Update on Carotid Treatment & Infection Following CEA

Patrick A Stone MD FACS
Assistant Program Director
WVU Charleston Division
Department of Surgery
Division of Vascular And Endovascular Surgery

- Nothing to disclose

Overview

- Incidence
- Bacteriology
- Investigation
- Management strategies
- Complications

Background

- Carotid endarterectomy the most common operation performed in many institutions 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
Presentation:


- Timing of infection: Bimodal 50% early/late: 75% in different
- 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 10-11%, PSA-15%-33%
  - Severe-8%

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

Bacteriology
- Knight et al- 77 Dacron infections
  - Staphylococcus Aureus, Bacteroides Fragilis, MRSA,Straptococcus
  - S. Epidermidis- Typically in late infections
  - 55% ox. Included S aureus or epidemidis
  - 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
  - Aspiration and antibiotics
  - Excision of infected material and antibiotic irrigation +/- Muscle flap- 2 cases
  - Excision of patch-78%
  - Vein Patching, Vein interposition,
  - Excision and ligation: TCD velocity in MCA >20cm/sec, Consider Balloon occlusion test 20 min with HYPER Foam Balloon
  - Cranial nerve injury
  - Persistent infection
  - Stroke
  - Death

Complications

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