas

Open surgery
1912

VATS
1991

RATS
2002

Uniport VATS
2010



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Uniportal VATS live surgery around the world

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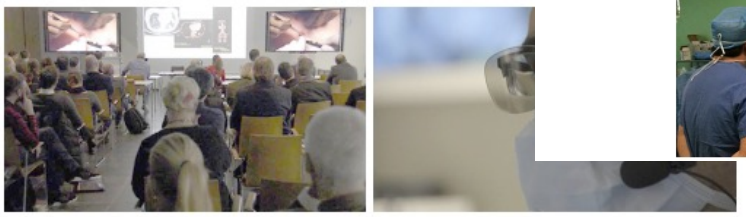
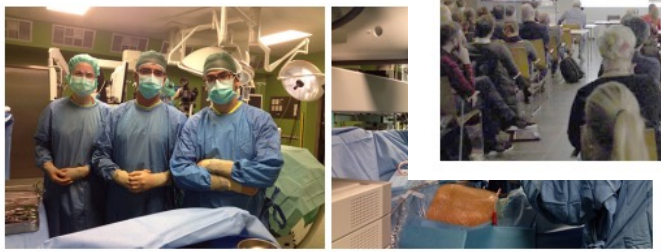
24 October 2015, Shanghai, China

19–21 February 2015, Berlin, Germany

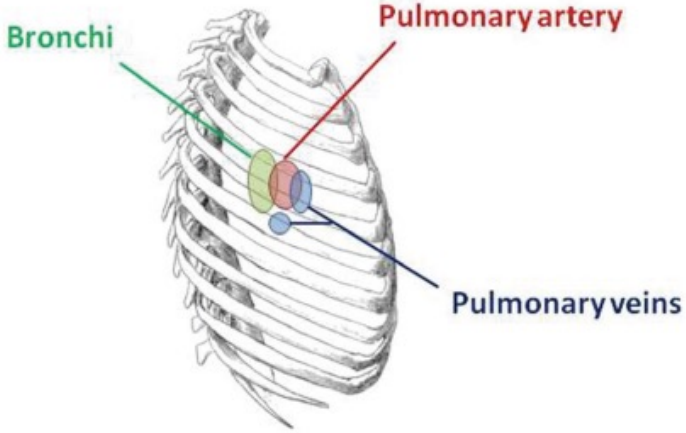


20 November 2014, Udine, Italy

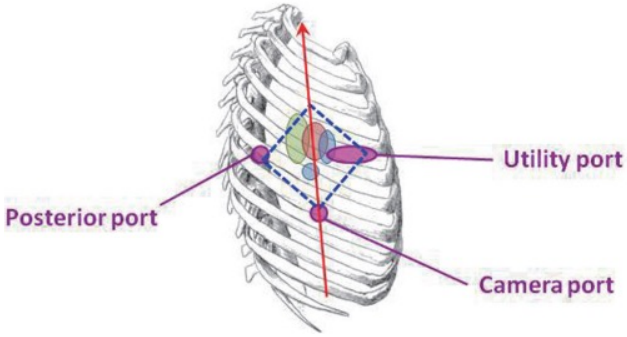


22 November 2014, Cambridge, UK

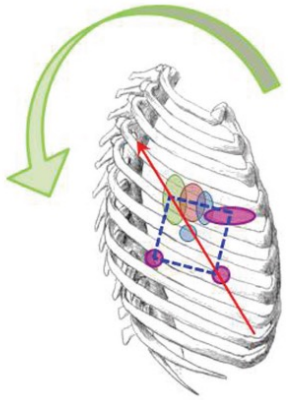
U-VATS: EVOLUTION OF VATS



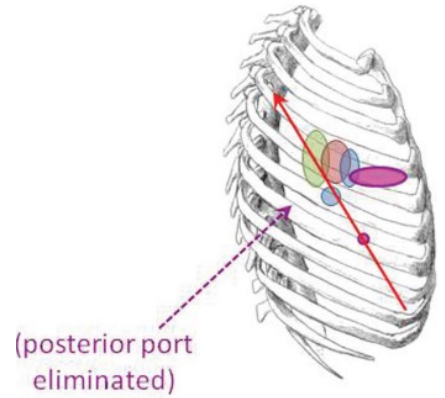
Right lung hilum



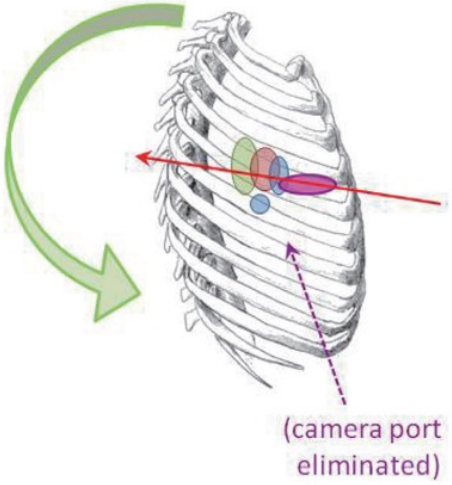
Clasic 3-port VATS



Modified 3-port VATS



2-port VATS

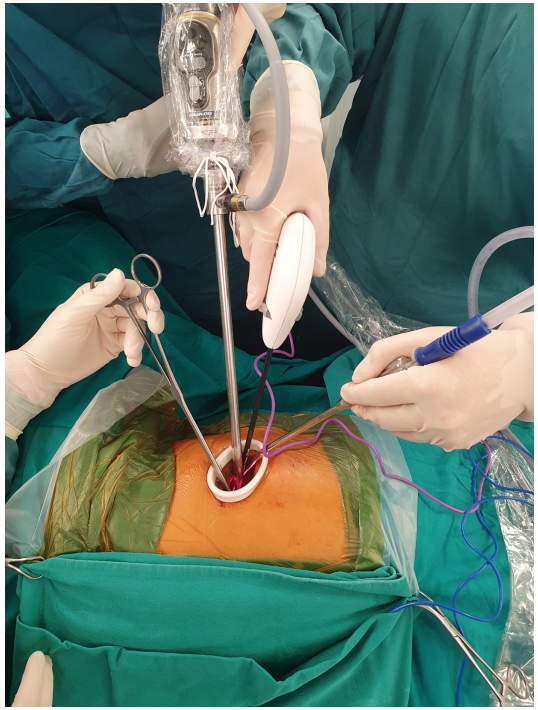


u-VATS

- The visual axis: from camera, through the wound to monitor
- The surgeon works along this axis ensuring that the visual and operative axis are the same
→facilitates hand-eye coordination

- reducing the number of wounds
→ Less pain
→ Faster recovery

Technical challenge



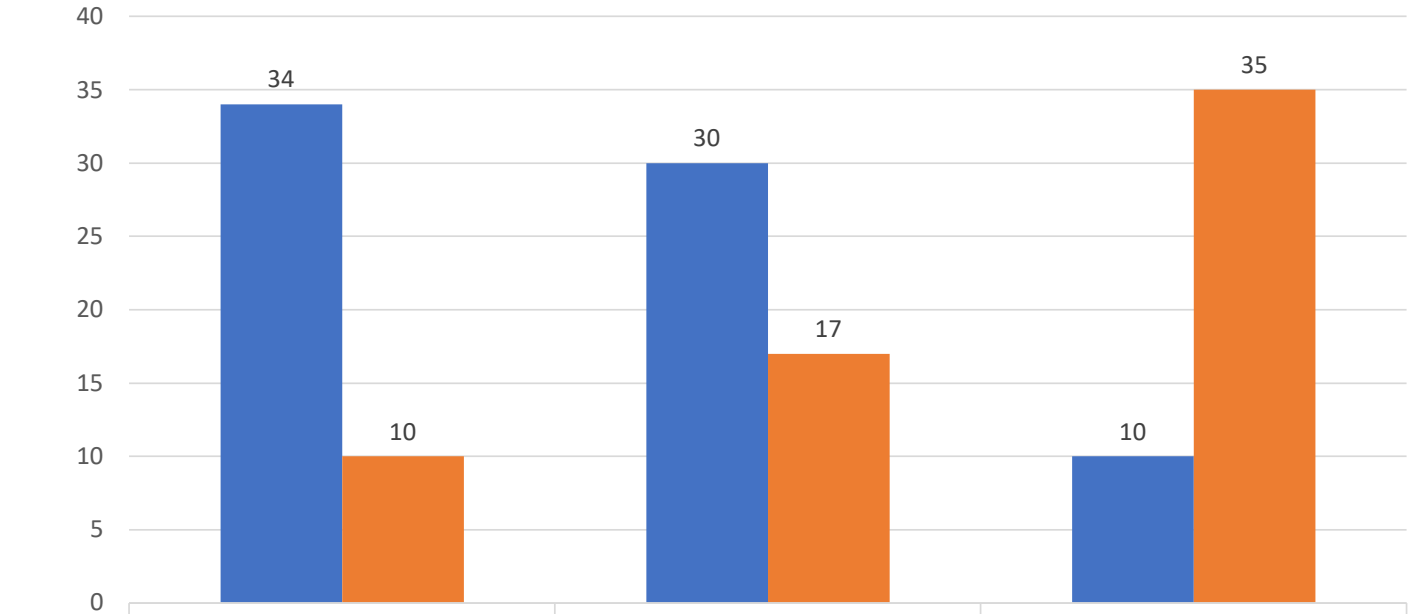
1 insicion for all instruments

→ the surgeon and the assistant are playing a game of ‘Twister’

Safe???

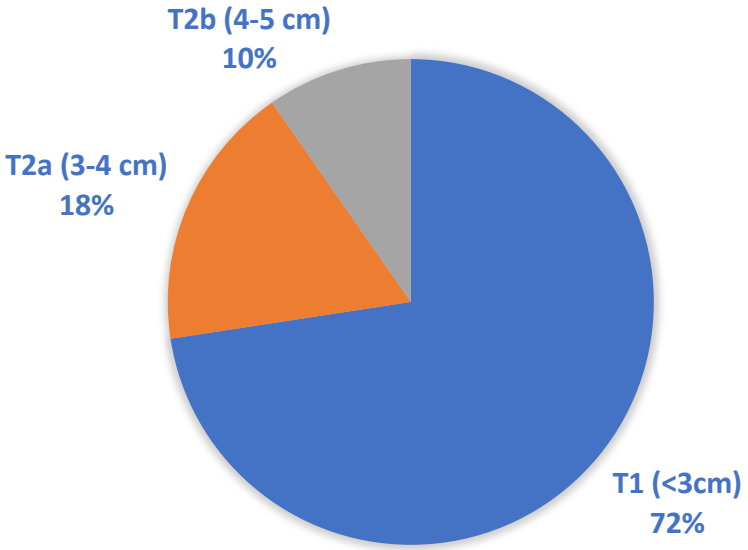
u-VATS or m-VATS??

Number of NSCLC patients under m-VATS and u-VATS lobectomy

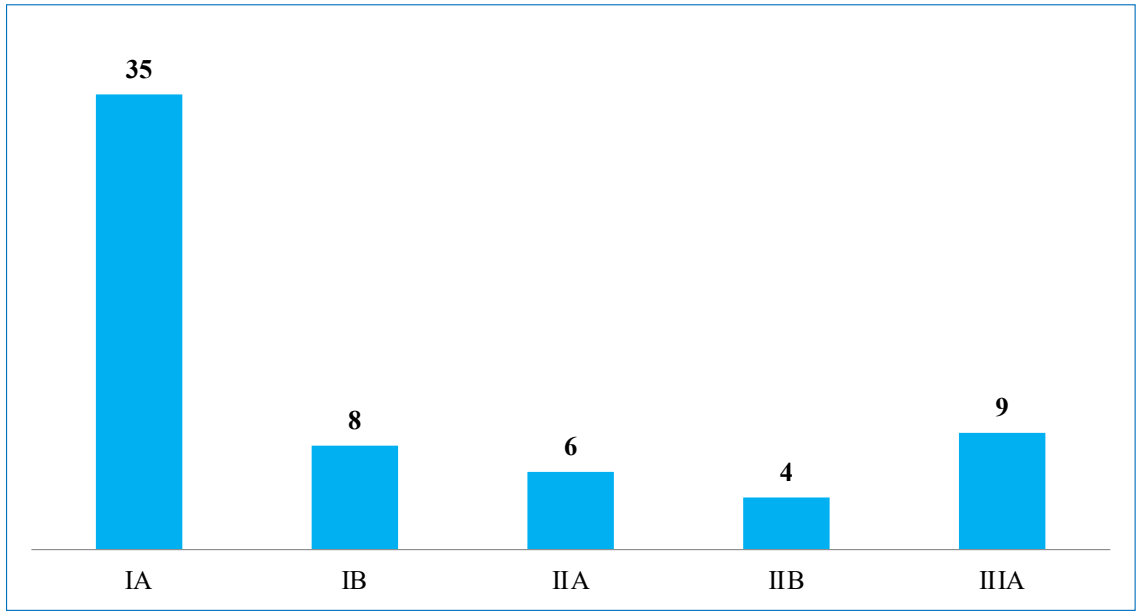


	2021	2022	2023
m-VATS	34	30	10
u-VATS	10	17	35

Patient selection

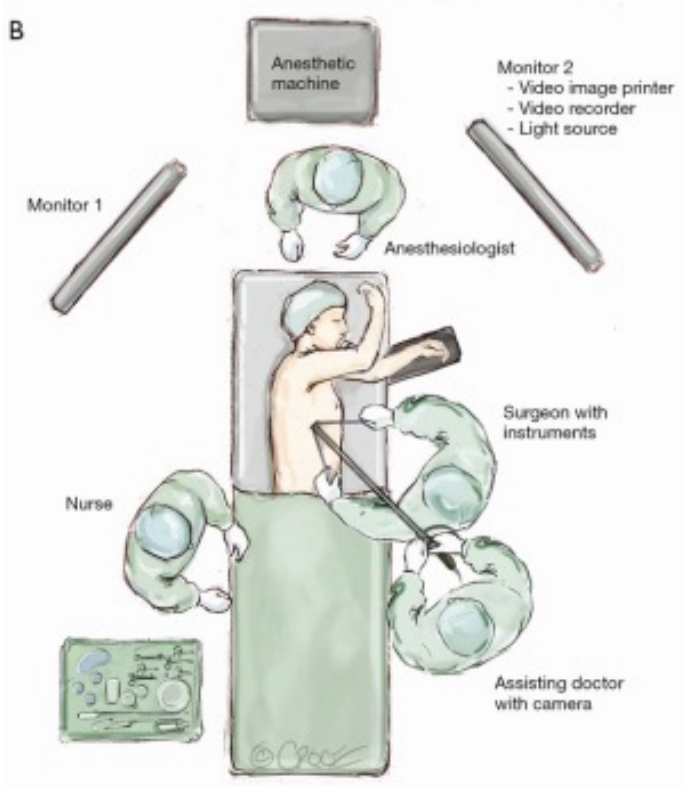


Tumor size (mm): 26.2 ± 10 (9-50)

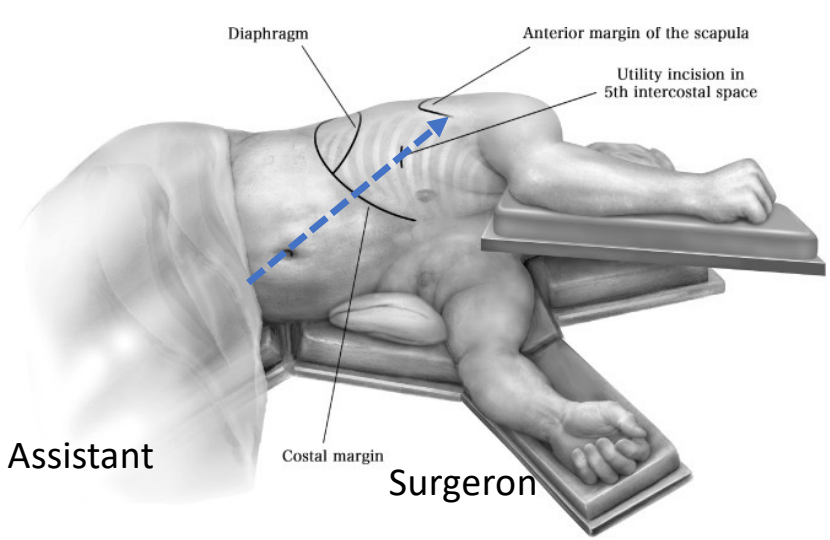


Clinical staging cTNM

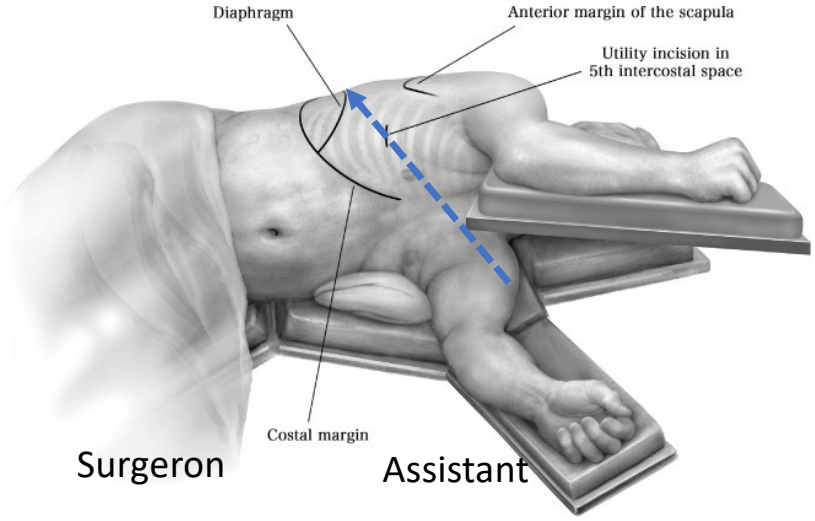
Staff positioning



both surgeons and the assistant stand on the same side, on the ventral side of the patient and watching the same monitor opposite to them

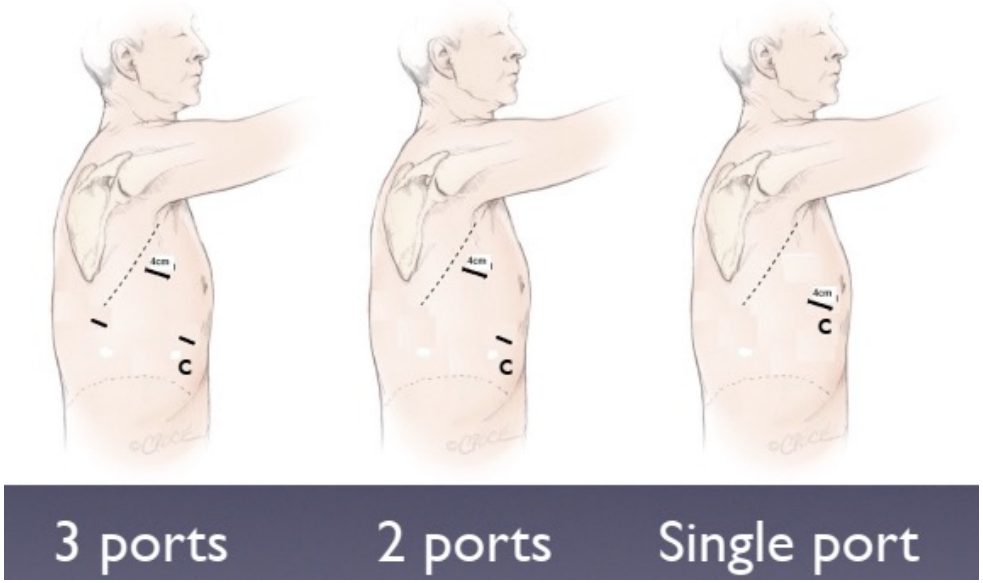


When the surgeon is working on the cranial and middle part of the chest cavity, the assistant must stand on the caudal region of the patient



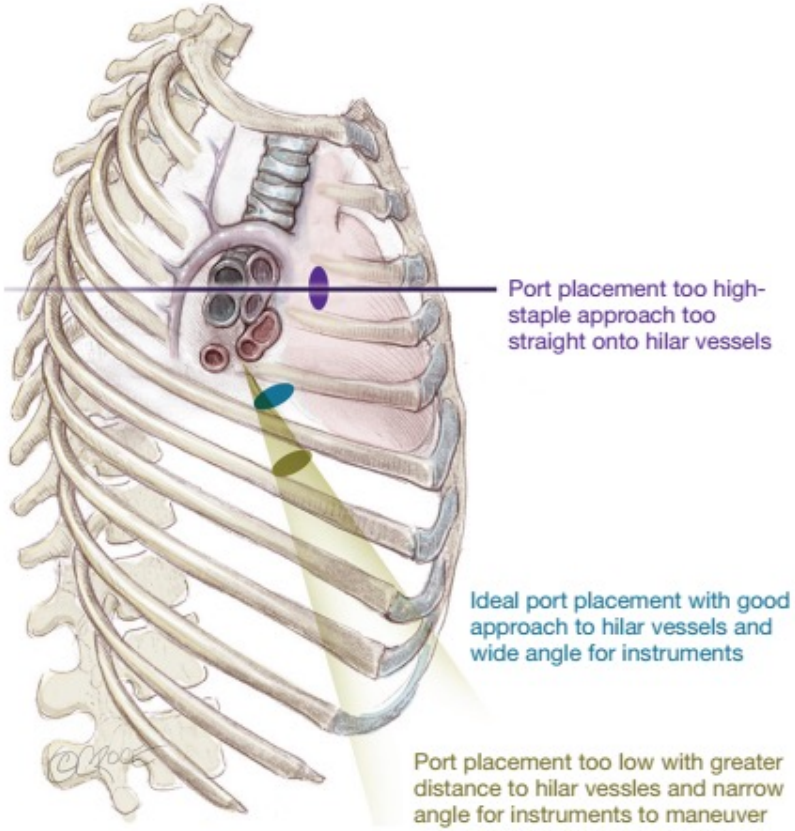
When the surgeon is operating on the caudal part of chest cavity, standing on cranial side of patient is preferable for the assistant

Incision



2–4 cm single incision is usually done in the 5 intercostal space between the anterior and middle axillary line

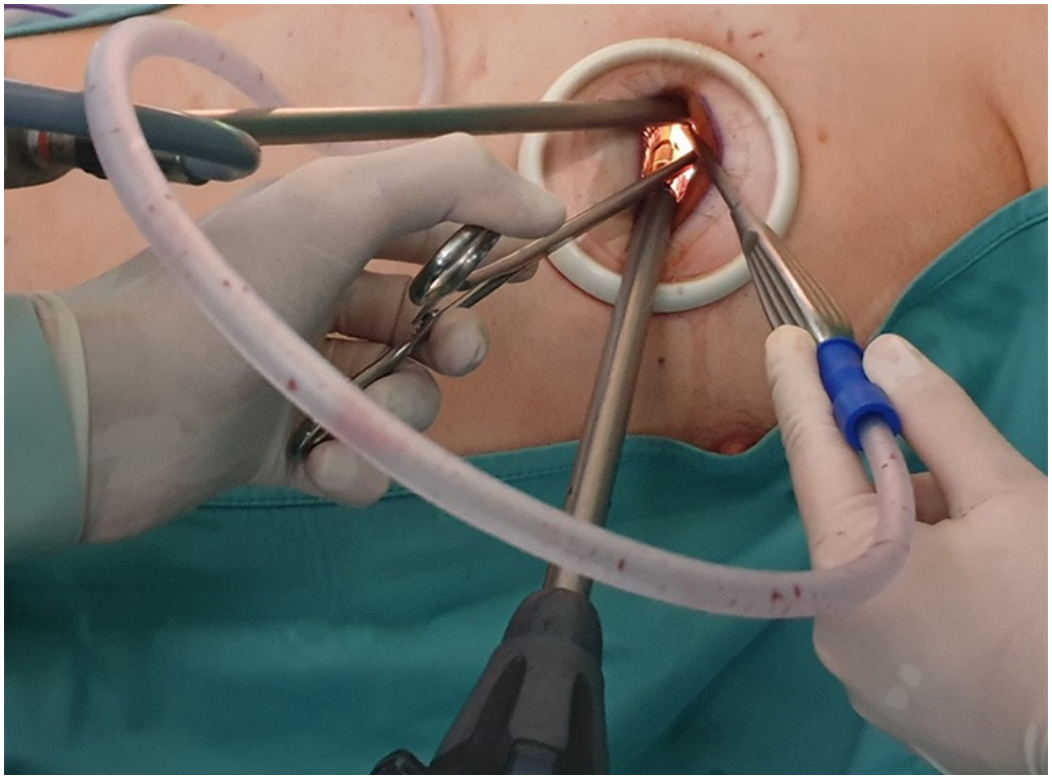
For lesions in upper lobes, central tumors or sleeve resections
→ an incision in the 4 intercostal space may provide better exposure and management.



- **The uniport is too high, the axis of operation is directly into the hilum**
  → dissecting is more comfortable
  → the lack of angle means that the stapler cannot easily negotiate around the hilar vessels

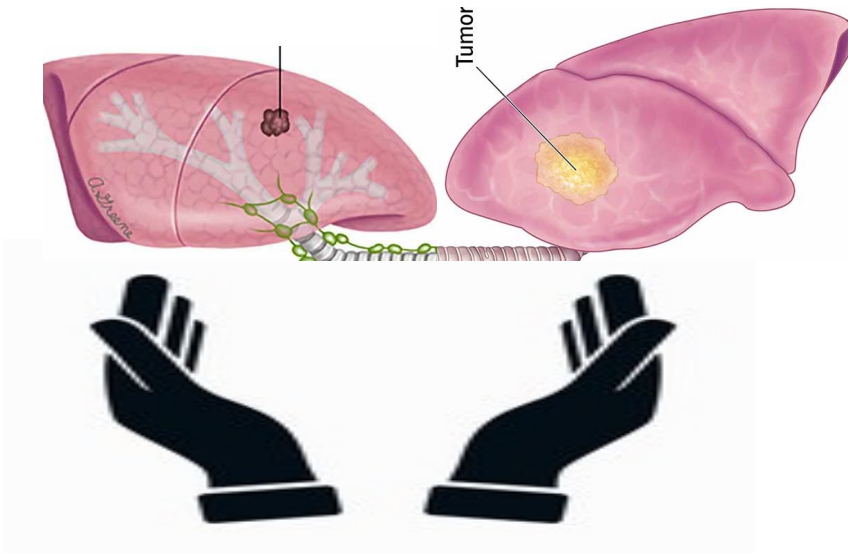
- **The uniport is too low**
  → the axis provides a nice angle of approach for the stapler onto the hilar vessels
  → The arc through which instruments can be inserted to reach the hilum becomes greatly narrowed

Position of all instruments

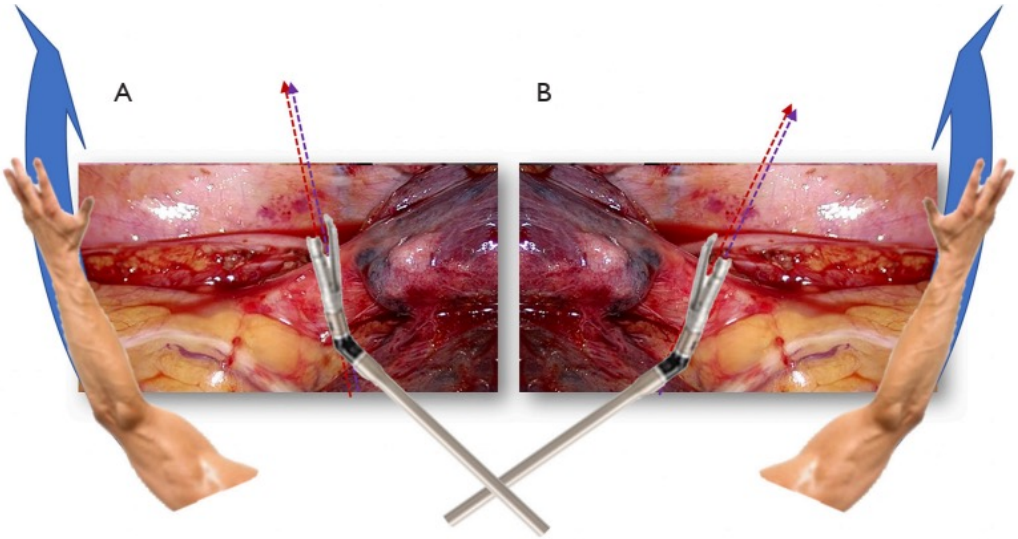


the camera must be always held in the upper part of the incision, while all other instruments must be introduced under it

Directions of the tip of the stapler



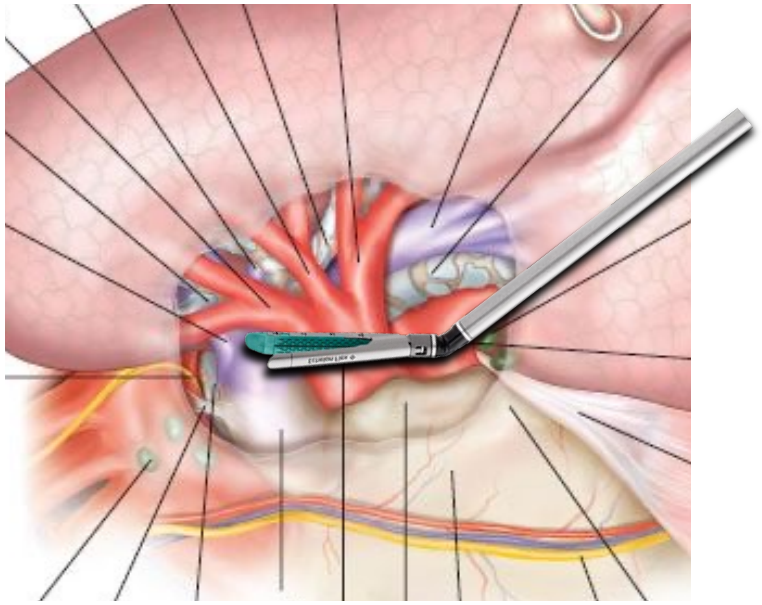
“hand embracing something”

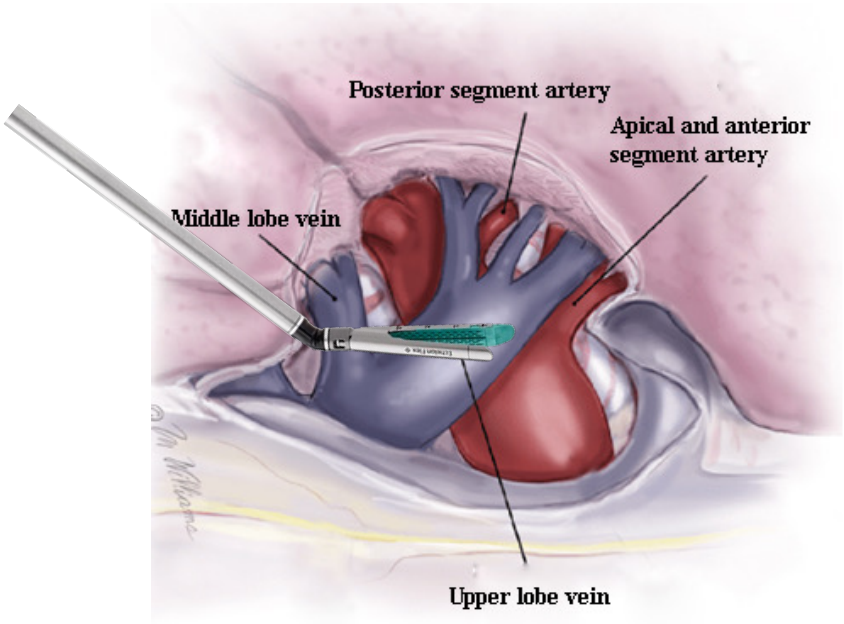


Directions of the tip of the stapler for dissecting the right lower vein (A) and the left lower vein (B)

sequence of pulmonary vessels ligation

PA first or PV first??





Left upper lobectomy

anterior and apical segmental artery, upper vein, posterior segmental artery, upper bronchus and fissure

Right upper lobectomy

dividing the anterior arterial trunk in order to facilitate the insertion of the staplers in the upper lobe vein,

Result

variale	n	%
Conversion to open sur	2	3.2%
Mortality	0	0%
postoperative drainage (day)	4.3±1.98 (2-13)	
postoperative pain (VAS)	3.4±0.97 (2-6)	

variale	First 30 cases	From 31 -62	overall
- operative time (minutes)	169 ± 60.9 (105-345)	**140 ± 29 (100-200)**	156 ± 50.5 (100-345)
- bleeding volume (ml)	172 ± 171.5 (50-700)	**106 ± 74 (50-300)**	140 ± 137.5 (50-700)

Study	Year	No of patients		Result	
		m-VATS	u-VATS	u-VATS = m-VATS	u-VATS > m-VATS
Xinyu Yang	2018	892	629	**- Mortality** **- Conversion** **- Lymph node dissection** - operative time	- bleeding volume - postoperative drainage - postoperative pain - complications
Wenlong Yang	2019	738	854	**- Lymph node dissection** **- complications**	- operative time - bleeding volume - postoperative drainage - postoperative pain
Ya-Fu Cheng	2022	2257	1428	**- Conversion** **- Complications** **- Lymph node dissection** - operative time	- bleeding volume - postoperative drainage - postoperative pain
Yuan Li	2023	5299	3378	**- Mortality** **- Conversion** **- Lymph node dissection**	- operative time - bleeding volume - postoperative drainage

u-VATS = m-VATS

- **- Mortality, overall rate of complications**
- **- Conversion to open sur**
- **- Lymph node dissection**

u-VATS > m-VATS

- - bleeding volume
- - postoperative drainage
- - postoperative pain

Long-term Survival???

Conclusion

- u-VATS is another step in the evolution of VATS
- u-VATS is safe and effective
- Practice makes perfect