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Vascular Surgery

Rational Use of New Endovascular Technology in Vascular Surgery

Winnipeg Vascular Meeting 2026

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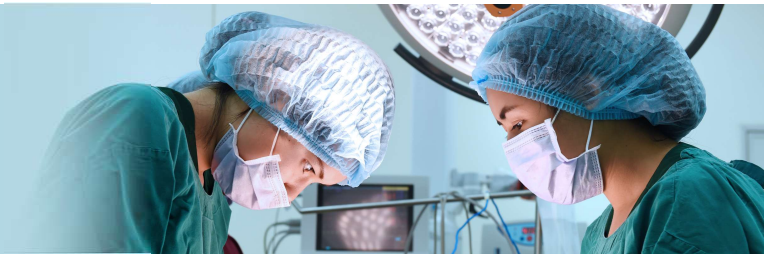

Disclosure/Conflicts of Interest

- Proctor and Speaker for Cook Canada

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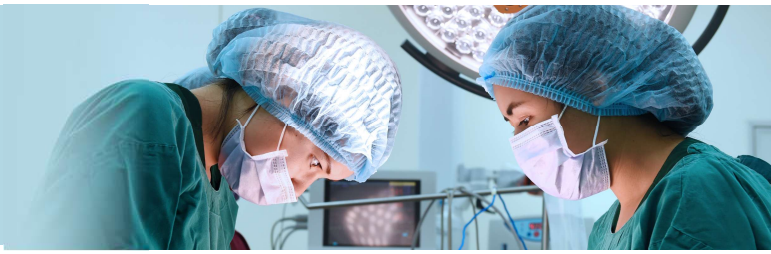
New Technology Introduction in EVAR

- What problem does it solve?
- Rationale for a new Device/Technology?
- How does it compare to current therapy?
- Is there evidence of its Effectiveness?
- Will it reduce:
- Complications/Mortality
- Costs
- LOS
- What are its benefits?
- Will it speed recovery?
- Who is going to pay for it?
- Is this a first in human experiment?

Unsolved Problems in Endovascular Therapy

- Aortic Arch Repair
- Acute Zone 0 Dissection/Pathology
- Endo Bentall
- False Lumen therapy in aortic dissection
- Endoleak Therapy
- Vascular Access for big devices in diseased vessels

- New Arch Grafts
- New Cuffs for Ascending aorta
- Simplified Devices
- False Lumen Occluding devices (Fillers/ Plugs)
- Memory foam/Coils/Wires
- Crack the Calcium and glide by the stenosis



What About EVAR Moving to the Aortic Arch?

Benefits

- It looks simple
- I have Endovascular Training
- It will expand my referral practice
- It will be great PR

On Further Reflection

- Where is Arch Repair in Royal College Training Documents?
- Who has privileges to do this at the hospital currently?
- What are the liability risks for you and the hospital?
- Who will help or bail you out of complications?

Rationale For Endovascular Arch Repair?

- Infra Renal and Thoracic EVAR are associated with decreased:
  - Early Morbidity
  - Early Mortality
  - Decreased LOS
  - More rapid recovery
  - ? Could this be true in the arch?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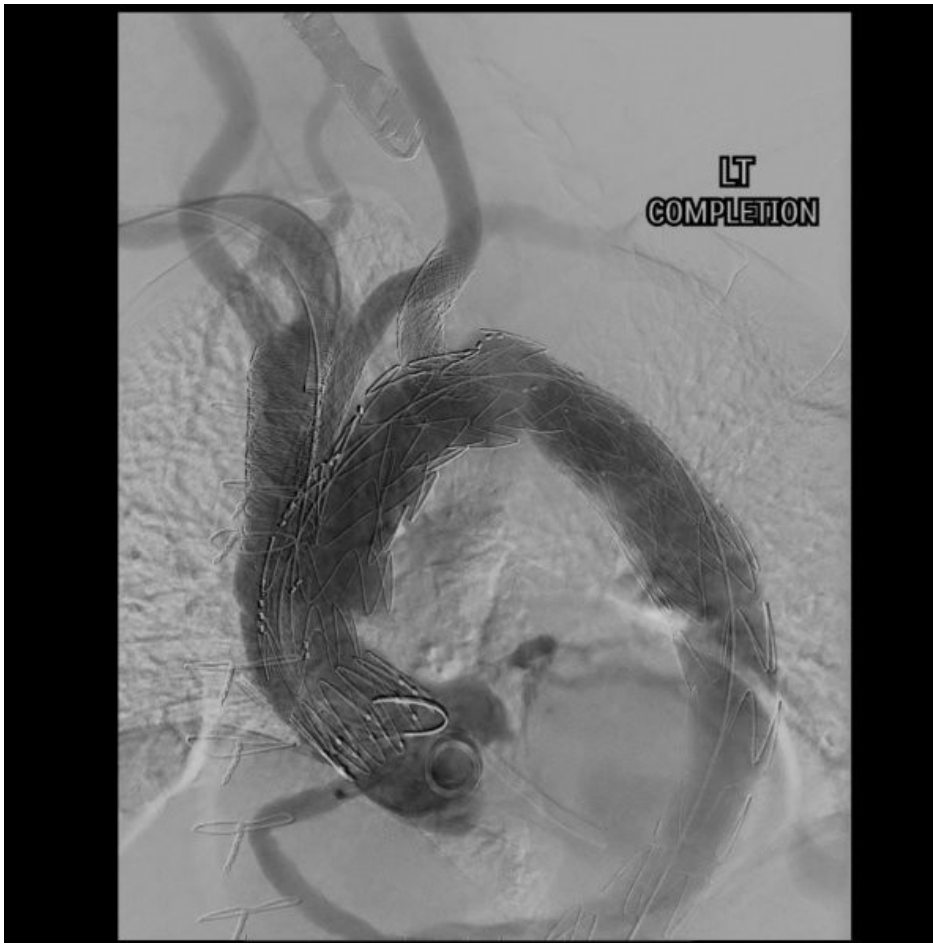
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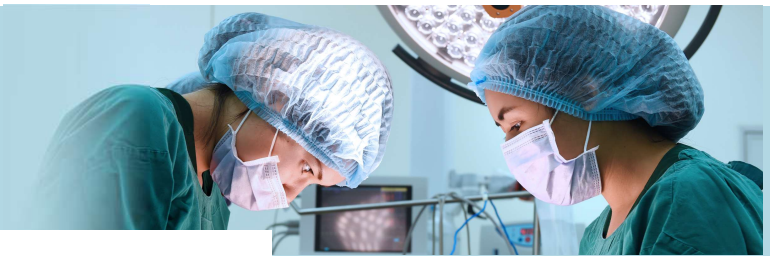


New Technology Introduction in the Aortic Arch

Benefits

- Minimally Invasive approach
- Expands the treatment to higher risk patients and those turned down for conventional repair
- More rapid recovery
- Reduced LOS

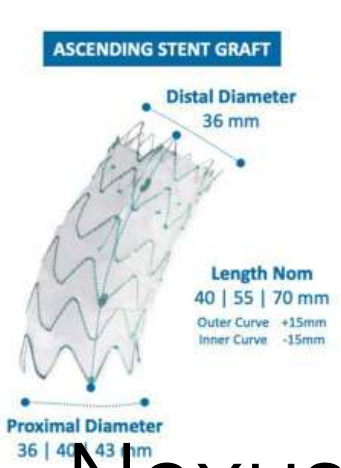
Risks

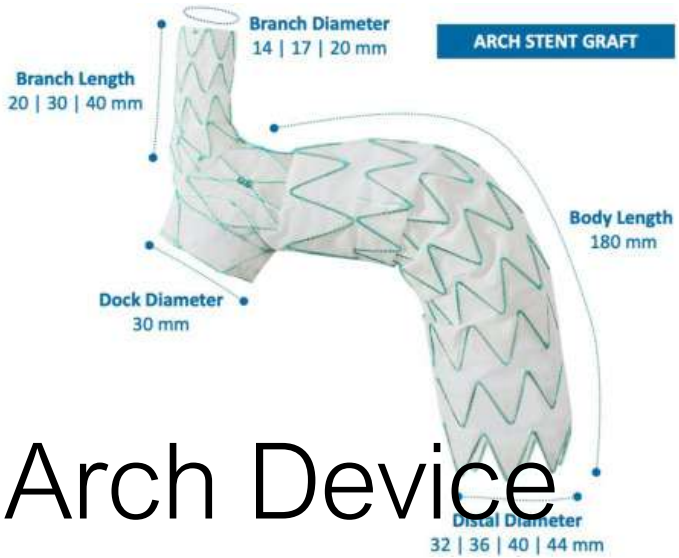
- Stroke risk persists
- Mortality Risk
- Surgical Issues
- Cutdowns
- Iliac delivery/Rupture
- Learning Curve

Available Devices for the Arch

Single Branch Devices

Gore TBE





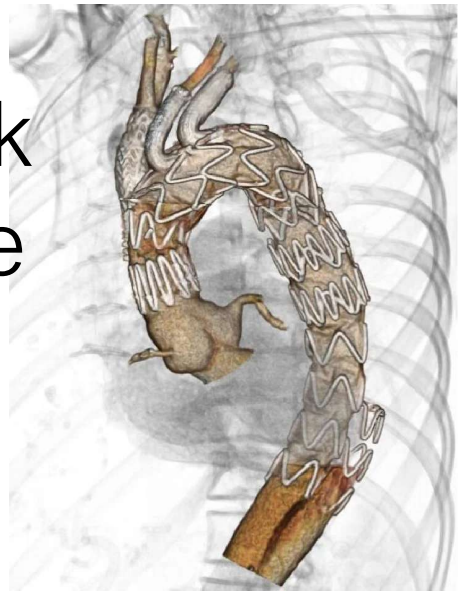
Nexus Arch Device

Double or Triple Branches Devices

Cook Double

Terumo Relay Double

Cook Triple



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What do you really know about Arch and Ascending Aortic Repair Anyway ?

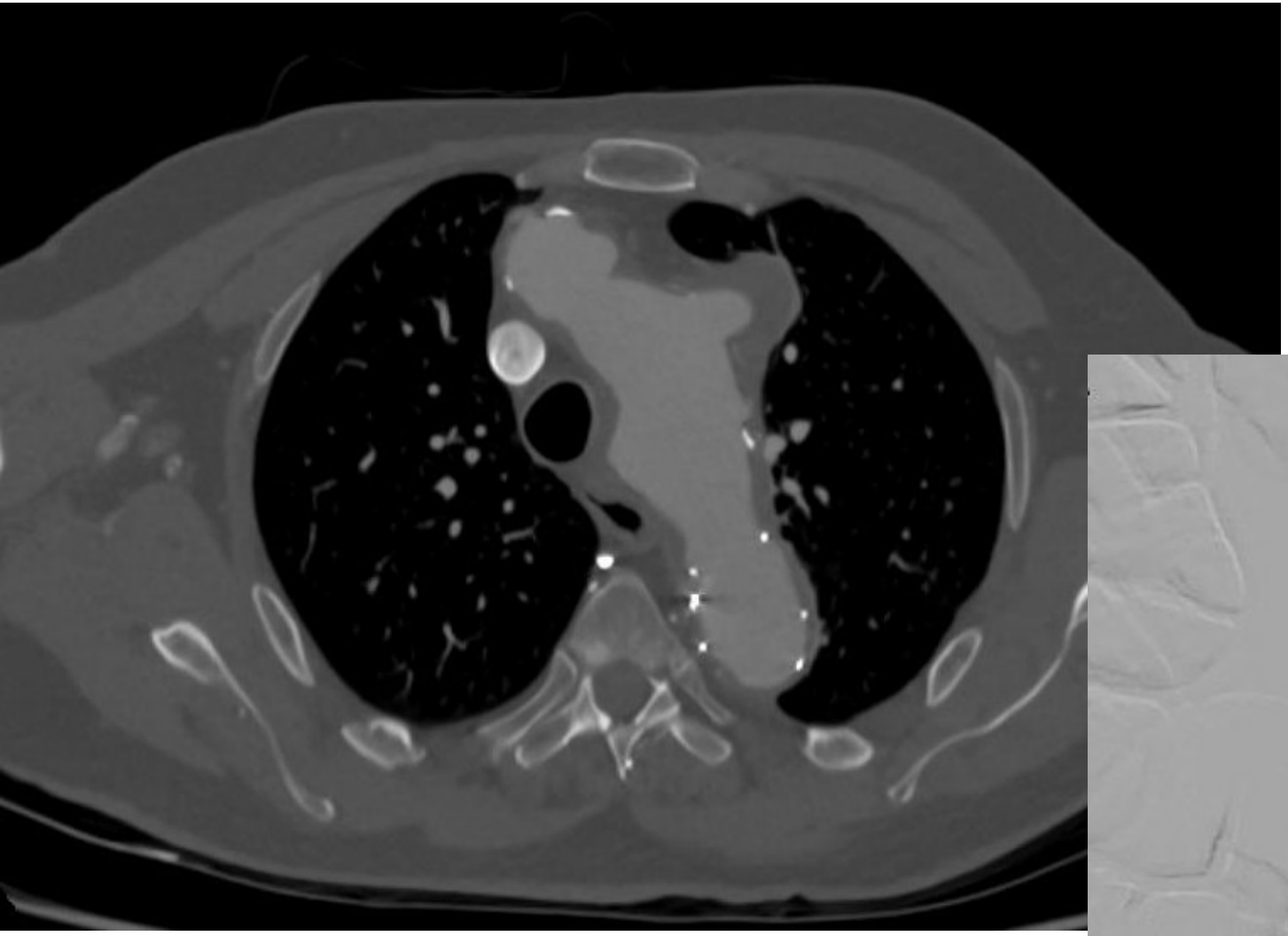
Usually a Cardiac Surgery Problem

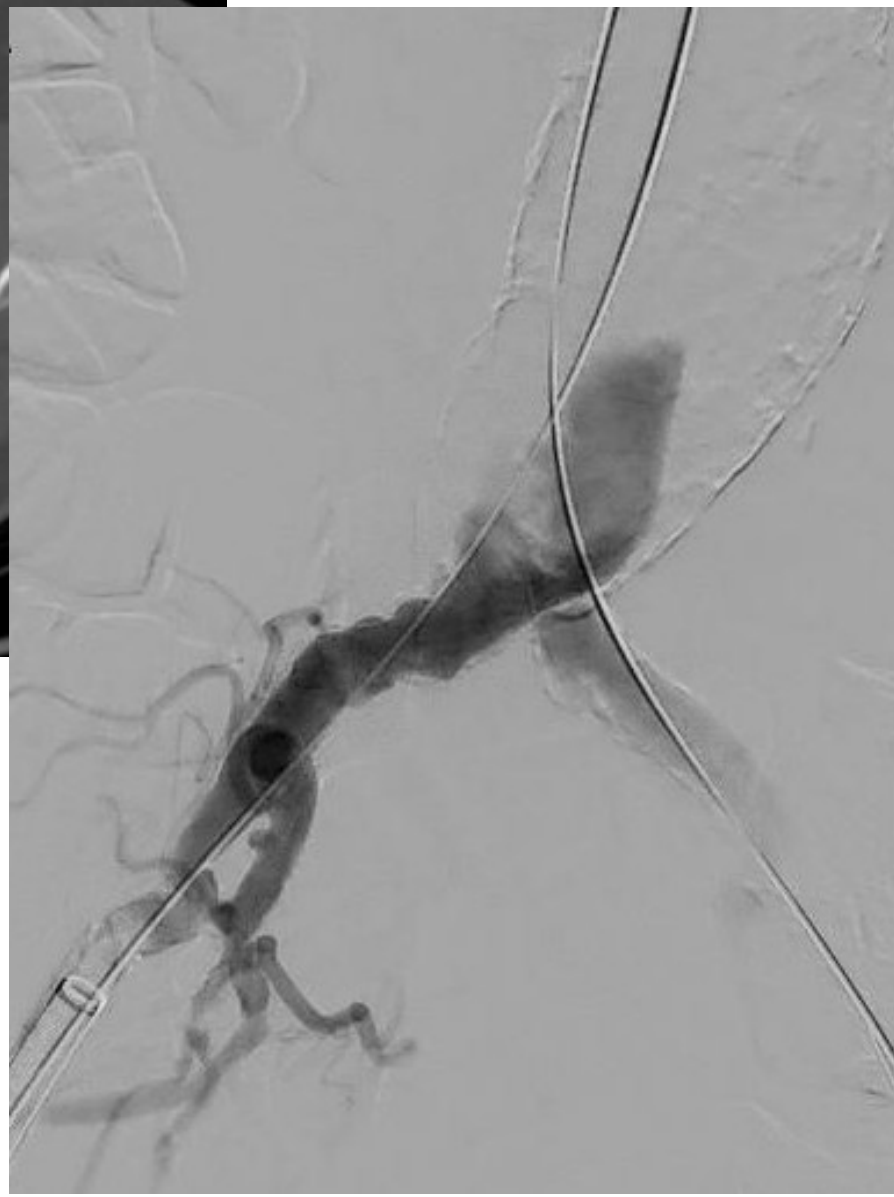
Cardiac Surgery

- Open Total Arch Repair
- Circulation Arrest Required
- 3-5% Mortality
- 15% Major Complications
- Stroke, Delirium
- 5% Spinal Cord Injury

Vascular Surgery

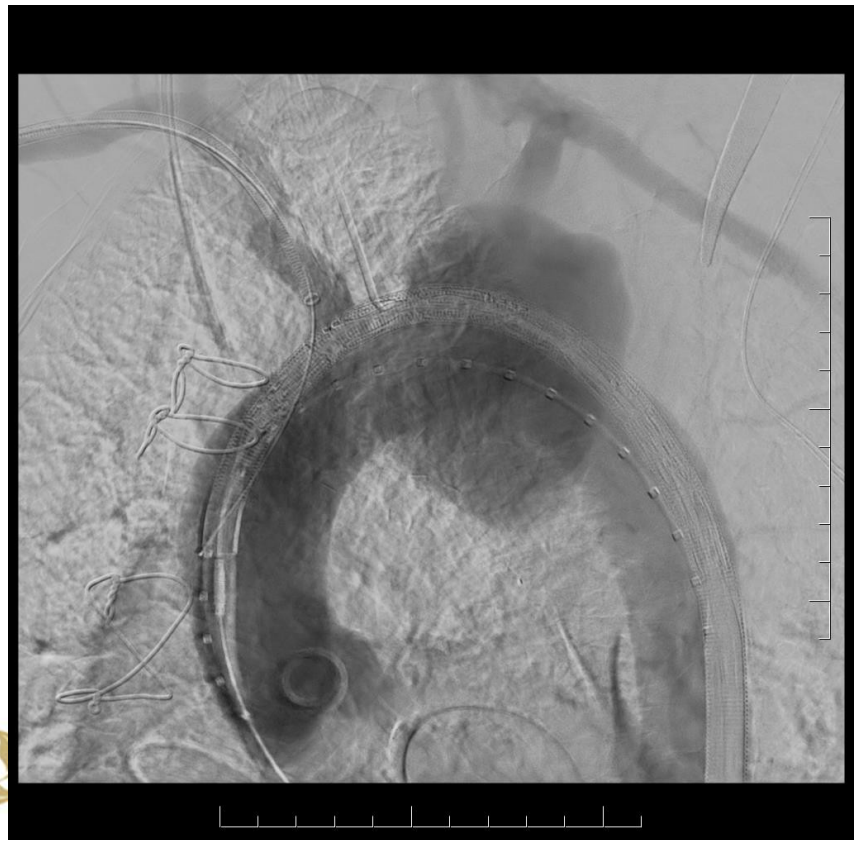
- Minimally Invasive Repair
- No Circ Arrest Required
- 10% Mortality
- 10-14% Stroke Rate
- 5% Spinal Cord Injury
- 30% Re Intervention rate

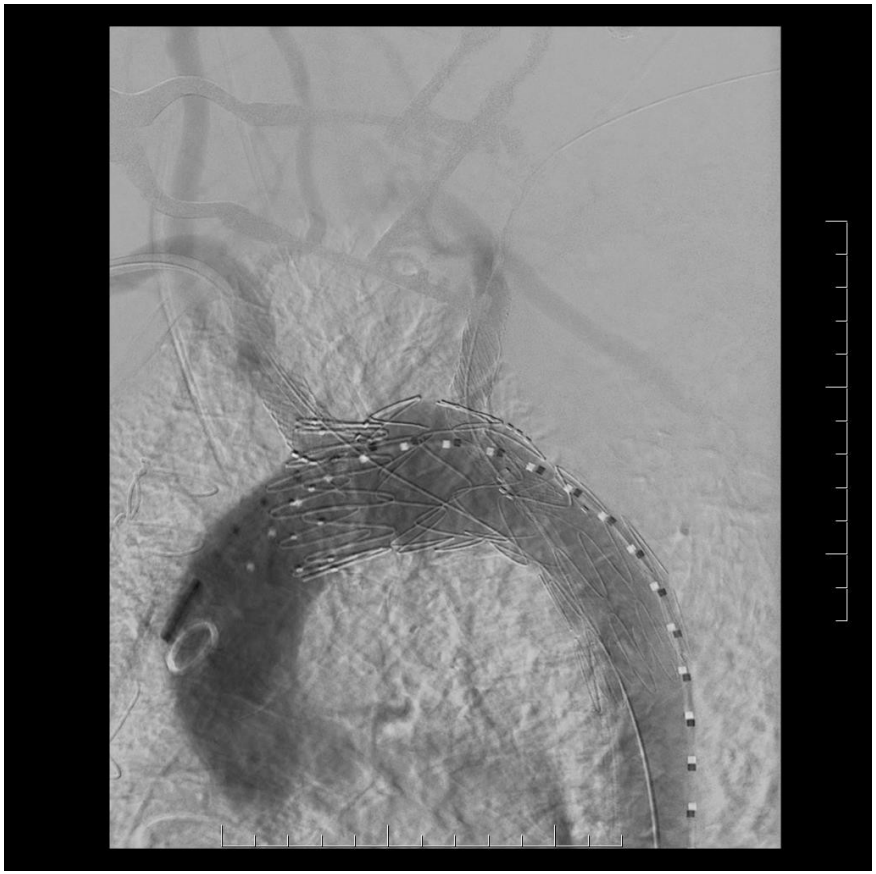


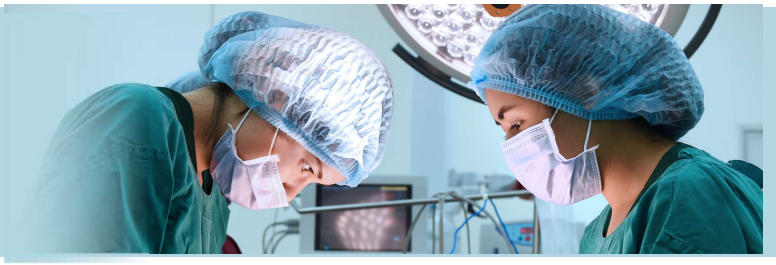


Endovascular Aortic Arch Repair

- Requires a multi speciality approach (CV Surg, Vascular, IR, Anesthesia, Intra op Echo, Critical Care)
- Careful Planning pre op, intra op
- Coordinated operative and anesthesia planning
- Expert skills and visualization

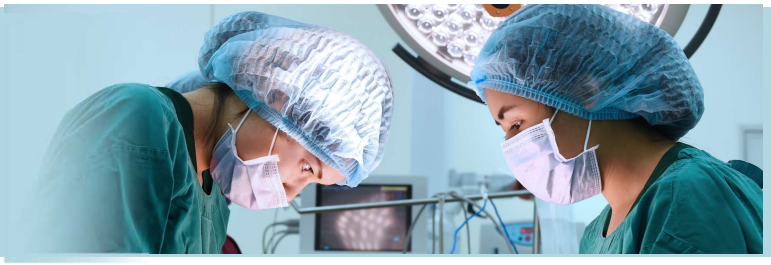






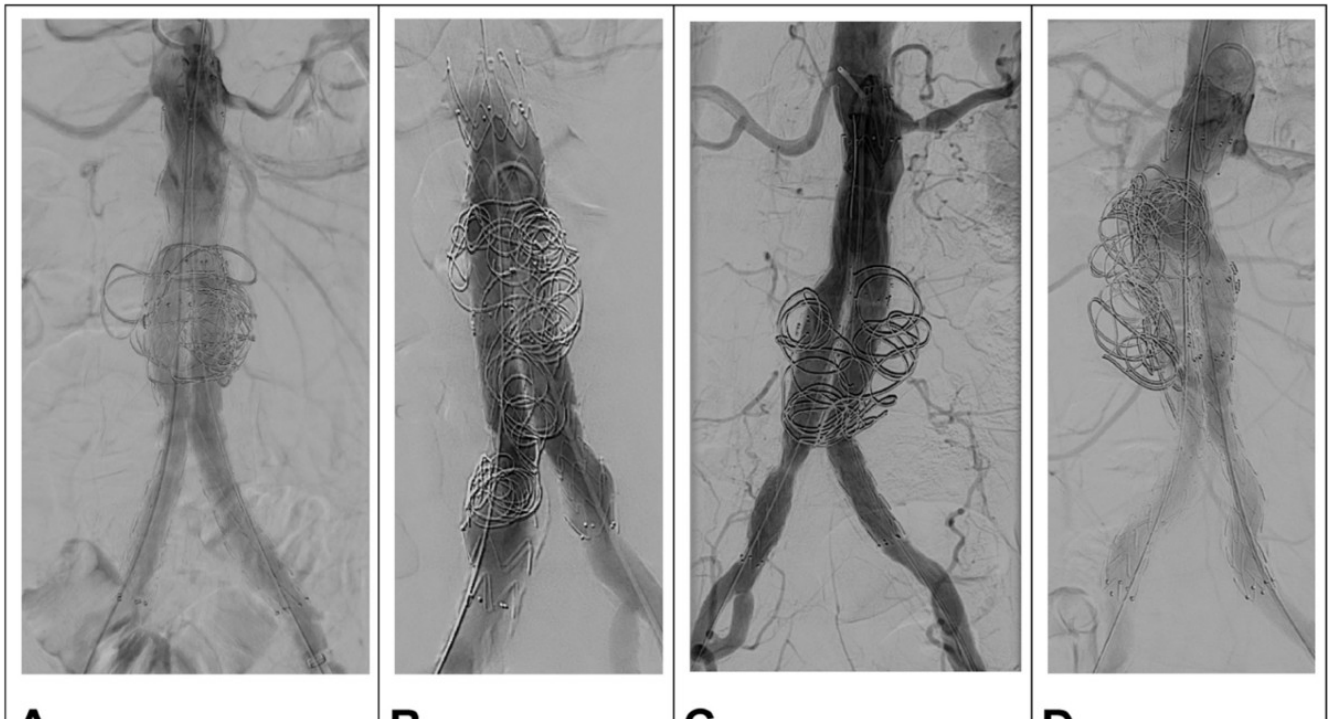
Endoleaks In Infra Renal AAA Repair:

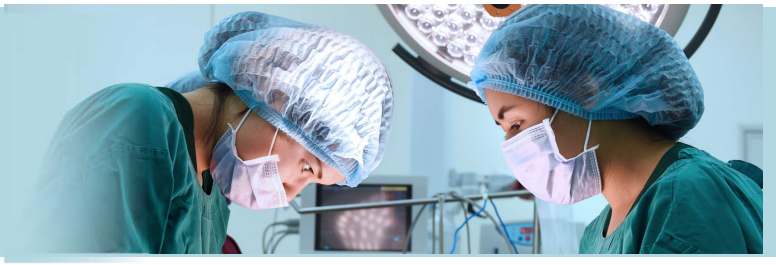
- Type II are most common
- Frequent 15-30% at Discharge
- Arise from IMA, Lumbars
- Many resolve but 8-12% persist at 1 year and some develop late
- Influence of graft type with leak rates higher in PTFE grafts
- Despite T2EL still note 25% sac shrinkage, 50-70% stable but 15-25% have > 5 mm sac growth the intervention trigger
- Predictors of T2EL
- Patent IMA of >2.5- 3 mm
- 4 or more patent lumbar arteries
- Lack of Aortic Thrombus



Endoleaks In Infra Renal AAA Repair:

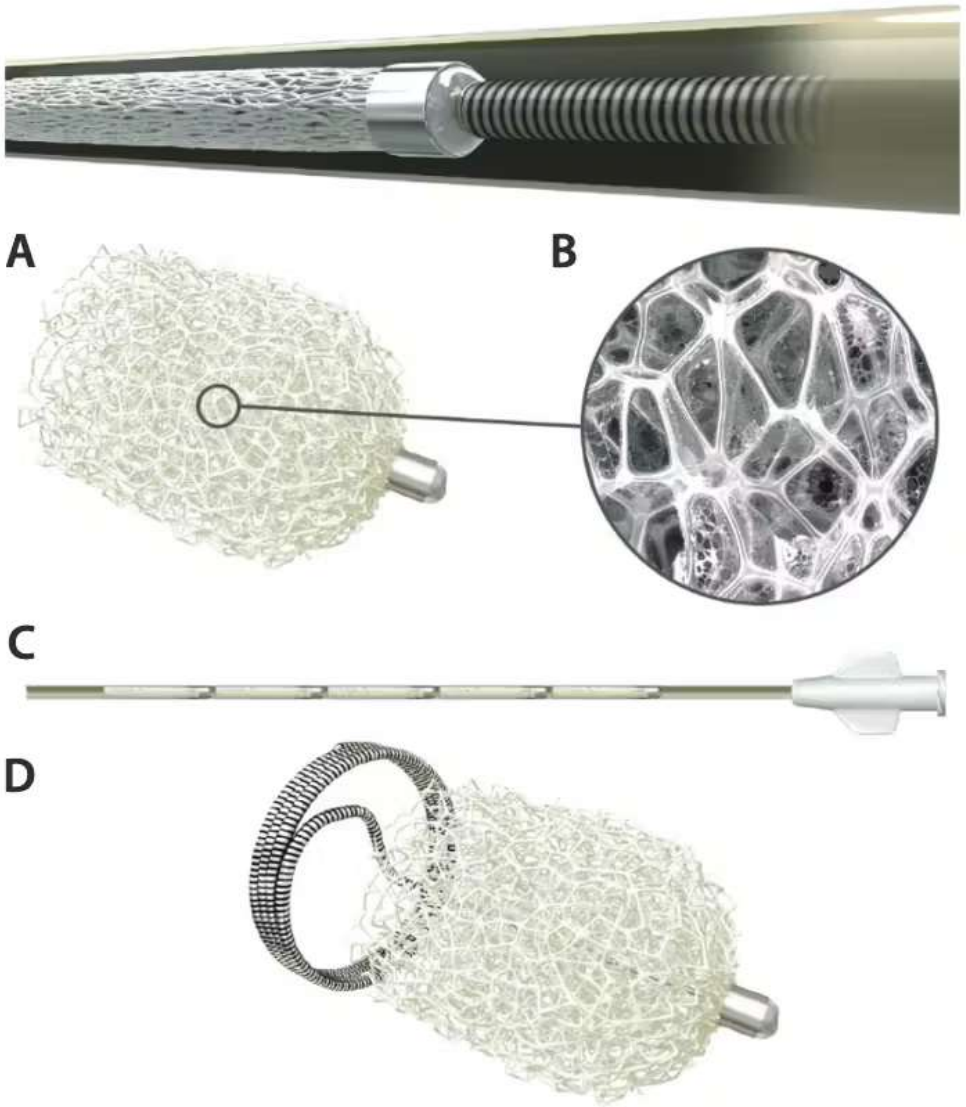
- Management
- Preventative Strategies
- Directed Coil embolization of Large Lumbars/IMA
- Pack Sac with wires





Endoleaks In Infra Renal AAA Repair:

- Management
- Preventative Strategies
- Shape Memory Polymers
- Porous, radiolucent, self expanding
- Low radial force
- Rapid Thrombosis
- Currently in Trial
- Cost effectiveness is TBD



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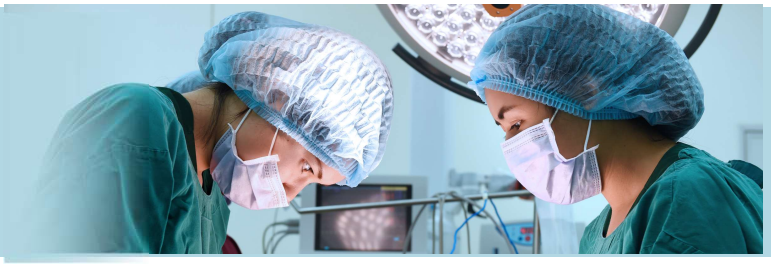
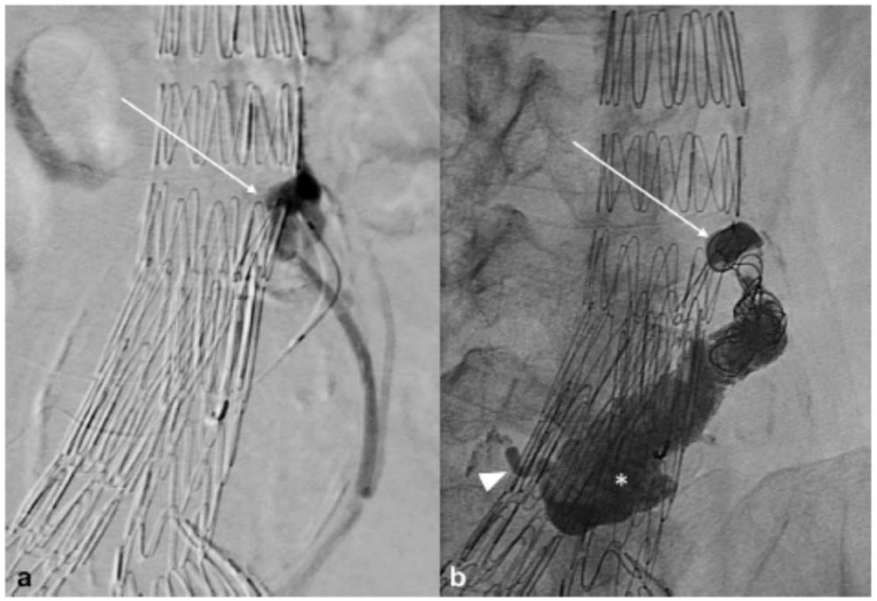
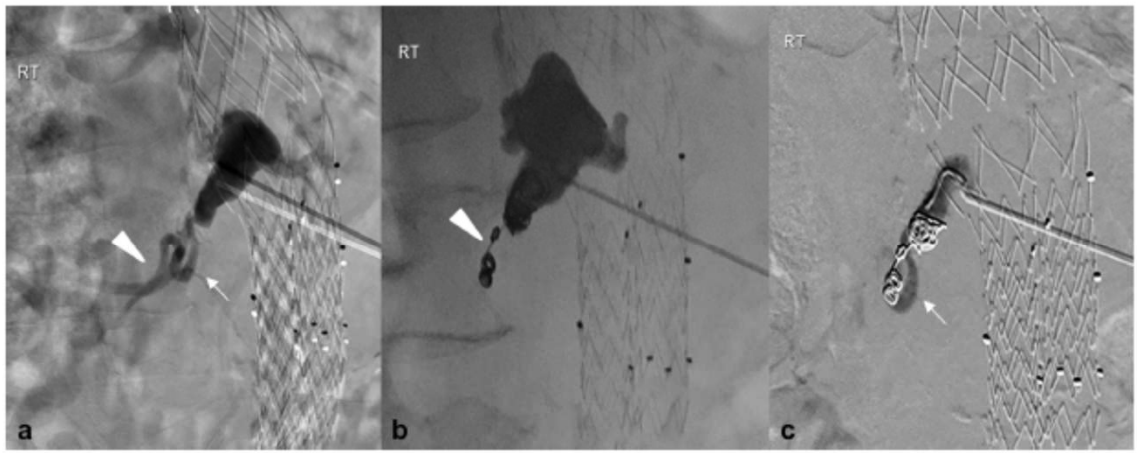


Endoleaks In Infra Renal AAA Repair:

Observation Approach

- Image Post Op with CT or US at 6 weeks
- Follow Sac Size
- If growth of > 5 mm re-image with CT and delayed images
- Direct Sac Puncture and embolize
- Trans Arterial Route Via Internal Iliac for Ileo-lumbar vessels or Via SMA for the IMA





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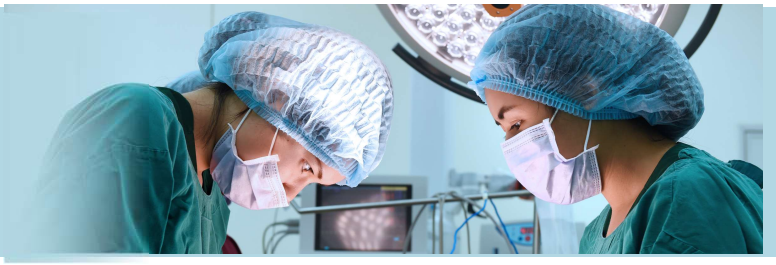


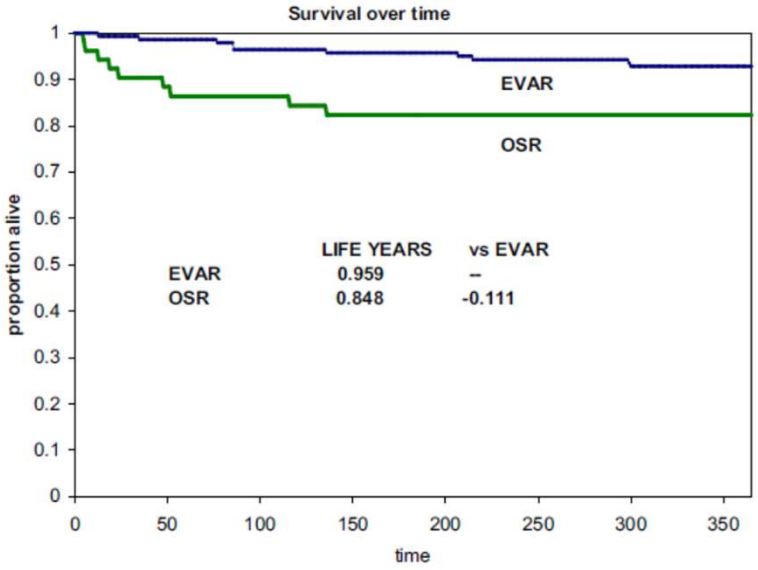
Cost Effectiveness and Re-Imbursement

Can the costs be justified by provincial regulatory bodies?

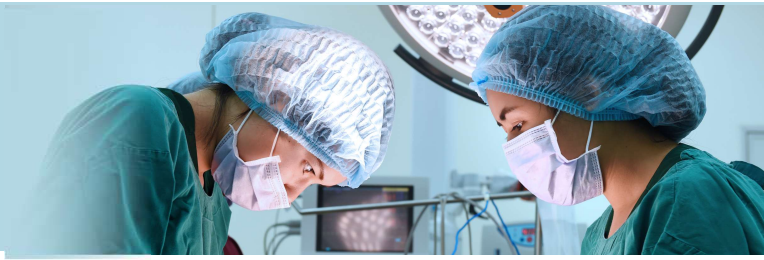
What is the case for Infra Renal EVAR?

Cost-effectiveness analysis of elective endovascular repair compared with open surgical repair of abdominal aortic aneurysms for patients at a high surgical risk: A 1-year patient-level analysis conducted in Ontario, Canada

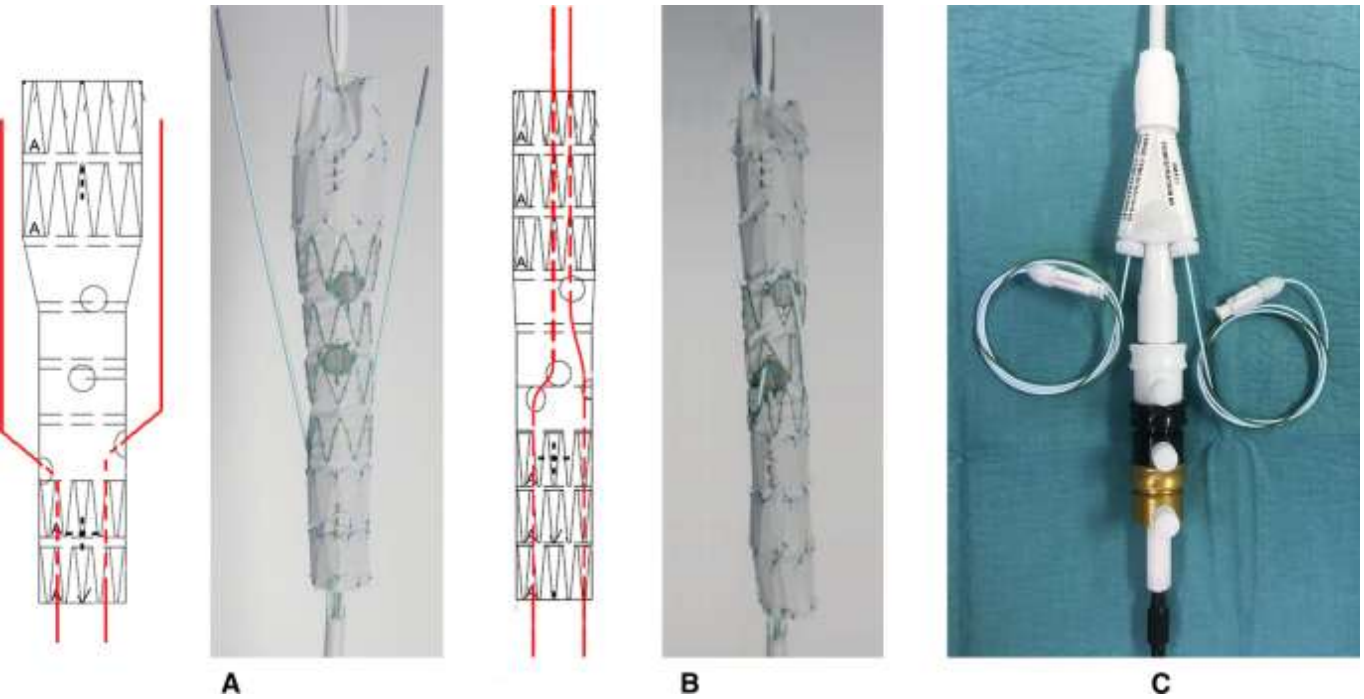
Jean-Eric Tarride, PhD,[a,b] Gord Blackhouse, BComm, MBA, MSc,[a,b] Guy De Rose, BSc, MD,[c,d] Teresa Novick, RN, BA,[c] James M. Bowen, BScPhm, MSc,[a,b] Robert Hopkins, BA, BSc, MA,[a,b] Daria O'Reilly, PhD,[a,b] and Ron Goeree, MA,[a,b] *Hamilton and London, Ontario, Canada*



Conclusions: According to this 1-year observational study, EVAR may be a cost-effective strategy compared with OSR for high-risk patients. Longer-term data are needed to decrease the uncertainty associated with the results. (J Vasc Surg 2008;48:779-87.)



Pre Loaded Cathers for FEVAR vs. Directional Sheath



A B C

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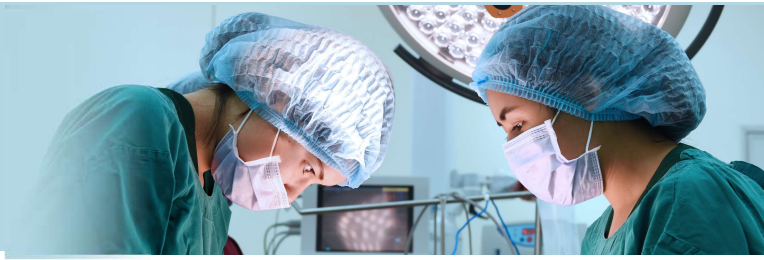

How Do I Choose New Technology

- What problem does it solve?
- How does it apply to my practice?
- Have others used it successfully
- Discuss with Team members
- Get a Demo and try it out on bench or in a case

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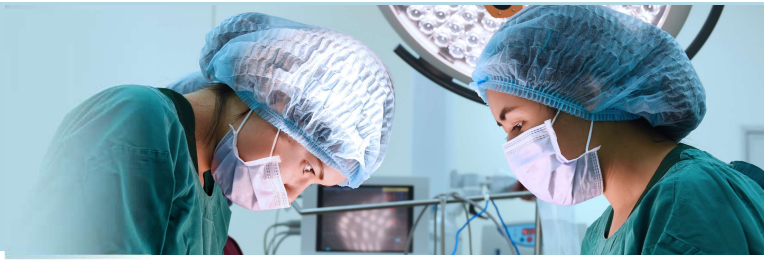

Conclusions

- New EVAR innovations continue to be developed
- Those that simplify procedures persist
- Cost and ease of use are critical for adoption
- New procedures have to be measured against established techniques which is often uncommon in surgery
- Effectiveness and cost effectiveness is required for major devices at Provincial Level

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