Endovascular treatment of carotid-jugular fistula after gunshot wound

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I have the following potential conflicts of interest to report:

- [x] Consulting – Gore Medical®
- [ ] Employment in industry
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- [ ] I do not have any potential conflict of interest
Background

- Penetrating neck injuries:
  - ± 1% of all trauma patients
- Mortality: 3 – 6%
  - Ischemic stroke
  - Exsanguination
- Mechanism of injury:
  - Firearm: 60%
  - Stab wound: 40%
• Traumatic AVF of the neck and head: ± 4% of the complications from arterial trauma.

• congestive heart failure
• cerebral ischemia
• thromboembolism
• rupture

Background

• Treatment goal:
  • occlude the fistula
  • preserve artery patency

• Preference for endovascular approach:
  • severe deformity of the native vasculature
  • risk of bleeding
  • nerve damage
  • intracranial embolization


Case report

- 17 year-old male, history of gunshot wound at left cervical region (08/2016), with exit port on the right.
- Negative neck exploration.
- 10 months follow-up presented with bruit on the left.
- Referred for arteriography.
Case report

• Preoperative echocardiogram
  • no signs of right ventricular overload
Endovascular treatment

• Approach – devices:
  • bilateral femoral artery approach
  • 7x60mm Fluency™ + 9x60mm Fluency™
  • No post-dilatation

• Intraoperative arteriography – residual AVF flow
• No clinical complication
• Follow-up visit
  • complete disappearance of cervical bruit.
• Dual antiplatelet therapy
  • 6 months
• Control Doppler
  • patency of stent grafts and jugular vein with phasic flow, no residual fistula
Discussion

• Covered stents - exclusion of vascular injury
  • DuBose et al, 2008 (review of 31 studies involving 113 patients)
    • overall patency of 79.6% (2 years)
    • stroke rate - 3.5% x stenting rate for atherosclerotic cerebrovascular disease (4.7%)
Discussion

• Lack of long-term data
  • young trauma patient - patent carotid for the next 50 years
• Long-term antiplatelet therapy with clopidogrel or aspirin

Conclusion

• Covered stents - safe and effective approach for selected cases of cervical AV fistulas;
  • low levels of complications

• Most reports - high technical success rates
  • low neurological complications X uncertain long-term outcomes in young patients
• Thank you