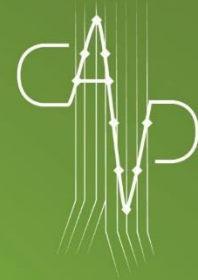




CONTROVERSES ET ACTUALITES EN CHIRURGIE VASCULAIRE

CONTROVERSIES & UPDATES IN VASCULAR SURGERY

JANUARY 23-25 2020



MARRIOTT RIVE GAUCHE & CONFERENCE CENTER | PARIS | FRANCE

Pulmonary resections incorporating the
pulmonary artery:
Benefit of cryopreserved PA

Jean-Philippe BERTHET
Thoracic surgery department - Nice

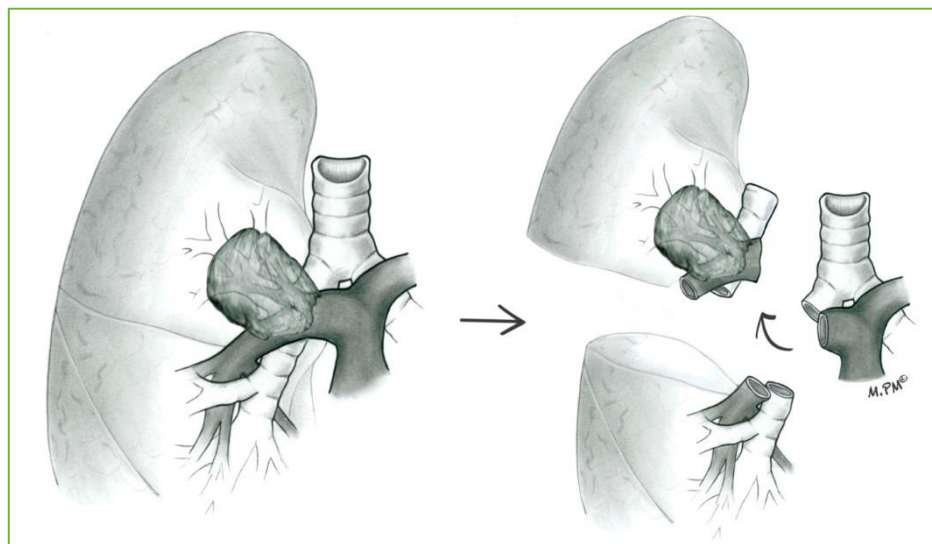


Disclosure

Speaker name:

Jean-Philippe BERTHET MD, PhD

I do not have any potential conflict of interest



Remerciements

*Hospital Clinic BCN
surgicak department*

CHUM surgical team

CHN surgical team

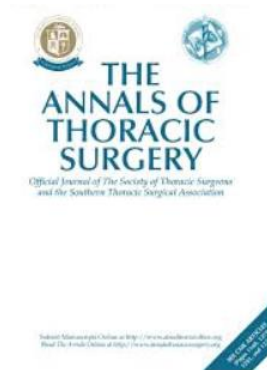
Pr Abel Gomez-Caro



Lung sparing surgery in centrally located NSCLC

« Sleeve lobectomy vs Pneumonectomy »

- QOL
- Mortality
- Functional loss
- Multimodal therapy
- Therapeutic options in recurrence
- Oncologic value



Ma et al. *Journal of Cardiothoracic Surgery* 2013, 8:219
<http://www.cardiothoracicsurgery.org/content/8/1/219>

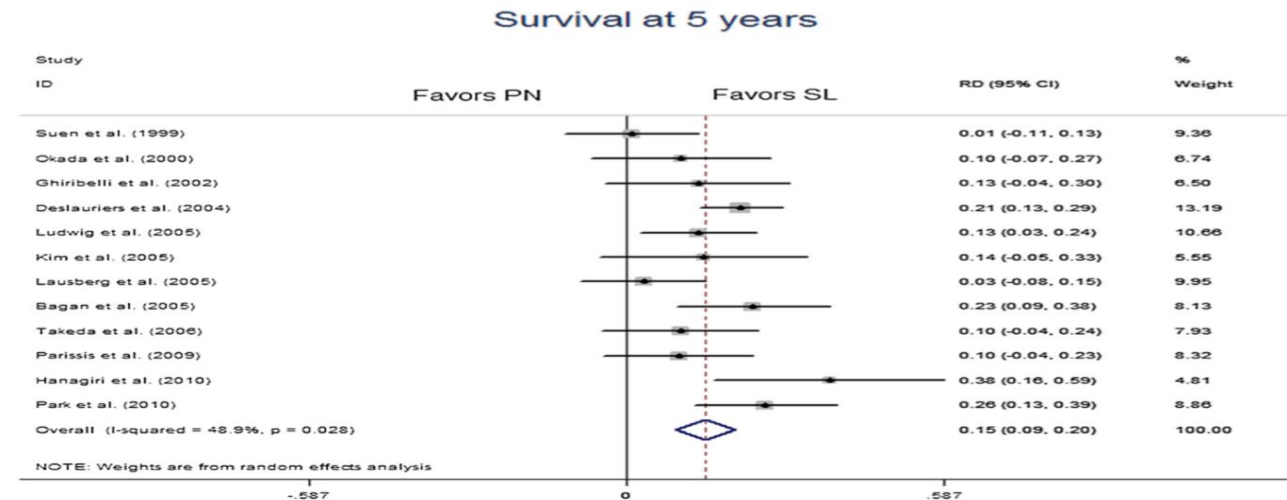
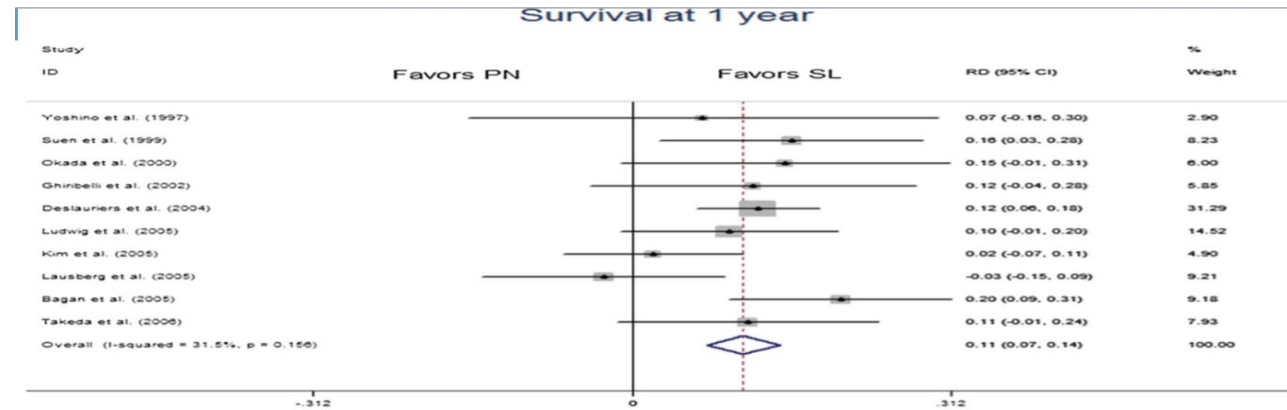


RESEARCH ARTICLE

Open Access

Surgical techniques and results of the pulmonary artery reconstruction for patients with central non-small cell lung cancer

Qianli Ma^{1,3}, Deruo Liu^{1*}, Yongqing Guo¹, Bin Shi¹, Yanchu Tian¹, Zhiyi Song¹, Zhenrong Zhang¹, Bingsheng Ge¹, Xiaofei Wang² and Thomas A D'Amico³





Pulmonary artery replacement in centrally located NSCLC

(ESL)

- Last efforts before pneumonectomy
- Selective cases (0 → 4cas/an)

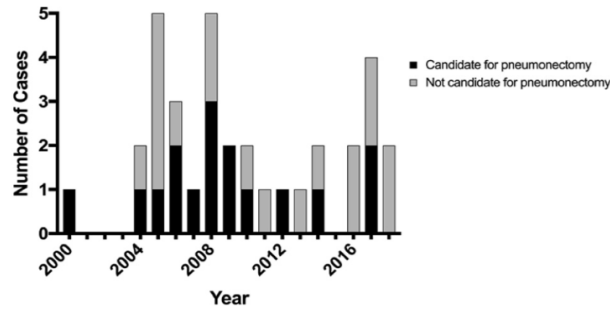


Figure 1. Annual case volume of pulmonary arterioplasty.

Pulmonary Artery Resection During Lung Resection for Malignancy



Maria Lucia L. Madariaga, MD, Abraham Geller, MD, Michael Lanuti, MD, Harald Ott, MD, James S. Allan, MD, Dean M. Donahue, MD, Douglas J. Mathisen, MD, Cameron D. Wright, MD, and Henning A. Gaissert, MD

Division of Thoracic Surgery, Massachusetts General Hospital, Boston, Massachusetts



2019



Long-segment pulmonary artery resection to avoid pneumonectomy: long-term results after prosthetic replacement†

Antonio D'Andrilli^{a,*}, Giulio Maurizi^a, Anna Maria Ciccone^a, Claudio Andreetti^a, Mohsen Ibrahim^a, Cecilia Menna^a, Camilla Vanni^a, Federico Venuta^{b,c} and Erino A. Rendina^{a,c}

N=24 1991-2015



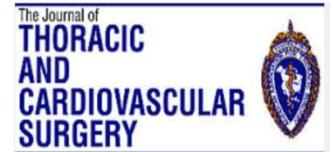
Pulmonary sleeve resection in locally advanced lung cancer using cryopreserved allograft for pulmonary artery replacement

Jean-Philippe Berthet, MD,^{a,b,c} Marc Boada, MD,^a Marina Paradela, MD,^a Laureano Molins, MD, PhD,^a Stefan Matecki, MD, PhD,^c Charles-Henri Marty-Ané, MD, PhD,^b and Abel Gómez-Caro, MD, PhD^a

N=10 2007-2014 *

- CHUM: N=8, 2013-2017
- CHUN: N=3, 22 mois

- 75% left sided





Pulmonary artery replacement in centrally located NSCLC Controversies

1. Morbidity and mortality



2. Oncologic security

3. Technic: Cryopreserved PA allograft?

- Less mortality vs Pneumonectomy
- Associated bronchic sleeve
 - Higher morbidity
 - Higher technical care



TABLE 2. Pulmonary artery reconstruction by different techniques (tangential suture, patch, end-to-end anastomosis, and replacement by conduits)

Source	Period, y	No.	TS/P/EE/C	Conduit type	Mortality/PA thrombosis	5-y Survival, %
Rendina and colleagues, ¹⁴ (1999)	7	52	-/34/15/3	HPP/APP	-/1	38
Shrager and colleagues, ²⁷ (2000)	7	33	19/11/3/0	—	-/-	48
Fadel and colleagues, ² (2002)	20	11	-/-/11/-	—	1 (0.7)/-	52
Lausberg and colleagues, ²⁸ (2005)	7	67	27/1/39/-	—	1 (1.5)/-	43
Cerfolio and Bryant, ²⁰ (2007)	8	42	31/7/4/-	—	1 (2.3)/-	60
Alifano and colleagues, ⁹ (2009)	8	93	90/-/3/-	—	5 (5.4)/-	39.5
Venuta and colleagues, ¹⁰ (2009)	19	105	-/55/47/3	HPP/APP	1 (0.95)/1	44
Galetta and colleagues, ¹³ (2012)	11	47	31/10/4/2	HPP/APP	2 (4.2)/-	39.2
Present study	5	32	-/2/20/10	CAA	1 (2.9)/1 EE and 1 CAA	66

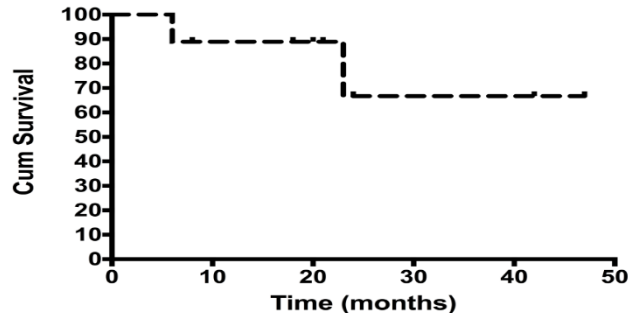
Dashes indicate no conduit was used in these patients. TS, Tangential suture; P, patch; EE, end-to-end anastomosis; C, replacement by conduit; PA, pulmonary artery; HPP, heterologous pericardial patch; APP, autologous pericardial patch; CAA, cryopreserved arterial allograft.

Pulmonary sleeve resection in locally advanced lung cancer using cryopreserved allograft for pulmonary artery replacement



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Pulmonary Artery Replacement Survival



5-yrs OS: 47% (R0, N0)

Long-segment pulmonary artery resection to avoid pneumonectomy: long-term results after prosthetic replacement†

Antonio D'Andrilli^{a*}, Giulio Maurizi^a, Anna Maria Ciccone^a, Claudio Andreotti^a, Mohsen Ibrahim^a, Cecilia Menna^a, Camilla Vanni^a, Federico Venuta^{b,c} and Erino A. Rendina^{a,c}

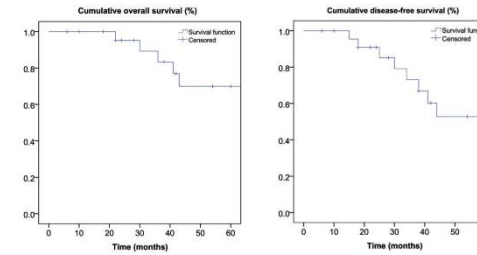


Figure 5 Overall survival curve (Kaplan-Meier).

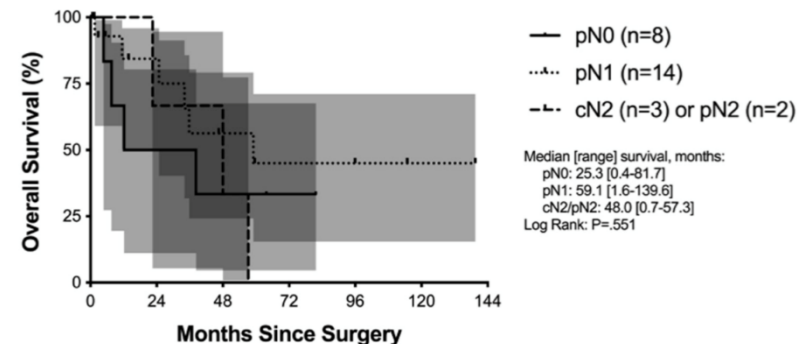
Figure 6 Disease-free survival curve (Kaplan-Meier).

Pulmonary Artery Resection During Lung Resection for Malignancy



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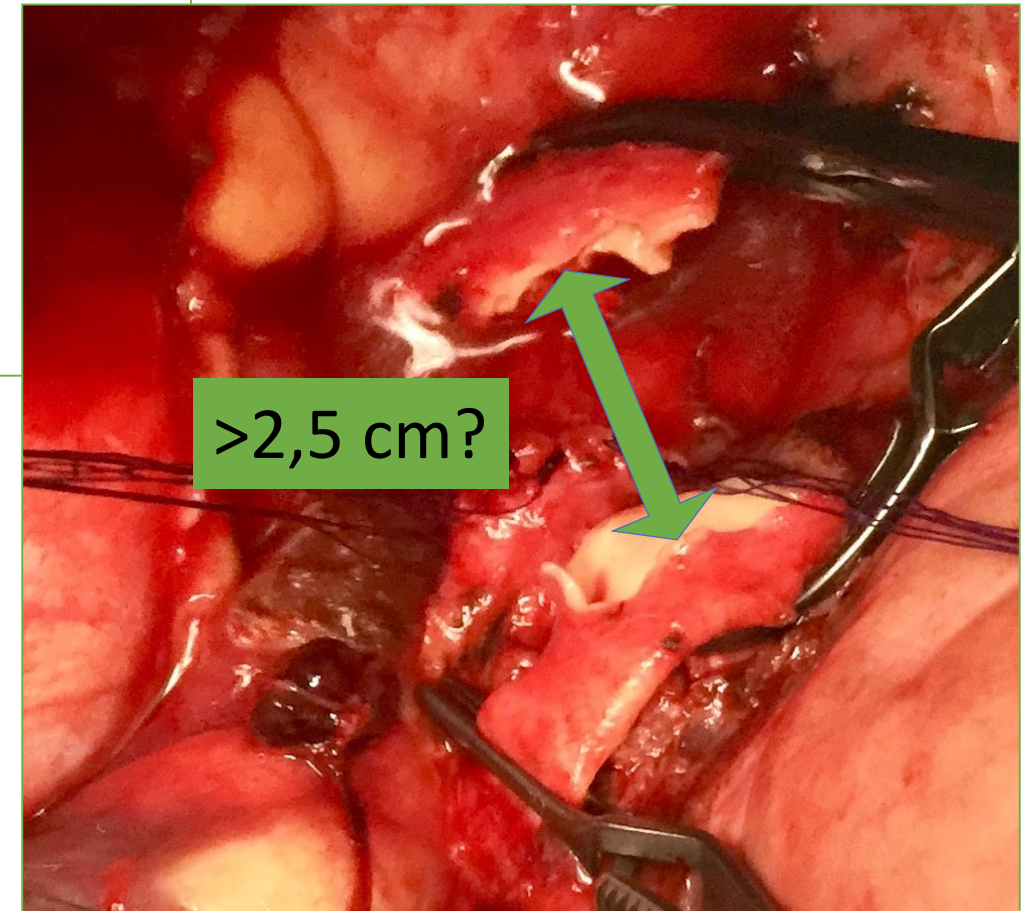
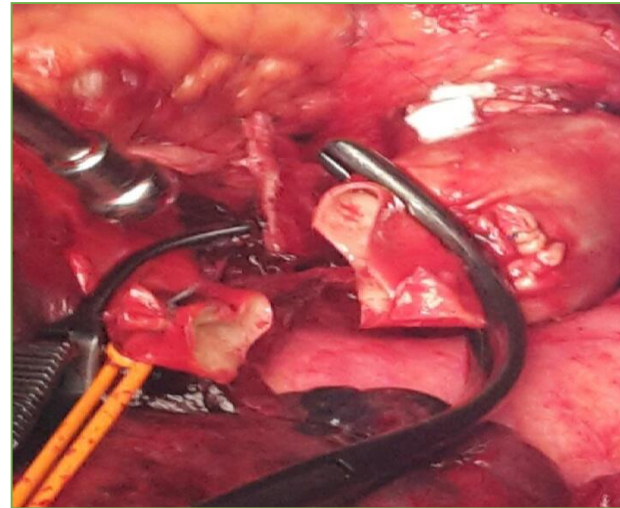
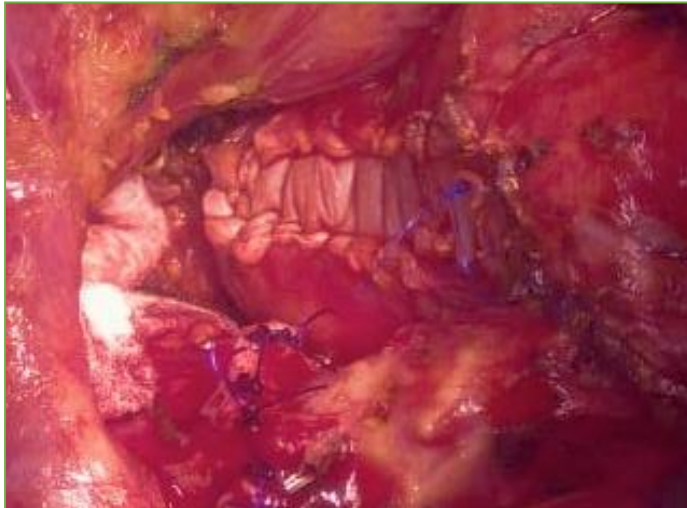


5-yrs:
T2N1>T4N0



Maitrise des différents type de revascularisation

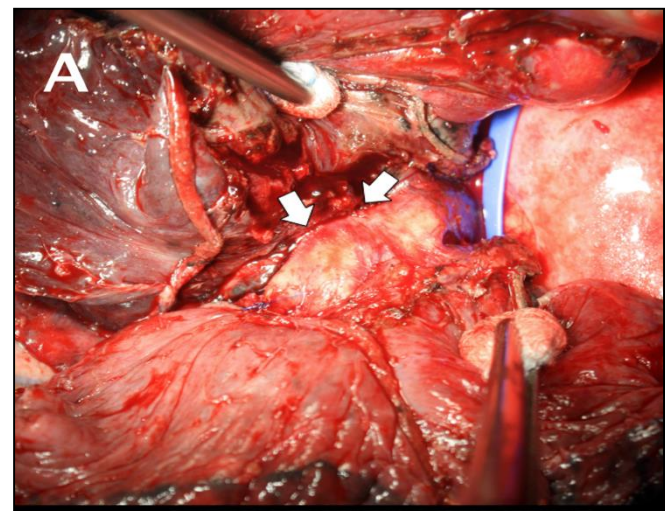
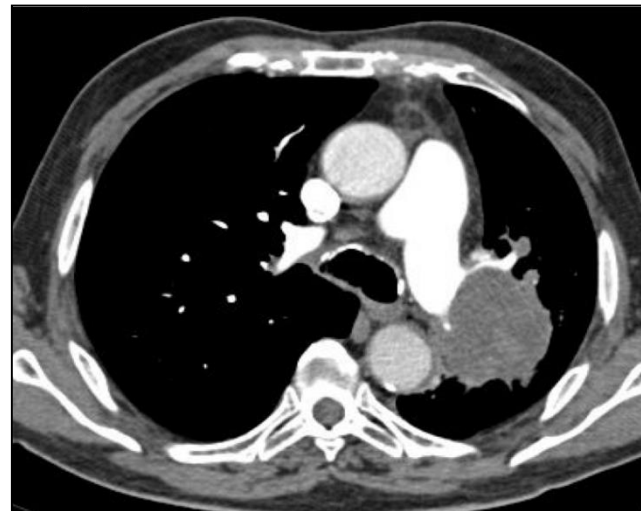
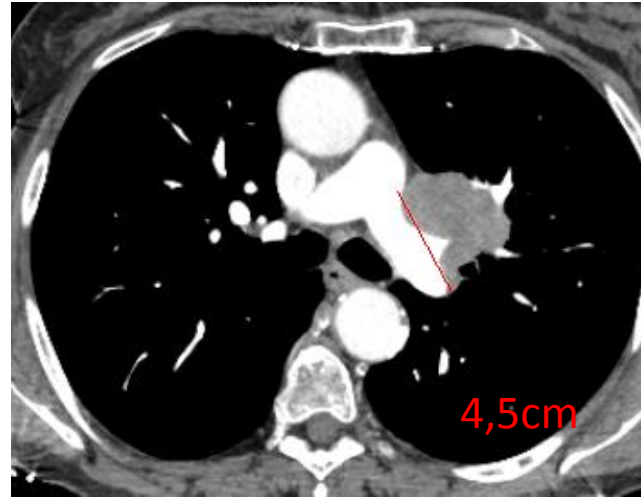
- Résection tangentielle
 - Plastie simple (<1/3)
 - Patch (>1/3)
- Résection circonférentielle
 - Résection anastomose
 - **Pontage lorsque les berges sont trop éloignées**

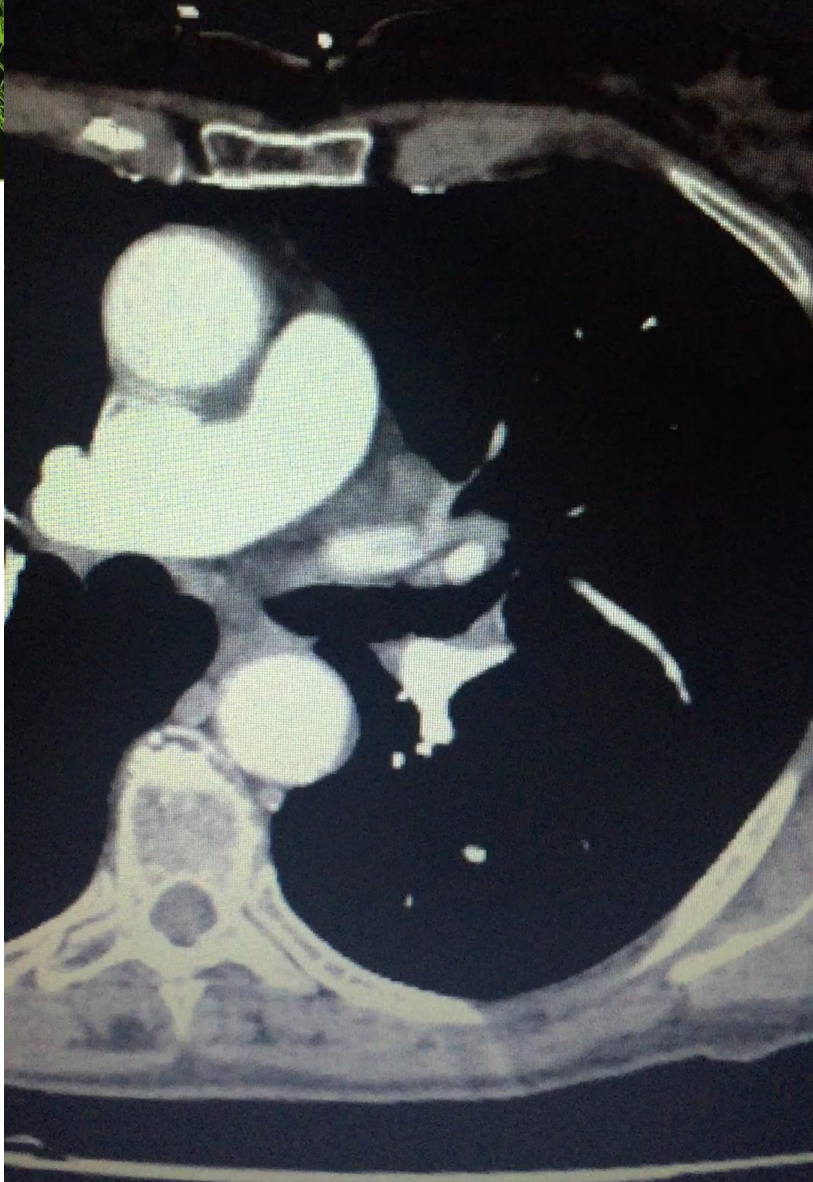




- Aspects pratiques I

- Prévoir le geste?
 - Etude SFCTCV 2017
 - >30% de disponibilité CAA par excès
- Commander la CAA
- TPLS ou Sterno-thoracotomie
 - Envahissement +/- proximal - CPB
 - Lambeau MI
- Contrôle AP
 - Proximale
 - Distale
 - Confirmation macroscopique per-op
 - Décongélation après REB





Résection circonférentielle sous ctrl vue en l'absence de plan de clivage

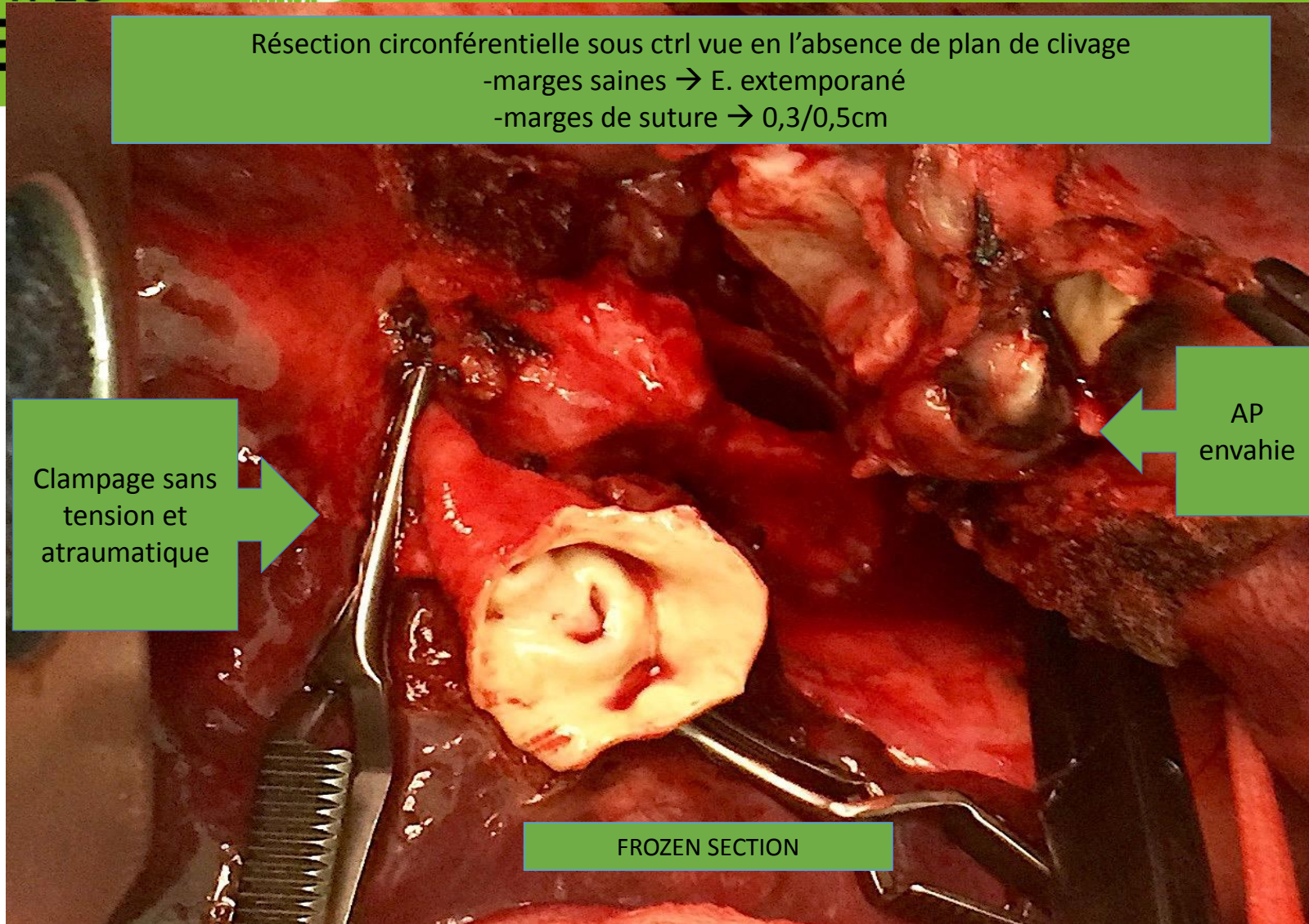
-marges saines → E. extemporané

-marges de suture → 0,3/0,5cm

Clampage sans tension et atraumatique

AP envahie

FROZEN SECTION





- **Aspects pratiques II: Quel substitut?**

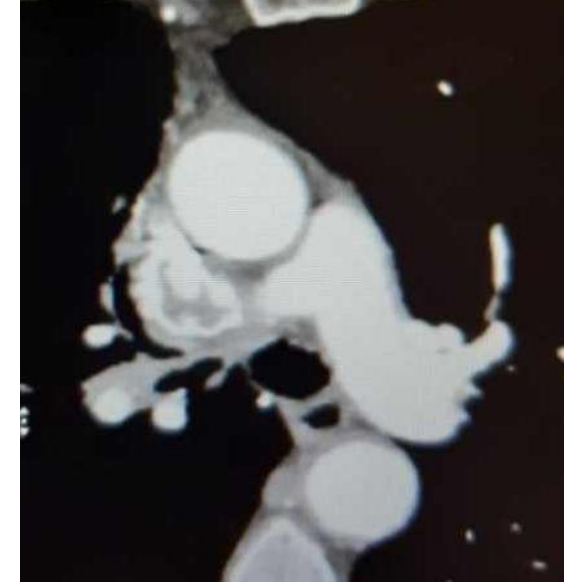
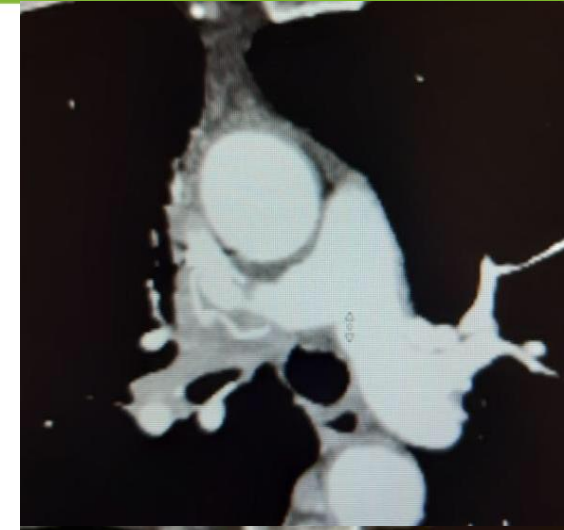
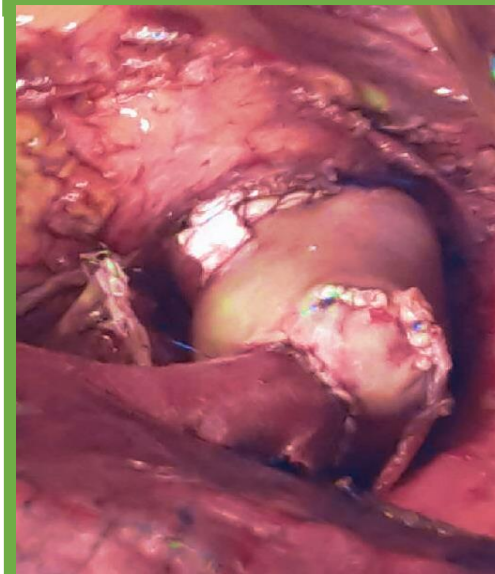
- Prothétique

- PTFE
- Dacron

- Biologique

- Autologue
 - VSI
 - VP
 - Péricarde
- Hétérologue: péricarde

- CAA





Décongélation



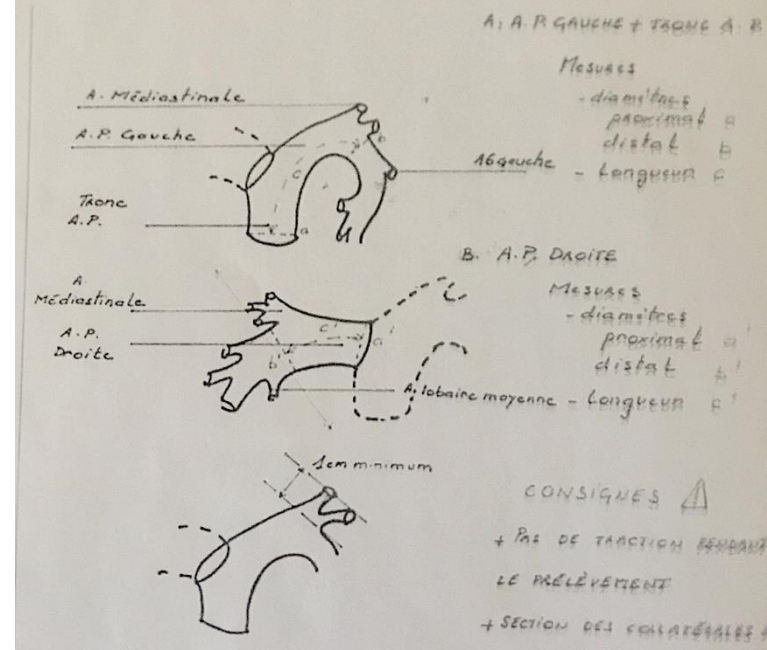
Préparation

Allogreffe artérielle cryopréservée

- PMO < 50 ans - Aucune compatibilité nécessaire
Prélèvement sans traction
- Banque d'organe
 - Transplant service foundation (Hospital Clinic - BCN)
 - Banque d'organe CHUM
 - Banque d'organe APHM
- Décongélation progressive -80° C puis 10/15mn dans serum à 37° c – lavage
- Choix selon TDM préopératoire (D/Ig) et appréciation per opératoire

PRELEVEMENT D'ARTERES PULMONAIRES POUR CRYOPRESERVATION

- Voie d'abord : sternotomie ou clamshell
- Transsection aortique +/- VCS
- Les prélèvements sont conditionnés comme les artères systémiques



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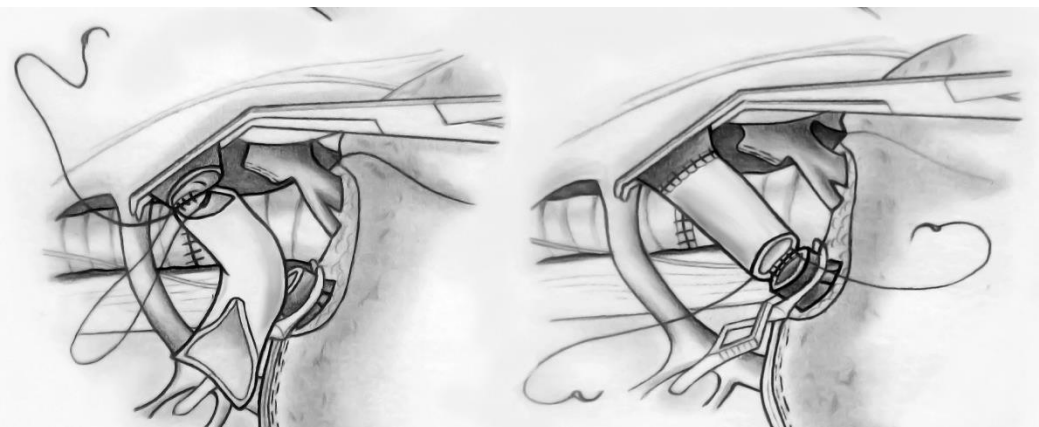
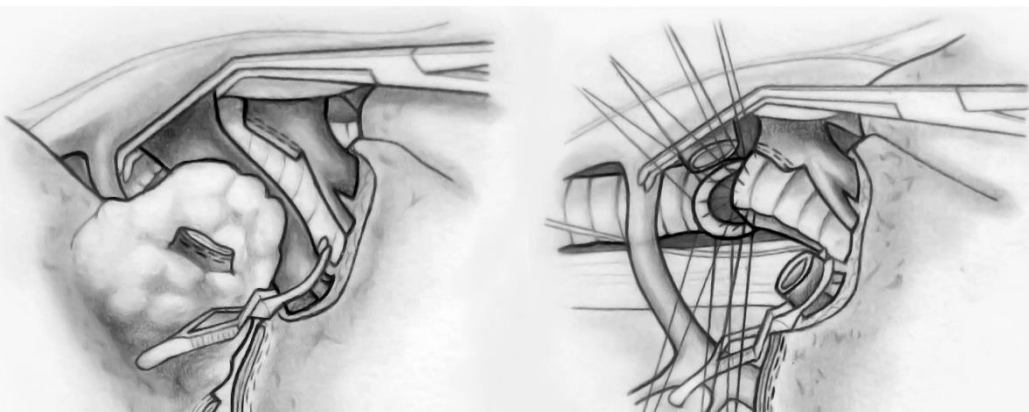
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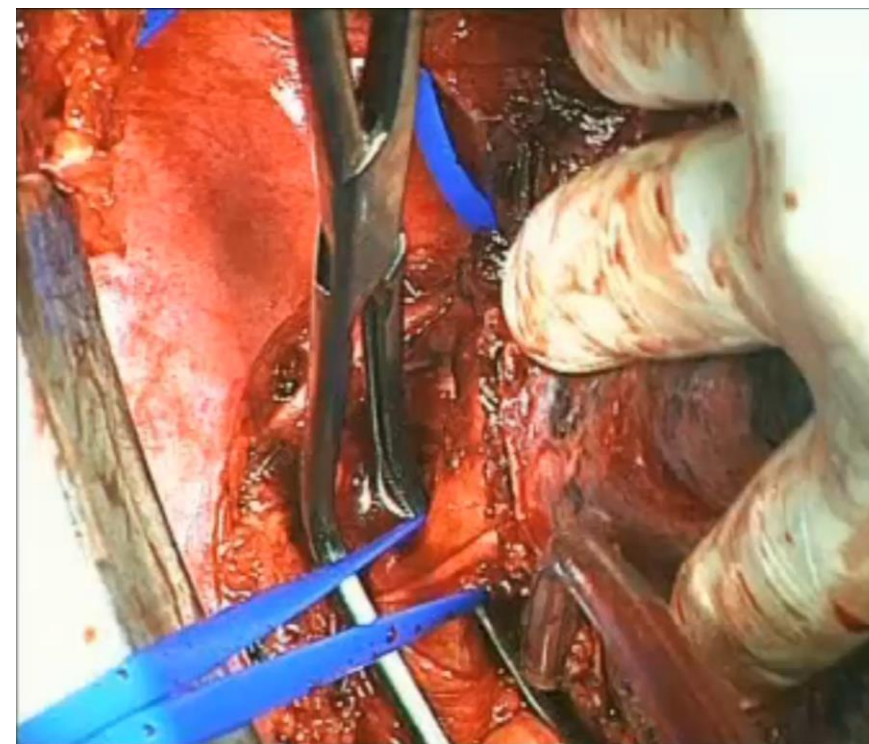
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CENTRE HOSPITALIER
UNIVERSITAIRE

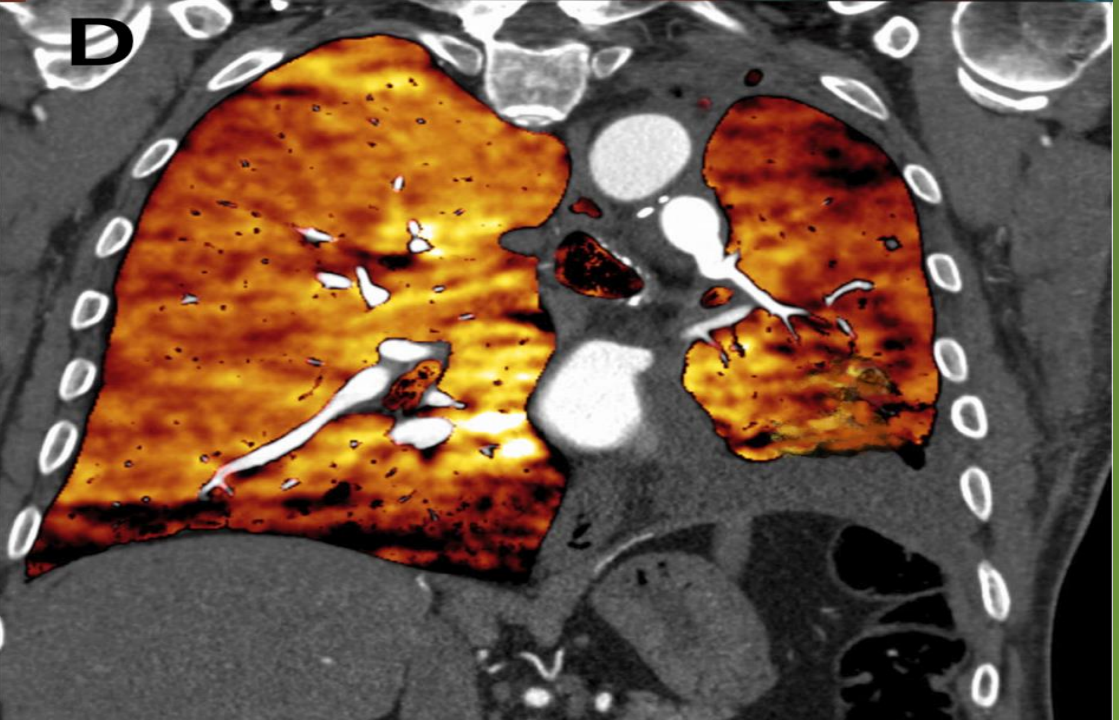
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Hospitalier
Universitaire
de Nice



Bronche avant AP



Anastomose proximale première surjet suspendu
Non résorbable 5/0 – 6/0



Résultats Techniques:

CHUN - CHUM – HC

- 4% de thrombose (AAT →totalisation)
- 0% de dégénérescence ectasique ou stenotique

CONCLUSION

CONTROVERSIES & UPDATES IN VASCULAR SURGERY



Avantages CAA

- Disponibilité (PMO/ banque d'organe)
- Pas de compatibilité spécifique
- Pas de voie d'abord supplémentaire
- Pas de Thrombose
- Usage aisé
- Résistances aux infections
- Pas d'AC requis
- Pas de dégénérescence en position AP
- Facilité de suivi oncologique

Inconvénients CAA

- Organisation PMO
- Banque d'organe à proximité
- Préparation?