PERSISTANCE DU CANAL ARTERIEL

Anatomie chirurgicale

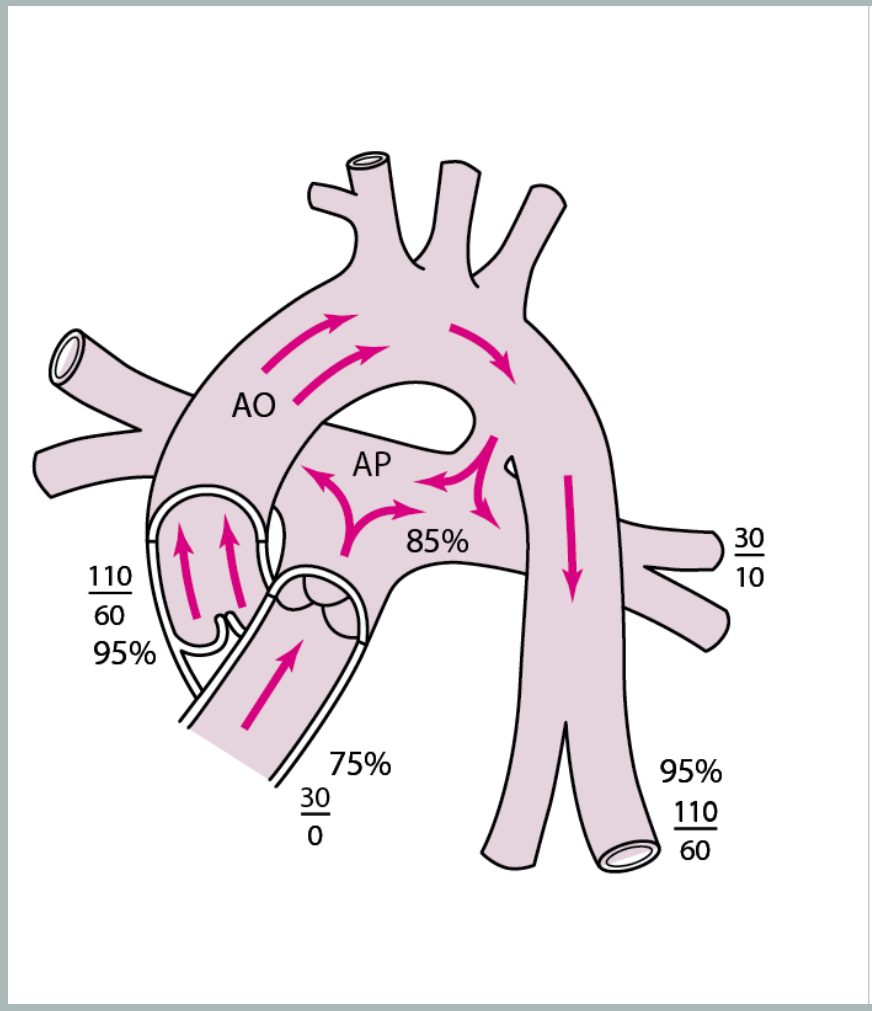
Traitement chirurgical

Problèmes chirurgicaux

CANAL ARTERIEL : RAPPELS

- Seconde cardiopathie congénitale :
  - 1,5/3000
- Nnés :
  - Fermeture en 72 H
  - Fermeture rare > 3 mois
- Prématurés (< 1 kg) :
  - 80 % à une semaine de vie

CANAL ARTERIEL : RAPPELS



Persistance du canal artériel

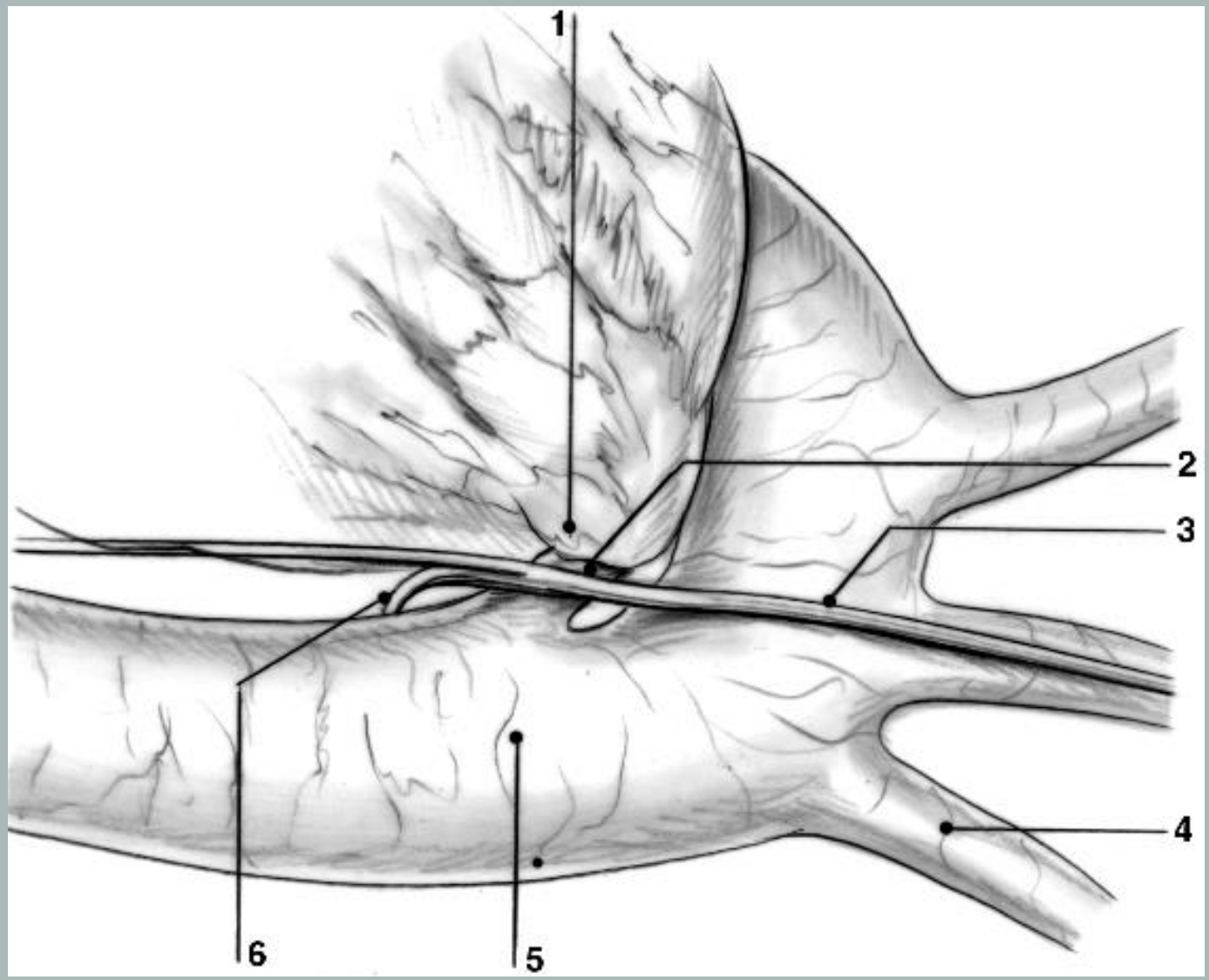
Le flux sanguin pulmonaire, les volumes de l'oreillette gauche et du ventricule gauche et le volume de l'aorte ascendante, augmentent.

AO = aorte; OG = oreillette gauche; VG = ventricule gauche;

AP = artère pulmonaire.

- HTAP
- IC
- Endocardite

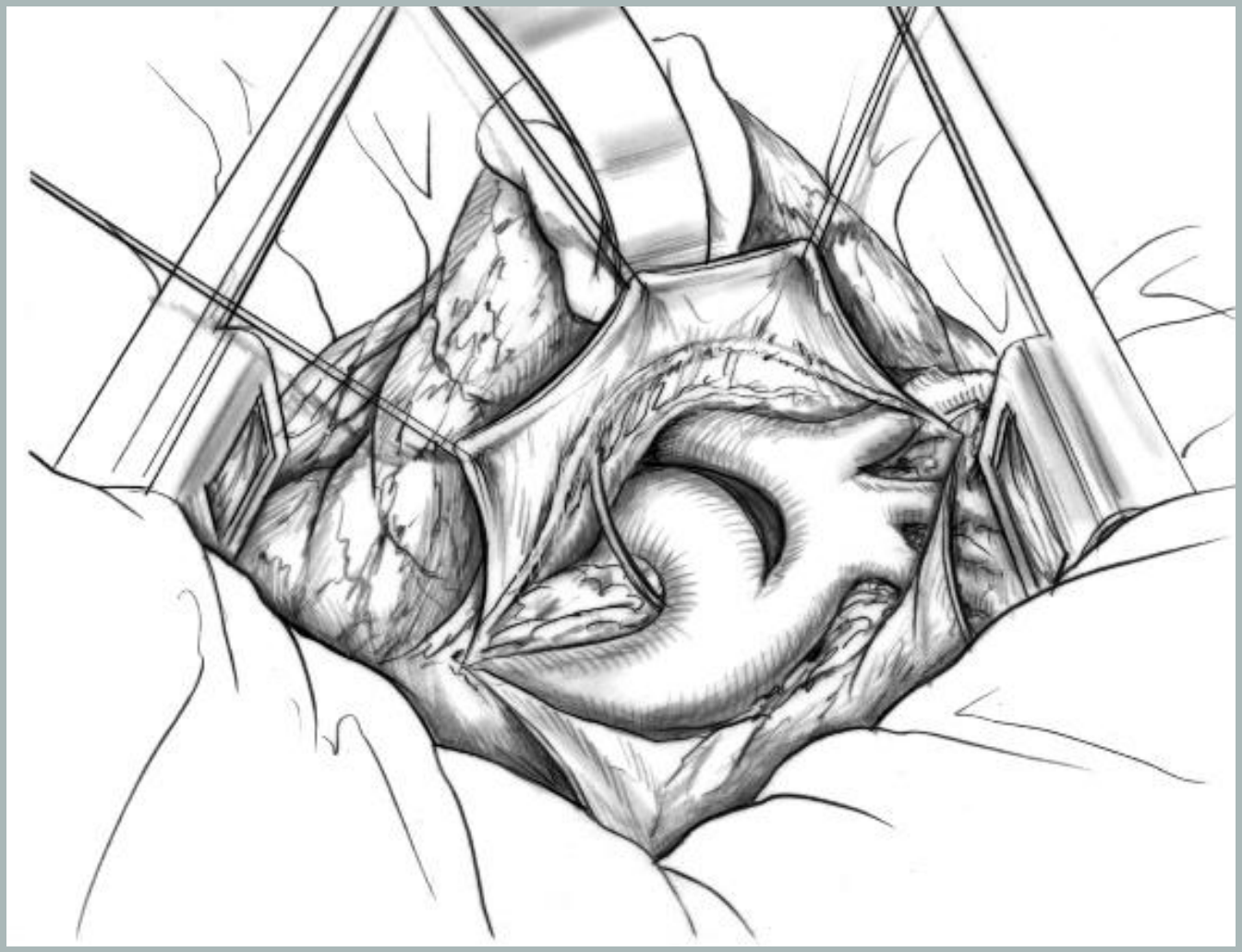
Anatomie chirurgicale



Anatomie chirurgicale

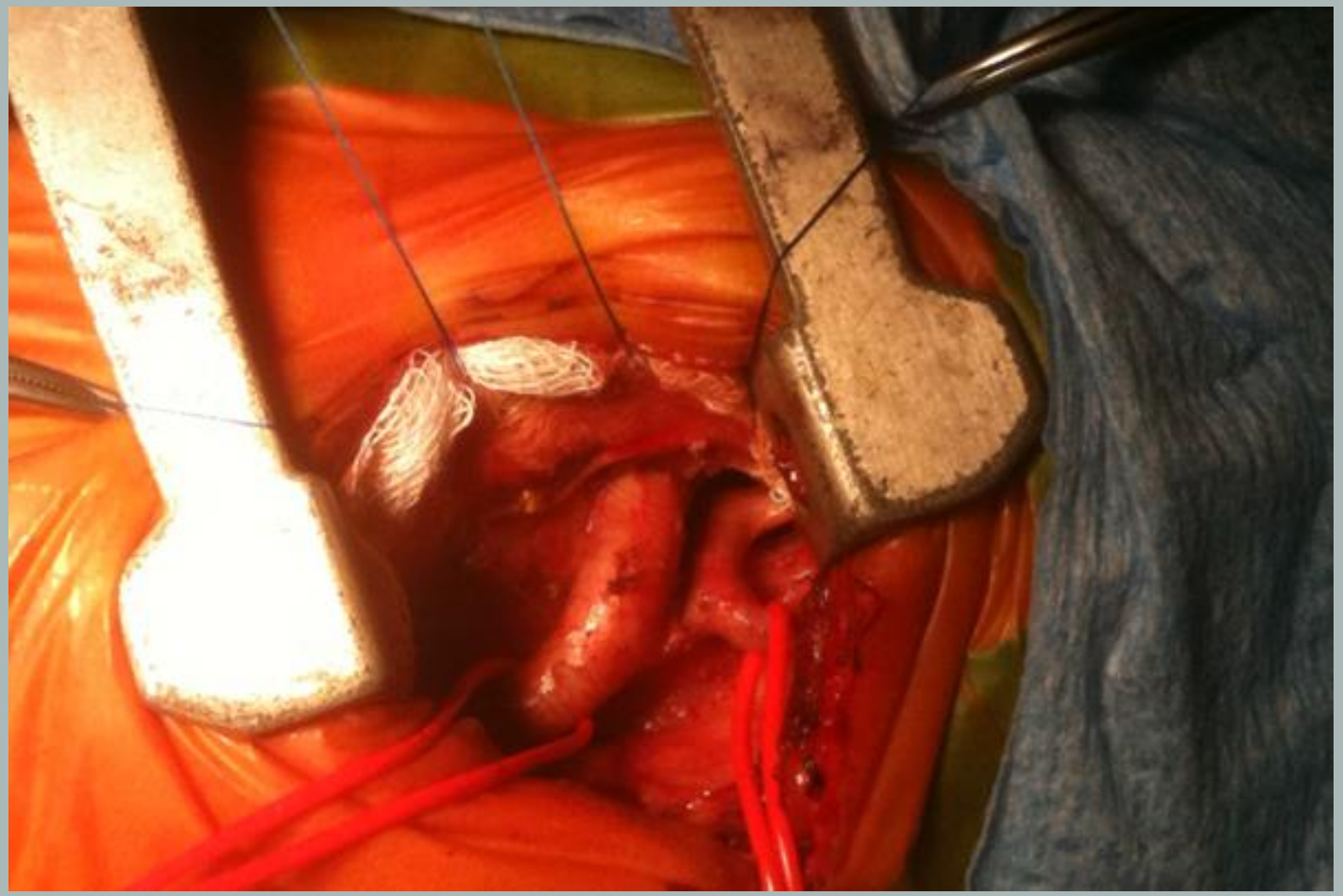
Technique chirurgicale

Particularité du nouveau-né



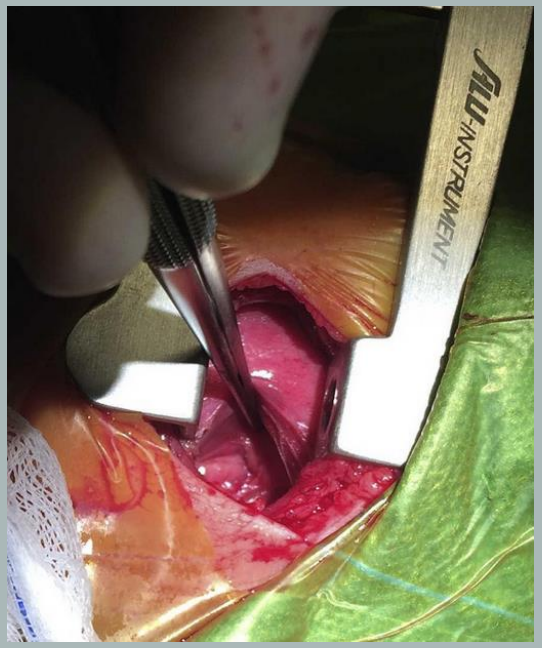
Technique chirurgicale

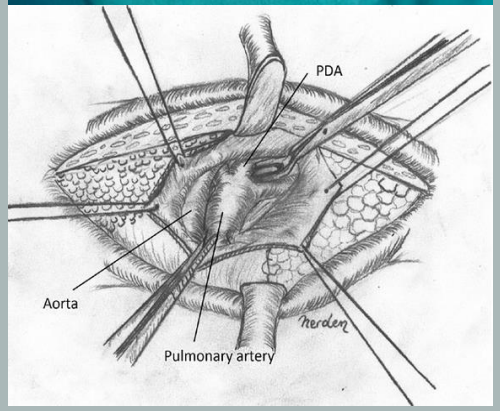
Particularité du nouveau-né

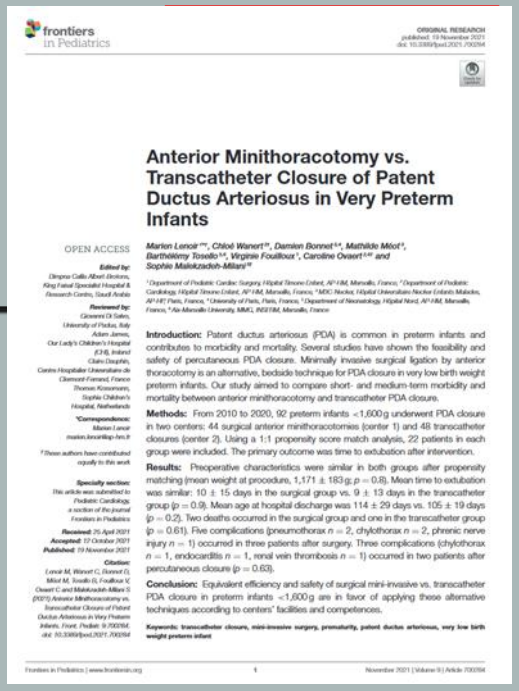


Technique chirurgicale

Prematuré : Médical =>chirurgie(s) Vs KT







frontiers in Pediatrics

ORIGINAL RESEARCH

Anterior Minithoracotomy vs. Transcatheter Closure of Patent Ductus Arteriosus in Very Preterm Infants

OPEN ACCESS

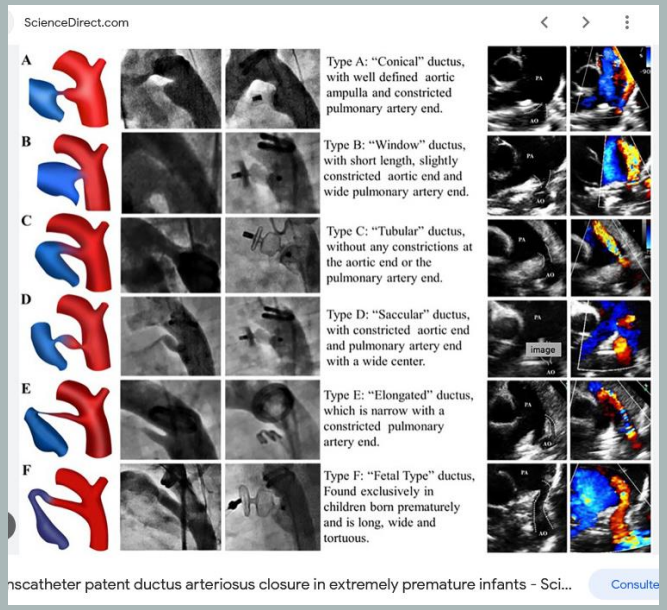
Introduction: Patent ductus arteriosus (PDA) is common in preterm infants and contributes to morbidity and mortality. Several studies have shown the feasibility and safety of percutaneous PDA closure. Minimally invasive surgical ligation by anterior thoracotomy is an alternative, bedside technique for PDA closure in very low birth weight preterm infants. Our study aimed to compare short- and medium-term morbidity and mortality between anterior minithoracotomy and transcatheter PDA closure.

Methods: From 2010 to 2020, 92 preterm infants <1,600 g underwent PDA closure in two centers: 44 surgical anterior minithoracotomies (center 1) and 48 transcatheter closures (center 2). Using a 1:1 propensity score match analysis, 22 patients in each group were included. The primary outcome was time to extubation after intervention.

Results: Preoperative characteristics were similar in both groups after propensity matching (mean weight at procedure, 1,171 ± 183 g; $p = 0.8$). Mean time to extubation was similar: 10 ± 15 days in the surgical group vs. 9 ± 13 days in the transcatheter group ($p = 0.9$). Mean age at hospital discharge was 114 ± 29 days vs. 105 ± 19 days ($p = 0.2$). Two deaths occurred in the surgical group and one in the transcatheter group ($p = 0.61$). Five complications (pneumothorax $n = 2$, chylothorax $n = 2$, phrenic nerve injury $n = 1$) occurred in three patients after surgery. Three complications (chylothorax $n = 1$, endocarditis $n = 1$, renal vein thrombosis $n = 1$) occurred in two patients after percutaneous closure ($p = 0.63$).

Conclusion: Equivalent efficiency and safety of surgical mini-invasive vs. transcatheter PDA closure in preterm infants <1,600 g are in favor of applying these alternative techniques according to centers' facilities and competences.

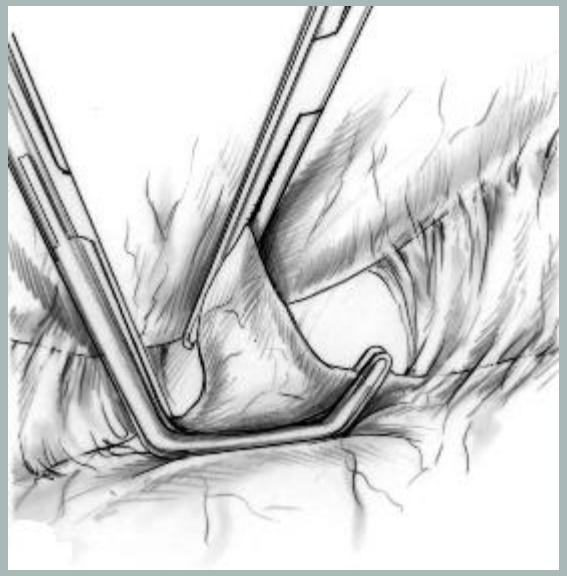
Keywords: transcatheter closure, mini-invasive surgery, prematurity, patent ductus arteriosus, very low birth weight preterm infant

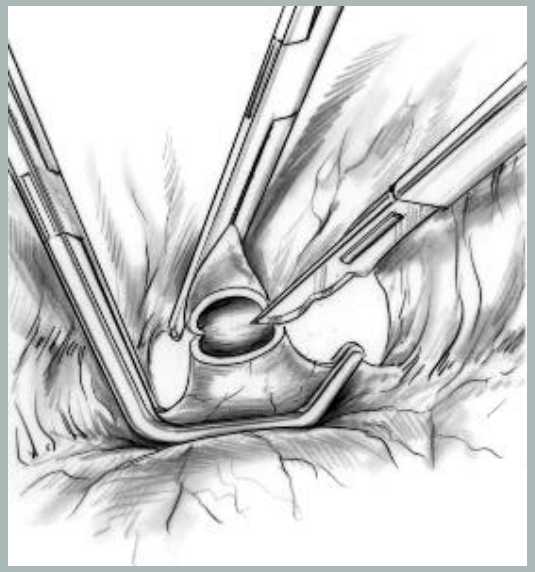


Technique chirurgicale après période néo natale

Thoracotomie postéro-latérale , 4° EICG

section suture : CA court et large !

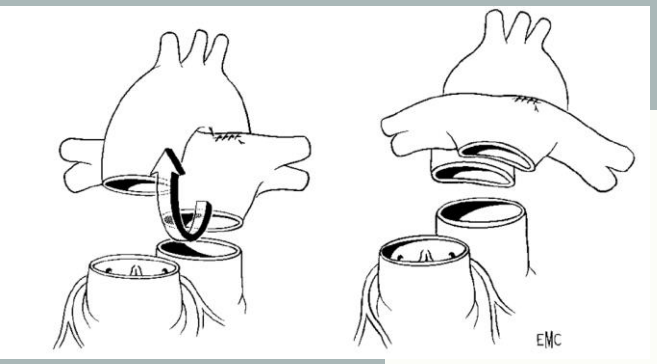


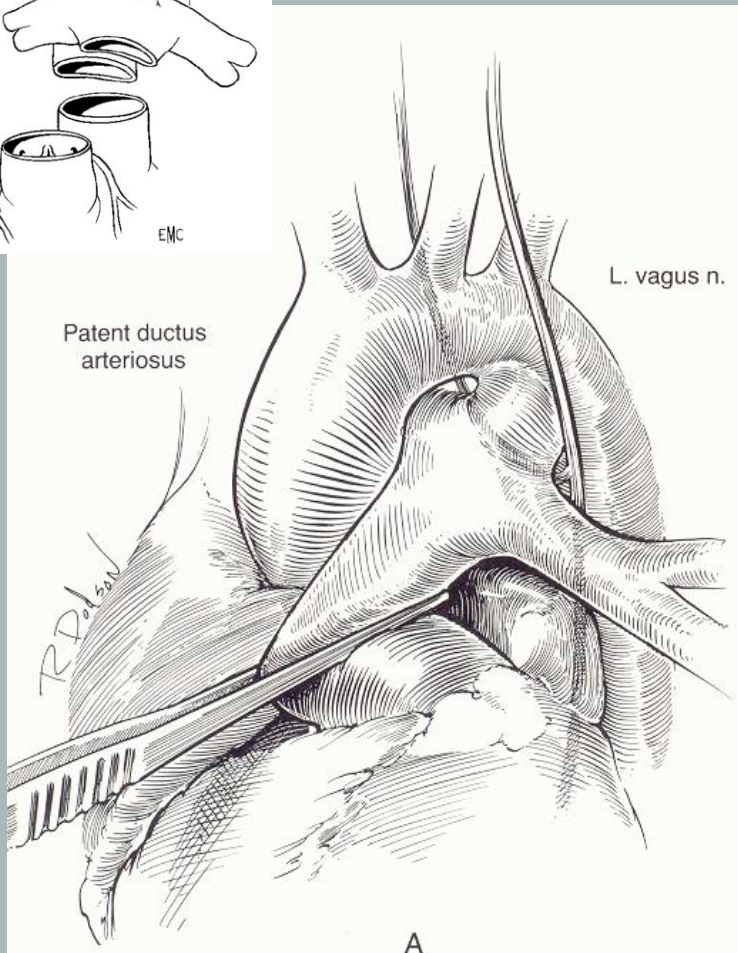


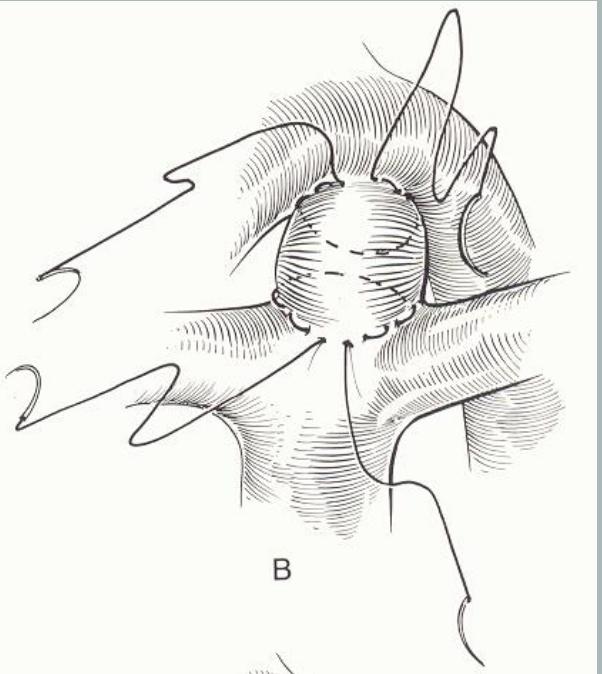
Technique chirurgicale (CA associé)

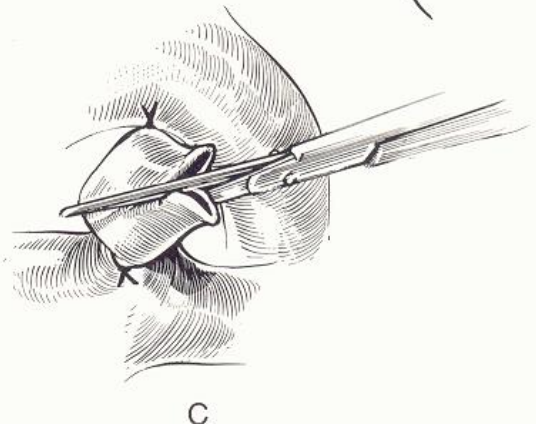
Sternotomie

section suture



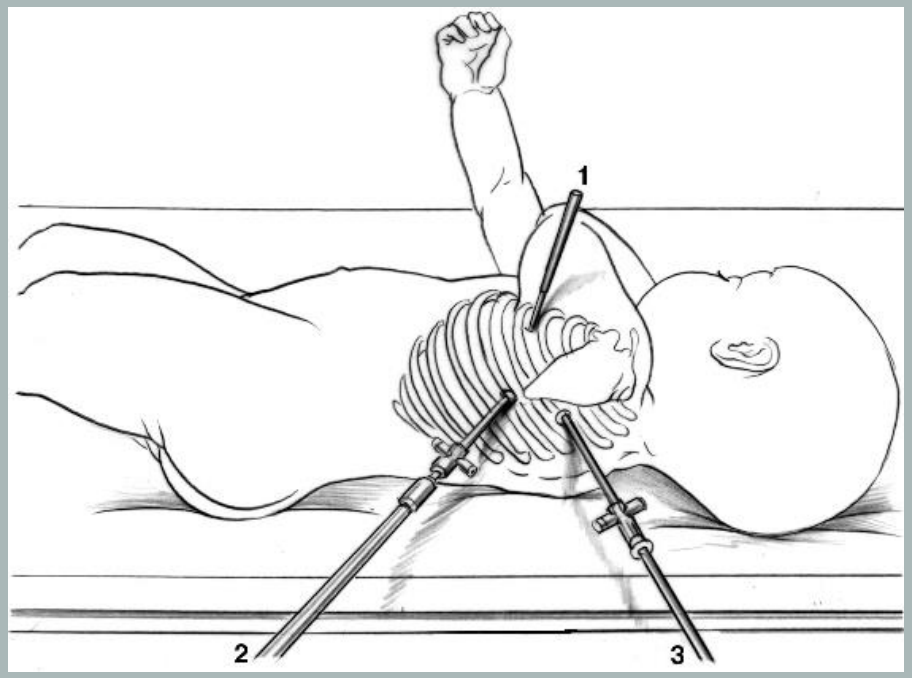


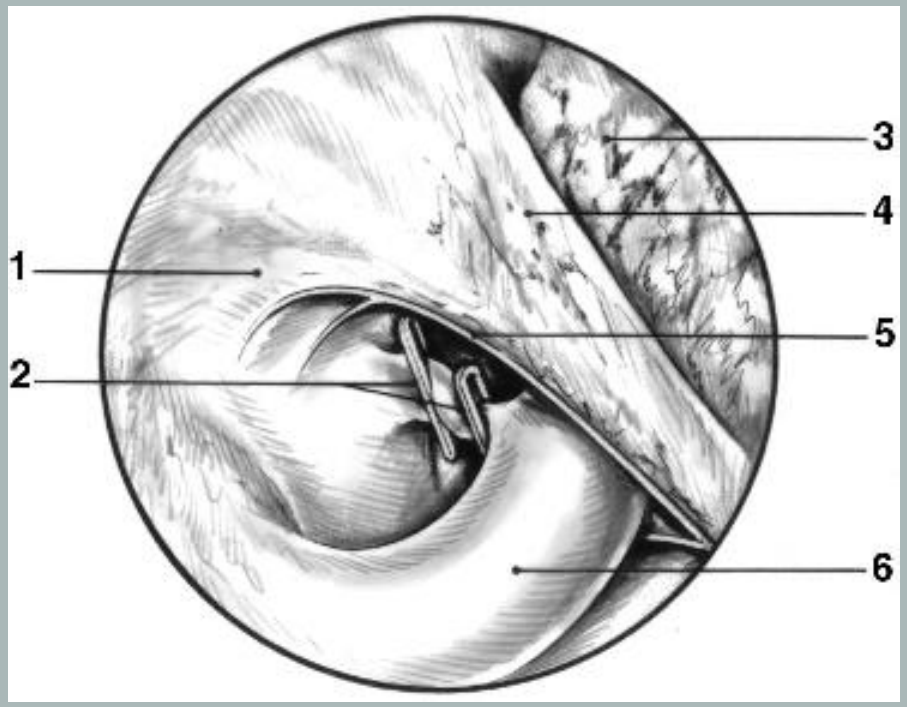




Technique chirurgicale

Vidéo-thoracoscopie



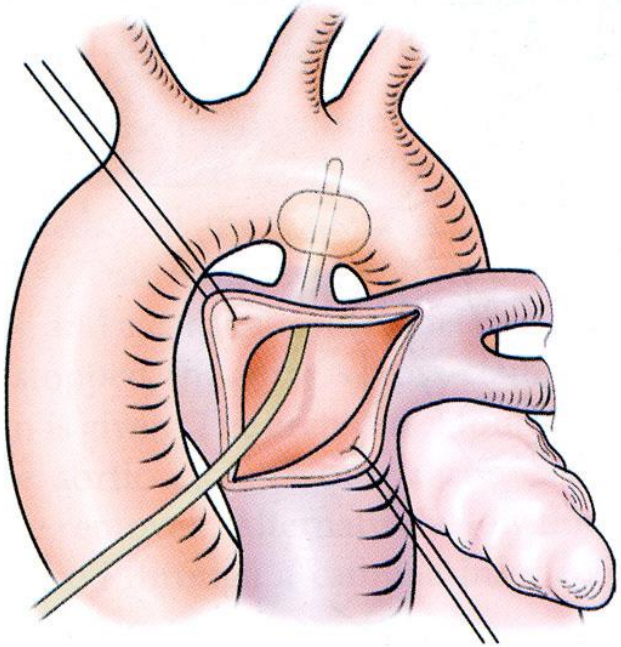


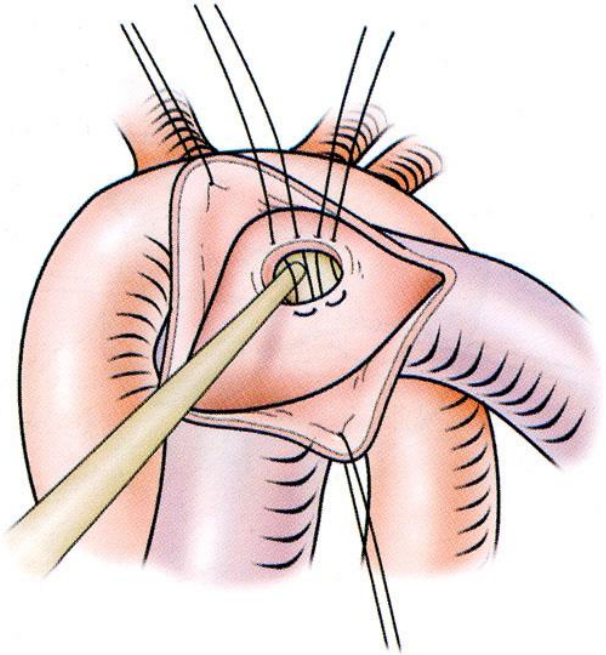
Cas particuliers

- Prématuré : médical => chir Vs KT
  -Insuffisance cardiaque
- NN NRS Enfant : +++ KT
  - Endocardite
  - Anévrisme
- Adulte
  -HTAP fixée ?

cathétérisme interventionnel
fermeture sous CEC ±calcifié!

Canal artériel





Malfaçons chirurgicales

- hémorragie +++
- ligature de l'aorte ou de l' APG
- coarctation aortique
- sténose APG
- shunt résiduel
- lésion récurrent gauche
- pneumothorax
- chylothorax (lésion Vx lymphatique)

FENETRE AORTO-PULMONAIRE

Anatomie chirurgicale

Traitement chirurgical

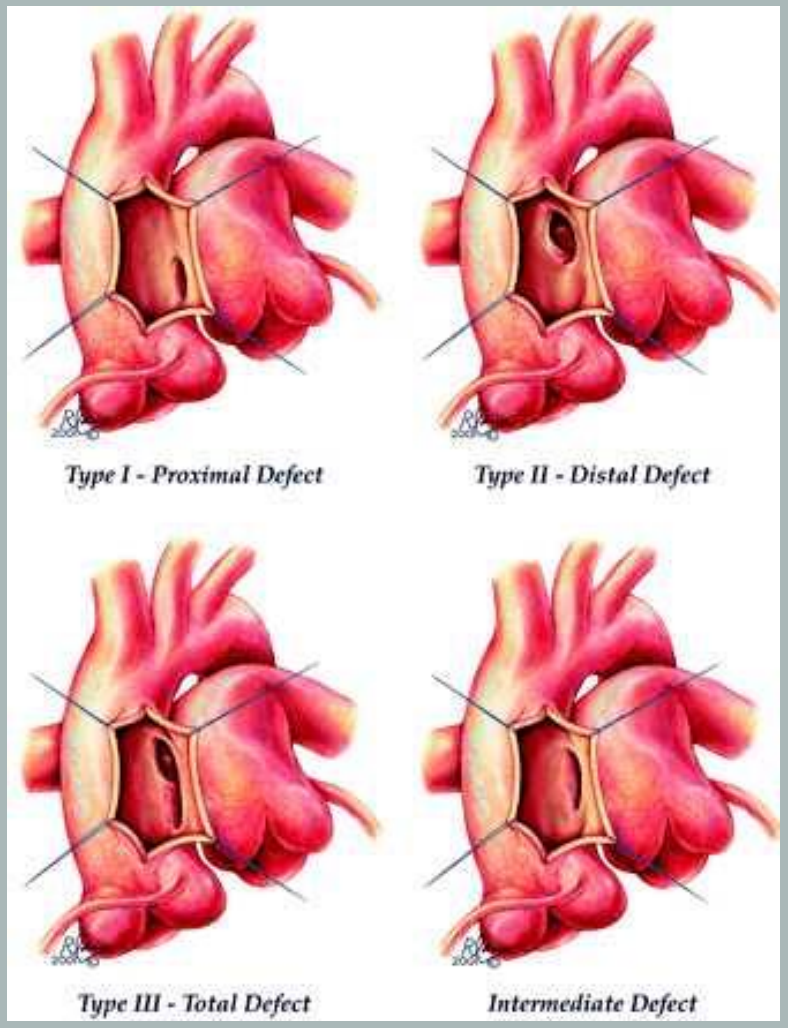
Problèmes chirurgicaux

Fenêtre AP

FENETRE AORTO-PULMONAIRE

- Rare : < 0,2 % des CC
- Isolée
- Associée :
  - CA
  - IAAO
  - TOF
  - VSD
  - Ano Cor
- Parfois restrictive, en règle HTAP et IC
- Si tardif, KT préop (RVP)?

Anatomie chirurgicale



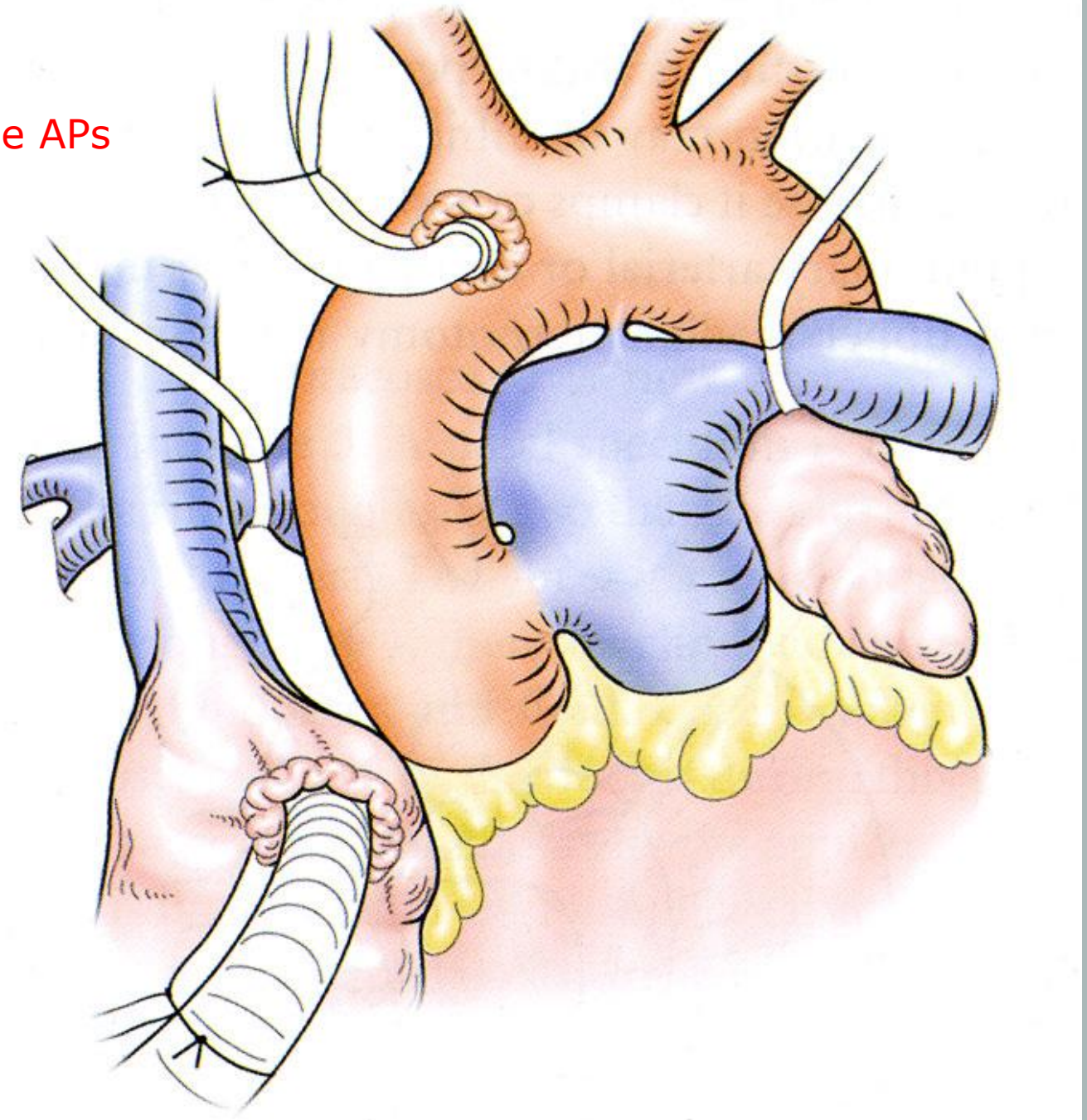
Problèmes per-opératoires

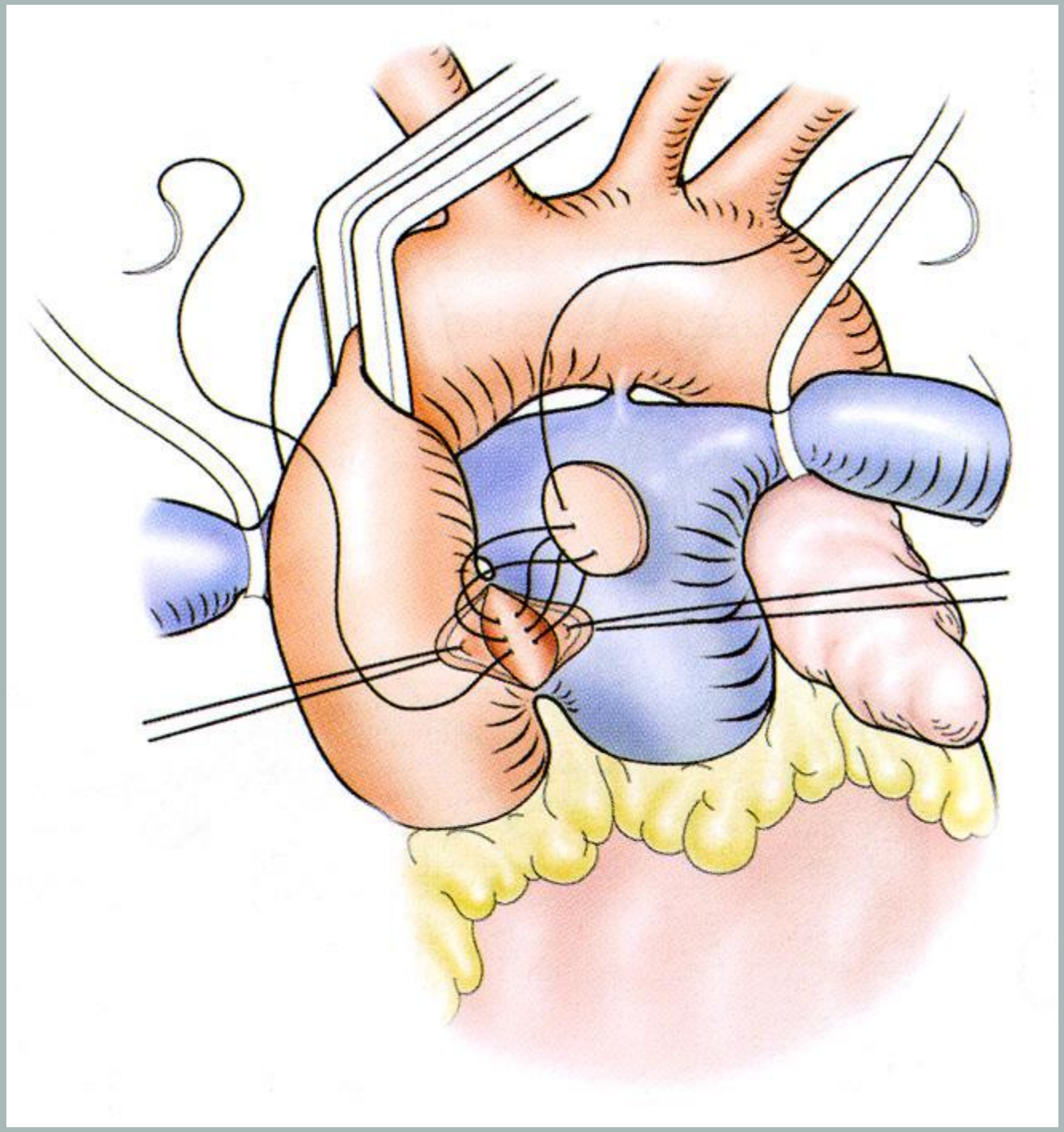
- contrôle des AP dès le départ en CEC

- protection myocardique (orifices coronaires)

- anomalies coronaires associées
  - . *coronaire naissant proche de la fenêtre*
  - . *coronaire naissant de l'AP*
  - . *intérêt de la voie trans-aortique*

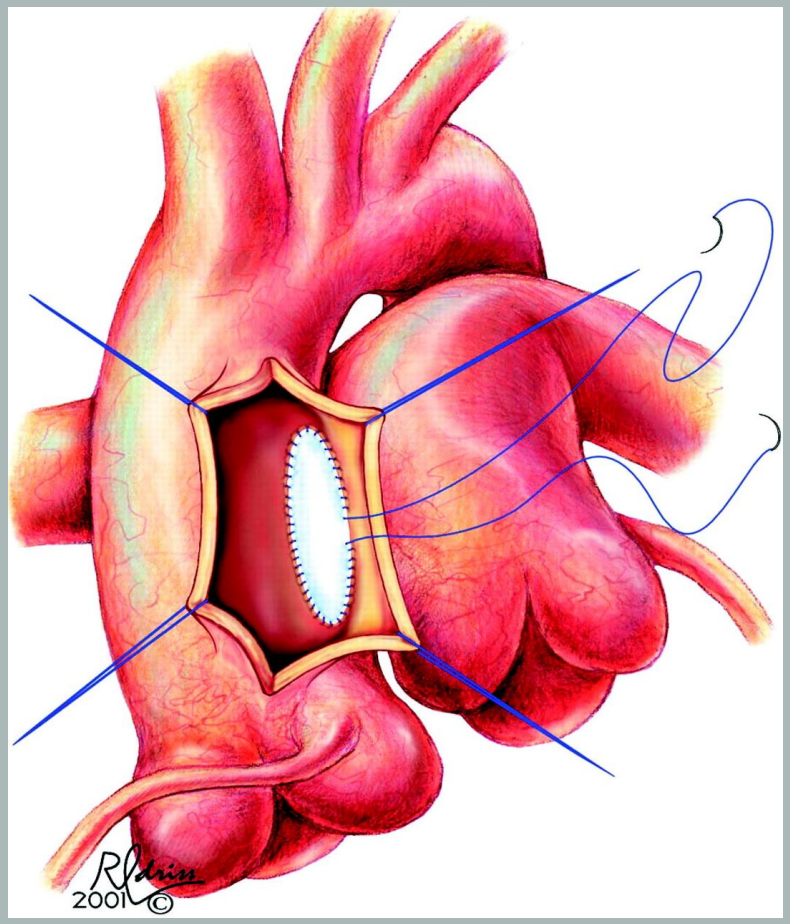
Clampage APs



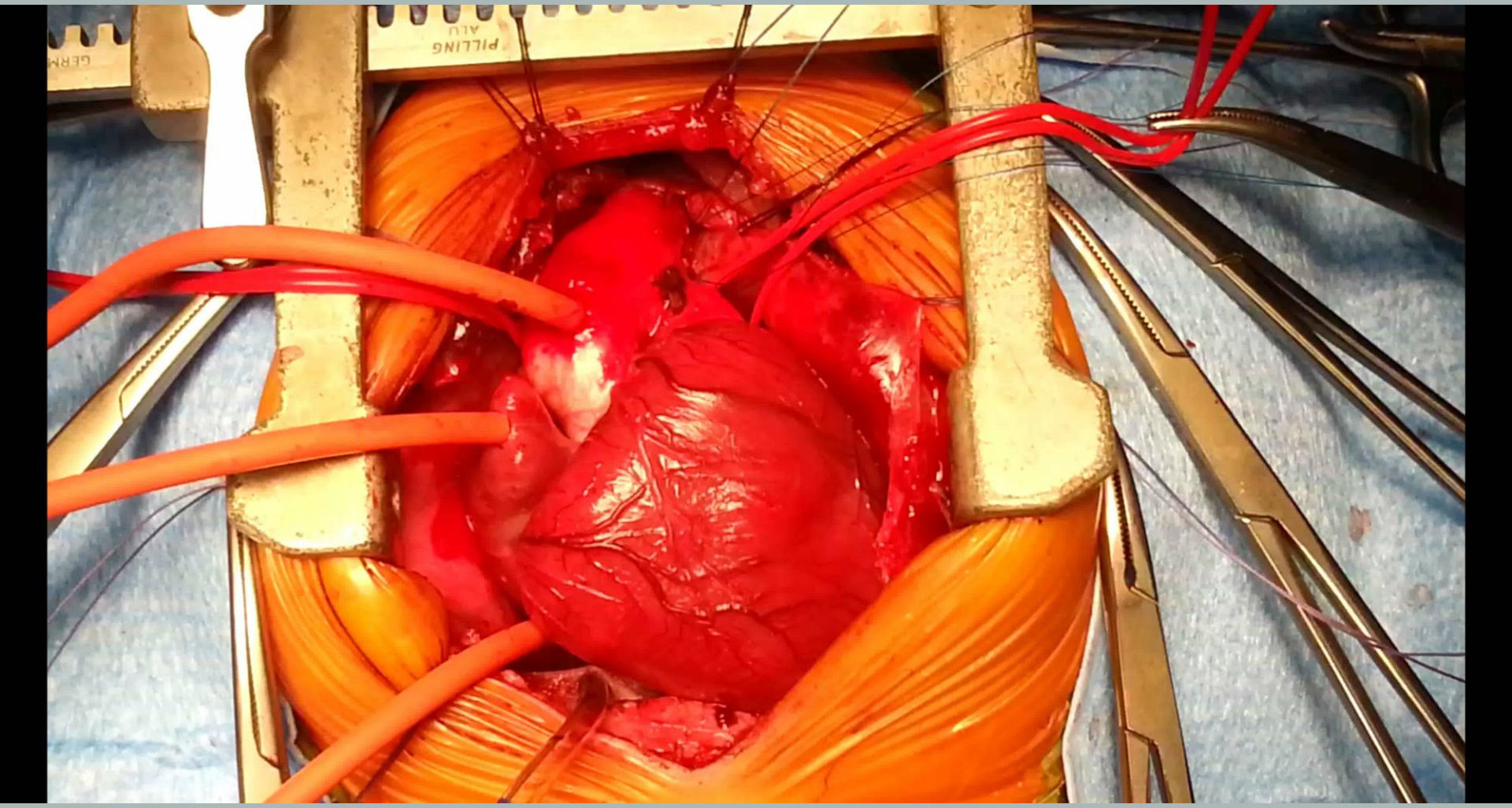


Technique chirurgicale

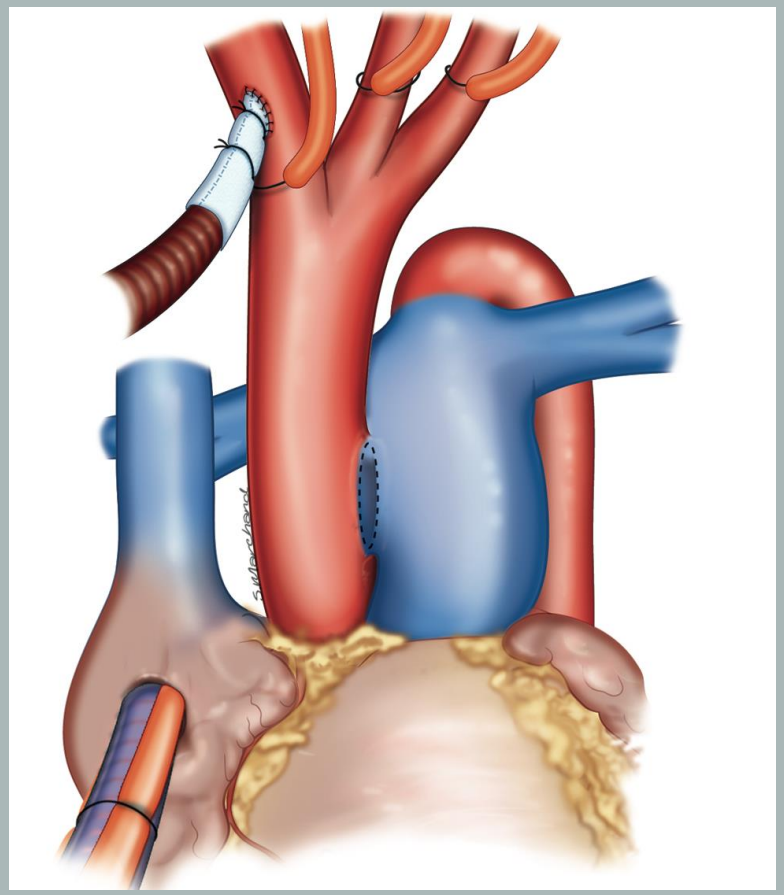
Ouverture de l'aorte

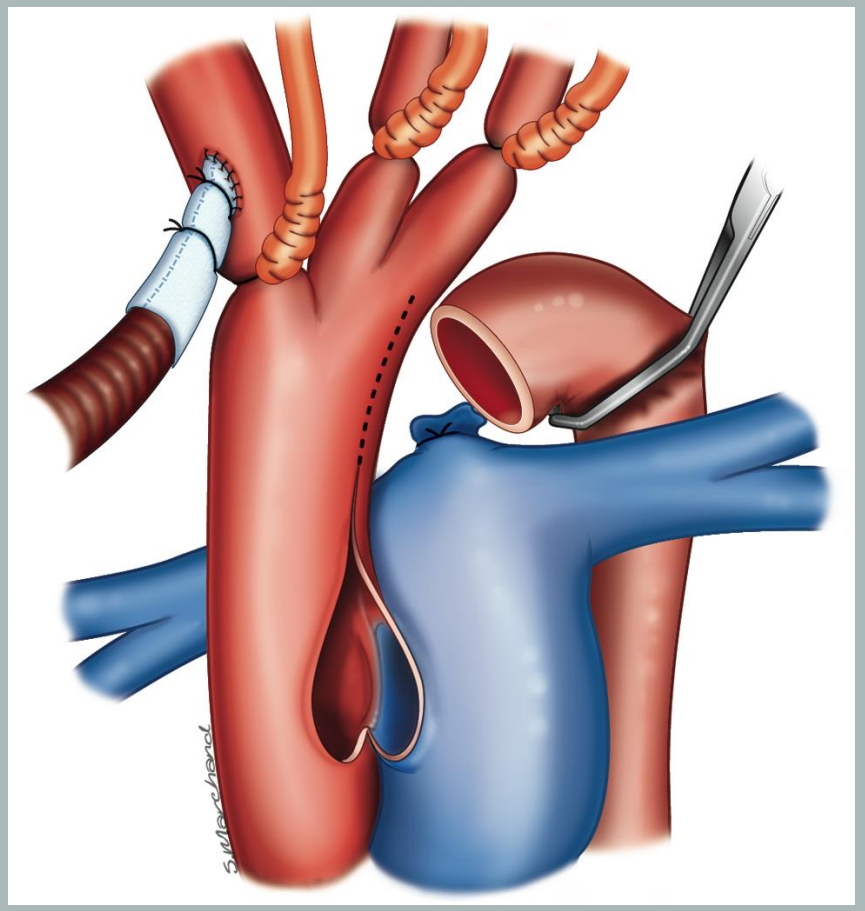


Technique chirurgicale

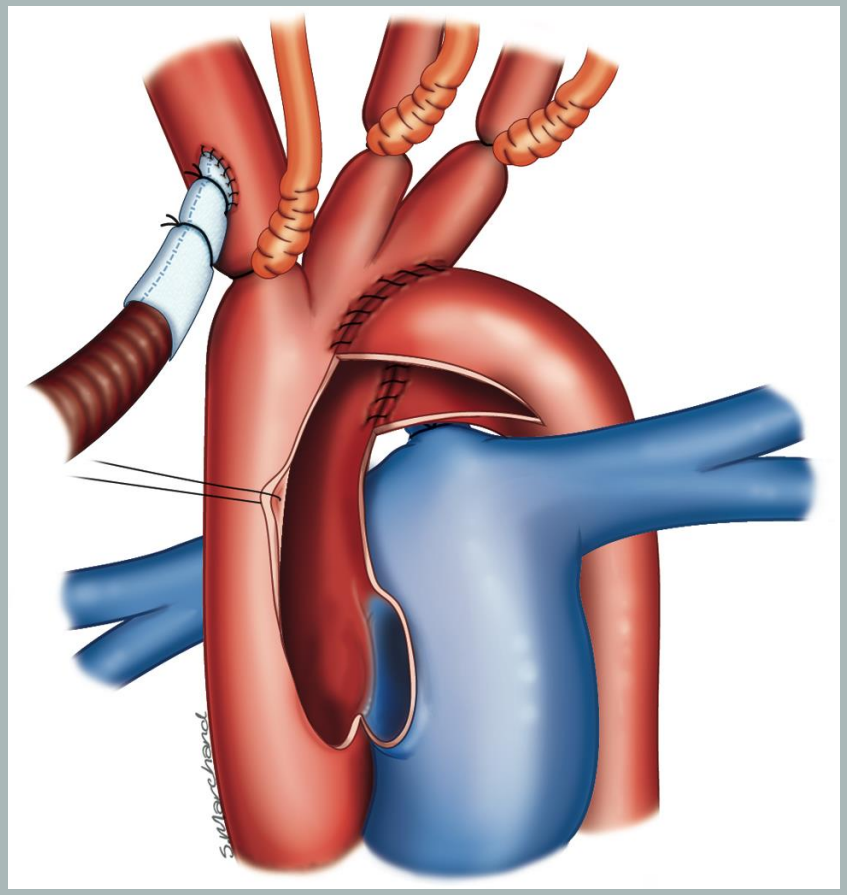


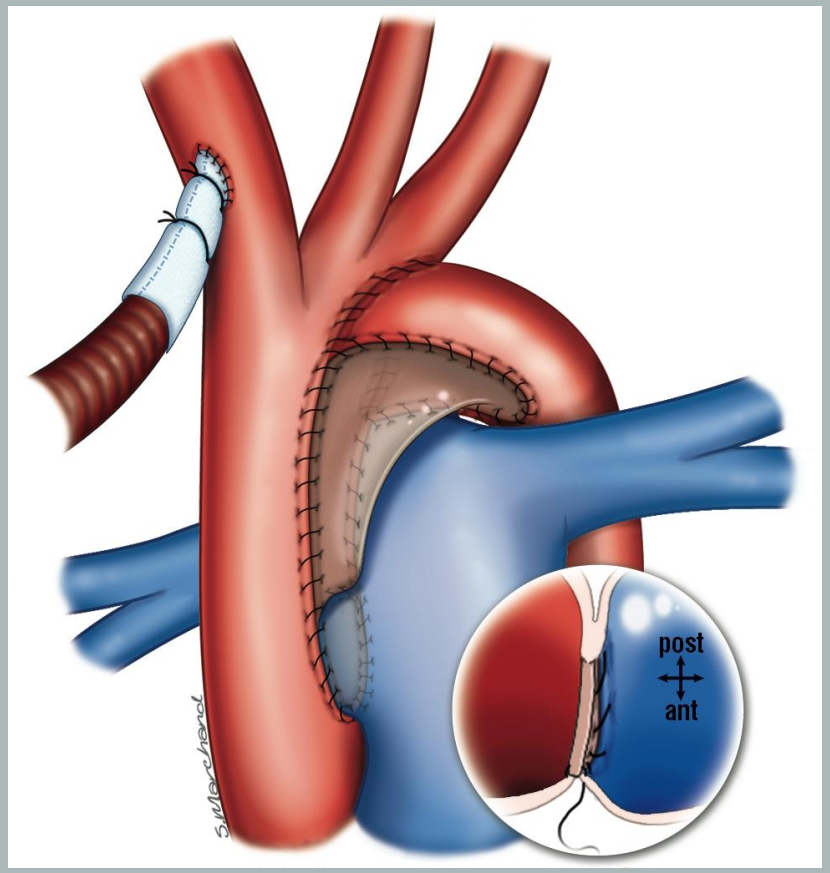
FAP et IAA





FAP et IAA





Problèmes post-opératoires

- shunt résiduel
- sténose APD
- sténose aorte ascendante
- sténose artère coronaire

- HTAP (KT AP)