

# Endovascular Reconstruction of Extracranial Traumatic Internal Carotid Artery Dissections: a Systematic Review

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# Disclosures

Speaker name: George Koullias MD, PhD

**I do NOT have any potential conflict of interest relevant to this presentation**

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# Background

- Internal carotid artery dissection (ICAD)
  - Defined as intimal splitting that can allow blood to enter the artery wall cleft and lead to aneurysmal dilatation , mural hematoma, stenosis, thrombosis, obstruction, or embolization.
  - It is either spontaneous or traumatic
  - Clinical presentation varies from asymptomatic to symptomatic (including stroke, transient ischemic attack (TIA), headache, face or neck pain and Horner syndrome)
- ICAD accounts for approximately 20% of strokes for patients younger than 45 years old
- Treatment options:
  - medical management with early systemic anticoagulation or antiplatelet therapy where indicated
  - endovascular repair if traumatic or medical management is contraindicated or has failed

# Objective

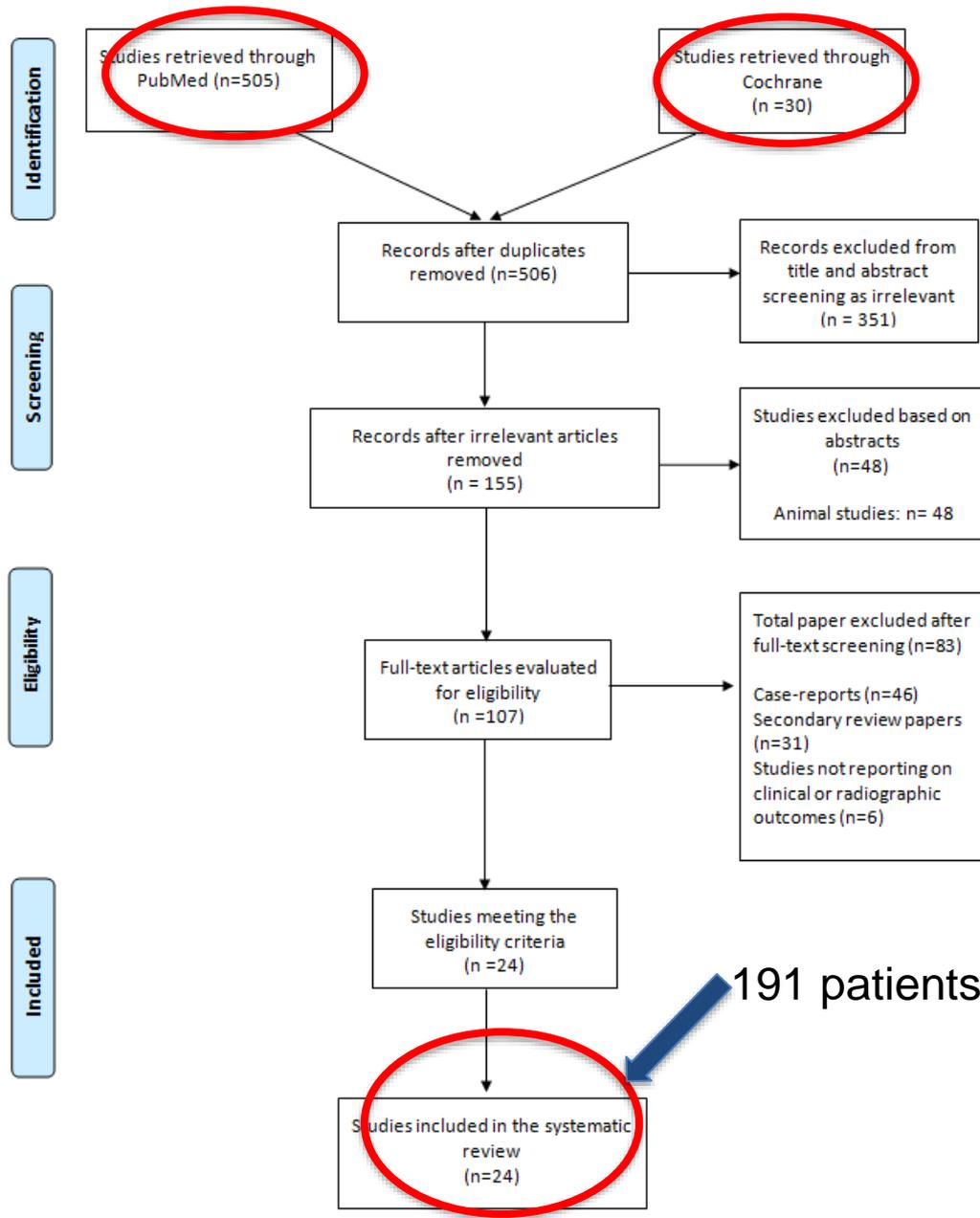
The aim in this study was

**to systematically review the literature of published traumatic (ie trauma and iatrogenic) carotid dissection cases treated with an endovascular approach (either with CAS or PED) in order to better define patient presentation, typical indications, and treatment outcomes.**

# Methods

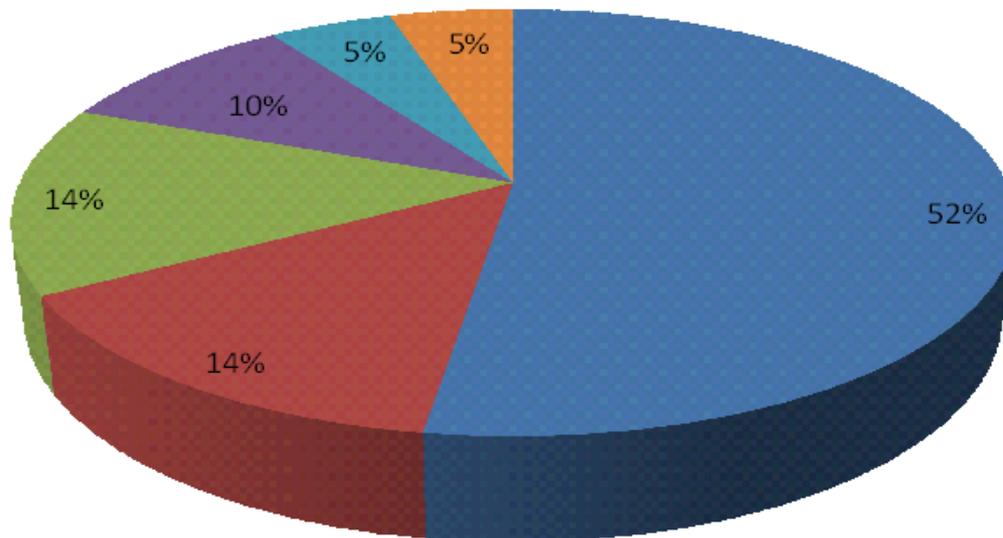
- This systematic review was performed according to the PRISMA guidelines
- The review protocol has been registered in the PROSPERO International Prospective Register of systematic reviews
- Risk of bias was assessed using Cochrane tool for observational studies (ACROBAT)
- Grading of Recommendations Assessment, Development and Evaluation (GRADE)

# Flow Diagram

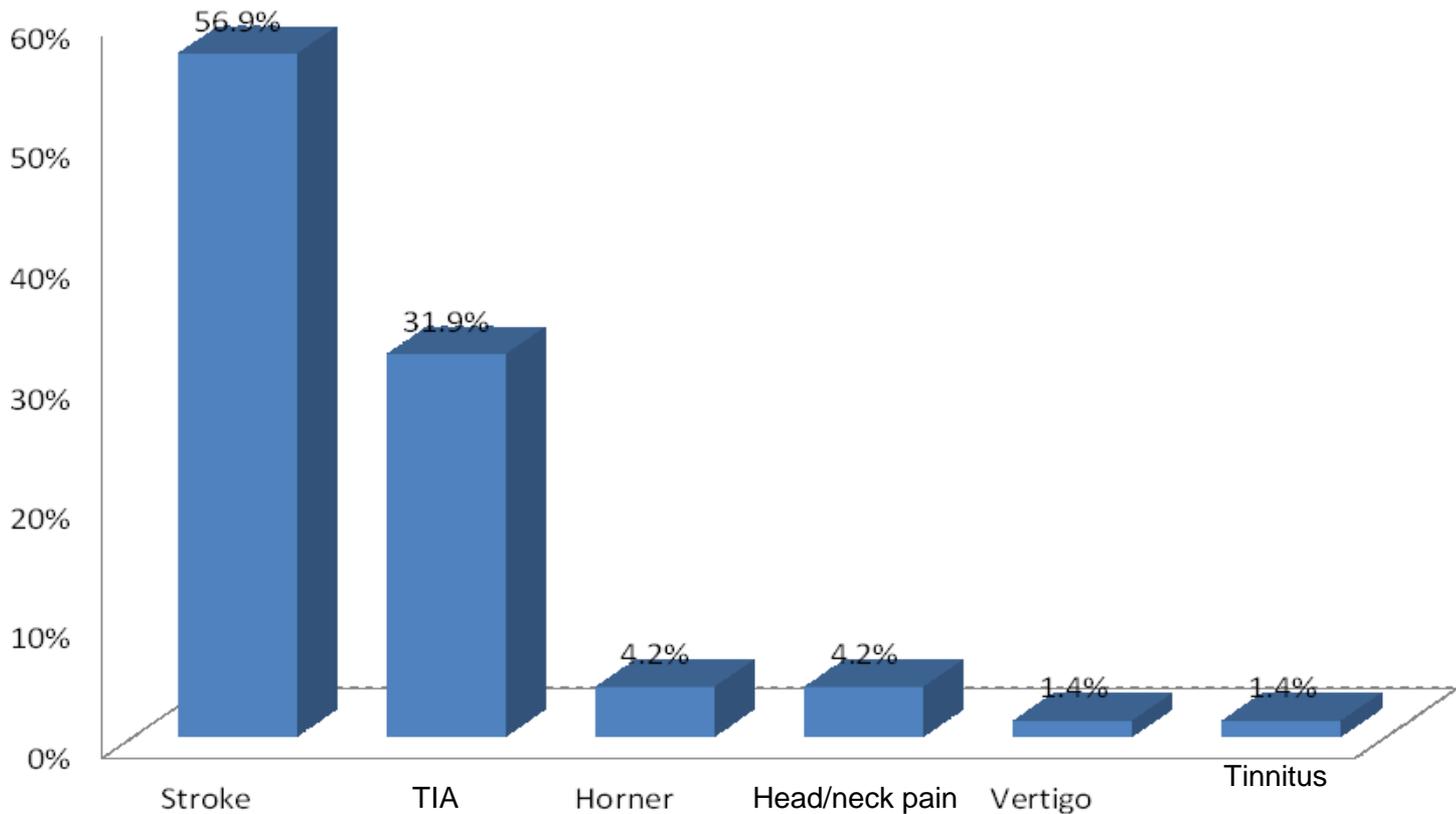


# Different mechanisms of blunt trauma causing carotid artery dissections

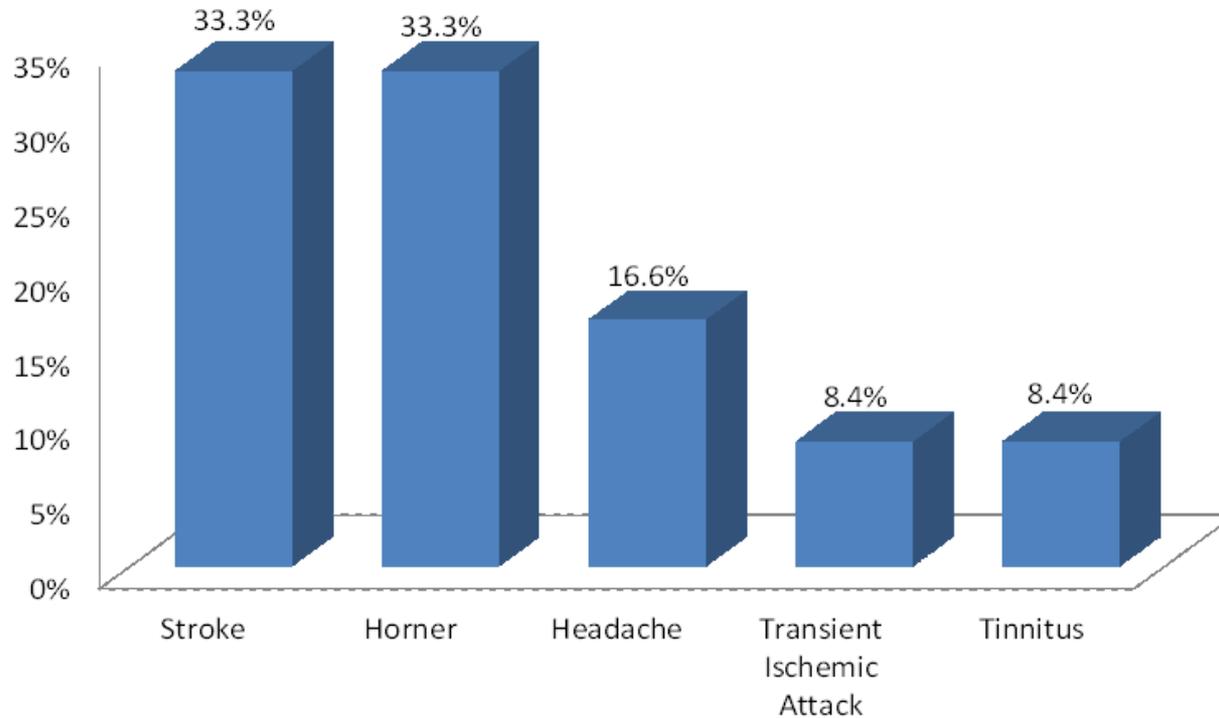
- Motor Vehicle Accident
- Outdoor Activities/Sport
- Strike with Door
- Strangulation
- All Terrain Vehicle/Motorcycle Accident
- Assault



# Symptomatic patients in the carotid artery stenting (CAS) group (n=179)



# Symptomatic patients in the flow diversion group (n=12)



# Highlights

- Internal Carotid Artery Dissection was traumatic (82.2%) or iatrogenic (17.8%)
- The majority of traumatic dissection was induced by blunt neck trauma (94.3%)
- Concomitant pseudoaneurysms were identified in >60% of lesions
- Endovascular approach has 100% technical success
- CAS: CVA rate was 1.1% at 30days (28.9 months f/u-NO CVA during F/U)
- PED: NO CVA at 30 days or at F/U

# Conclusion

- Endovascular reconstruction of traumatic or iatrogenic ICAD when medical treatment is contraindicated is a safe and feasible treatment strategy.
- This approach demonstrated acceptable short and long-term clinical and radiographic outcomes with either the stenting technique or with flow diversion.
- Prospective cohorts or RCTs specifically designed for this patient population are lacking in the literature and can further help validate our results.

Thank you



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