Update on Carotid Treatment & Infection Following CEA

Incidence
Bacteriology
Investigation
Management strategies
Complications

Overview

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Disclosures

- I have nothing to disclosure

Background

- Carotid endarterectomy the most common operation performed by vascular surgeons
- >500 endarterectomies annually at our program
- Prosthetic patching has been our strategy of managing the arteriotomy after endarterectomy from results of many prospective randomized studies
  - Patching > Eversion > primary closure

Risk Factors

- No single etiology for patch infection
- Association with postoperative neck hematoma
- Up to 80% had wound related complications postoperatively
- Other classic risk factors
  - Immunosuppressive agents
  - Tobacco smoking
  - Poor general and dental hygiene
  - Poor perioperative glycemic control

Incidence:

- Current literature
  - Literature is largely based on Dacron infection
  - 77 cases of polyester (Dacron) graft infection in 14 publications
  - Representing 0.25-0.5% of implants
  - CAMC experience 25 infections following CEA: 10 year experience: 21/25 (84%) PTFE implant

- Current literature following carotid endarterectomy in a prospective review of the literature. Sot et al. Endovascular Ron.
- Sex year experience of infections following endarterectomy with patch angioplasty. J Intervent Radiol 2011:0:0:0 1-16
Presentation:


Timing of infection:
- Bimodal 50%
- Early <90 days
- Late >90 days
- Often related to timing of infection

Early:
- Local infection: purulent drainage or abscess 15%-40%
- Neck Swelling, pain

Late:
- Draining sinus 30%
- Hemorrhage 10%-15%, PSA 15%-33%
- Sepsis-8%

Investigation:

- CBC with differential
- Sed rate, CRP
- Blood cultures
- Duplex ultrasound:
  - Perigraft fluid pseudoaneurysm
- CTA: Abscess, fluid around patch, pseudoanuerysm

Bacteriology:

- Knight et al- 77 Dacron infections
- Staphylococcus Aureus, Bacteroides Fragilis, MRSA, Streptococcus
- S. Epidermidis- Typically in late infections
- 59% cx. Included S aureus or epidermidis
- Close to 1/3 no bacteria recovered
- CAMC experience: 25 infections
  - 95% involved gram positive organisms
  - 3 polymicrobial
  - 3/25 resistant organisms
  - 5/25 no growth

Management strategies:

- General Infection principles:
  - Remove all infected material
  - Vascular reconstruction to maintain perfusion
  1. Aspiration and antibiotics
  2. Excision of infected material and antibiotic irrigation +/- Musle flap - 2 cases
  3. Excision of patch-78%
  4. Vein Patching, Vein interposition
  4. Excision and ligation: TCD velocity in MCA >20cm/sec, Consider Balloon occlusion test 20 min with HYPER Foam Ballon

Complications:

- Cranial nerve injury
- Persistent infection
- Stroke
- Death

Conclusion:

Management strategies should be considered similar to groin infections

Ideal management is total excision and preservation of in line arterial perfusion

However in non septic patients without pseudoaneurysms consideration for less aggressive therapies could be considered with the potential of less morbidity