



## Use of MRA plaque morphology in treatment selection of patients with carotid disease: A single center experience from University at Buffalo, New York

Rashid Janjua; Ashish Sonig; Sabareesh Kumar Natarajan; Chandan Krishna; Ning Lin; Maxim Mokin; L. Nelson Hopkins; Kenneth Snyder; Adnan Hussain Siddiqui; Elad Levy MD  
DEPARTMENT OF NEUROSURGERY, SUNY BUFFALO, BUFFALO NY

UB UNIVERSITY AT BUFFALO  
NS NEUROSURGERY

### Introduction

Recent advancements in antiplatelet therapy and imaging modalities, technique and technology have resulted in shifting paradigms and parameters as previously defined by the randomized trials. Characterization with magnetic resonance angiography(MRA) has resulted in an improved understanding of the true composition of lumen compromising plaque, thus allowing a more tailored, patient-specific approach towards carotid revascularization. A high-quality 3.0-Tesla (T) MRA unit was used in our patient group to assess plaque features and determine the treatment.

### Methods

We retrospectively analyzed carotid-stenosis patients from July 2010 – Dec 2010 with carotid stenosis who underwent 3.0 T MRA plaque morphology for carotid diseases.

We grouped patients into high risk patients (intra plaque hemorrhage, necrotic lipid core and thin fibrous cap) were identified based on MRA and low risk patients. All symptomatic and asymptomatic patients with low risk features AND <50% stenosis(symptomatic) and <70%(asymptomatic) underwent best Medical treatment

### Results

A total of 33 patients underwent 3.0T-MRA imaging of the carotid-arteries.

Ten patients(30.3%)were symptomatic( 5/10,high-risk-MRA and 5/10,low-risk-MRA) and 23(69.69%) asymptomatic(7/23 high-risk-MRA and 16/23 low-risk-MRA).

Among symptomatic patients with high-risk-MRA only(2/5,40%) had significant-stenosis,they2/5(40%) underwent CAS with proximal-protection and 1/10(10%) with low-risk-plaque feature underwent CAS(distal protection).

Among asymptomatic,7/23 had high-risk features,2/7(28.5%) had significant-stenosis and had CAS with proximal-protection and1/7(14.2%) had CAS with distal-protection. Three patients with asymptomatic carotid-stenosis had low risk plaque features but high-grade stenosis; two of them underwent CAS and one CEA. All others were treated with best medical management.

One patient with high-risk features on MRA underwent CAS with proximal protection experienced dysphasia and was treated with IV

### Conclusions

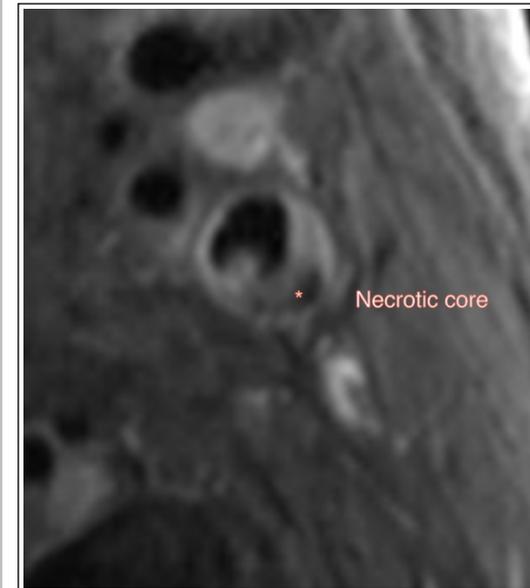
MRA plaque morphology can be invaluable while selecting the protection device(proximal protection vs distal protection). Our study has shown that by careful selection of patients based on plaque morphology the perioperative stroke rate could be minimized.

### Learning Objectives

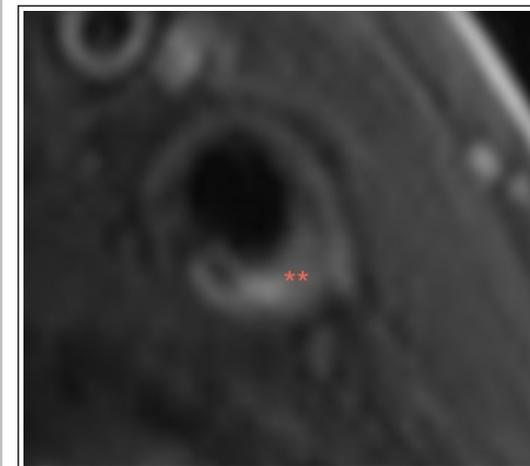
The readers will understand the value of MRA plaque morphology in the decision making process of selection of protection device for Carotid artery stenting.

### References

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Plaque morphology of the left carotid demonstrates the plaque with the hypodense necrotic core (\*)



The plaque demonstrates a hyperintense signal indicating hemorrhagic conversion (\*\*)