Annual Meeting of the AANS/CNS Cerebrovascular Section
Held in conjunction with the
4th SNIS International Endovascular Stroke Conference (IESC)
February 10-11, 2014
Hard Rock Hotel
San Diego, CA

Endovascular Treatment of Acute Ischemic Stroke

Rafael Rodriguez-Mercado MD FACS FAANS; Caleb E. Feliciano MD; Euclides Effio; Cosme Gonzalez MD
Endovascular Neurosurgery - Neurosugery Section
Medical Sciences Campus - University of Puerto Rico
San Juan, Puerto Rico

Neuro Surgery Section
School of Medicine
NEUROSURGERY UPR-RCM
University Of Puerto Rico

Introduction

Stroke is one of the leading causes of death around the world. Each year, 795 000 people experience a new or recurrent stroke. 610 000 of these are first attacks, and 185 000 are recurrent attacks. Stroke accounted for ~ 1 of every 19 deaths in the US in 2009. With new technological advances interventionalists have tools capable of recanalizing arterial and venous occlusions. We present our case series of patients with acute ischemic stroke treated by endovascular techniques at our institution.

Methods

We reviewed retrospectively medical records of patients with acute ischemic stroke (AIS) in large vessels in cerebral territories that received endovascular treatment between January 2012 and April 2013. Endovascular treatment was administered in patients in whom IV thrombolysis failed – patients who presented persistent severe symptoms and large-vessel occlusions. Treatment consisted of pharmacological and/or mechanical intervention, or a combination of these methods. Patients received general anesthesia during the endovascular treatment. Postoperative care was provided at a neurosurgery

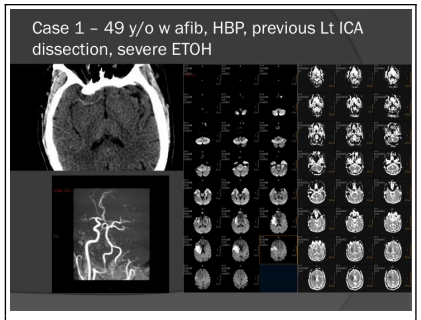
Results

Results - Patients Characteristics, Treatment and Clinical Outcomes

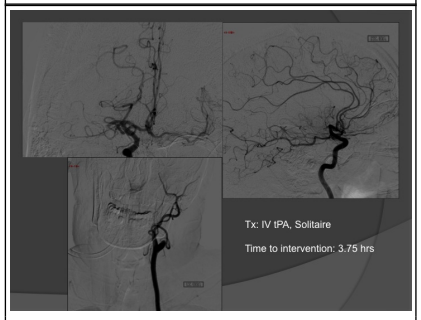
Mean Age	50.8 yrs (28-83 y/o)
Sex	2M, 3F
Mean time to DSA	270 mins
Risk Factors	HBP-80%, Hyperlipidemia-60%, afib-20%, DM-40%, pregnancy-20%, MTHFR mutation-20%
Mean NIHSS Admission	14
Location	MCA - 60%; CVS – 20%
Etiology	Arterioembolic-2, Cardioembolic-2, THFR mutation/Pregnancy-1
TIMI Grade Flow	TIMI 2/3 - 80% pts
Postop ICH	ICH - 60%, Hyperdense CVS– 20%
Pharmacological Thrombolysis	IV tPA/Reopro - 60%, Verapamil – 20%
Mechanical Thrombolysis	Solitaire - 3 cases, Microwire - 1 case
Mortality	1 patient
Mean NIHSS discharge	8
Mean mRS discharge	2 at last f/u

Conclusions

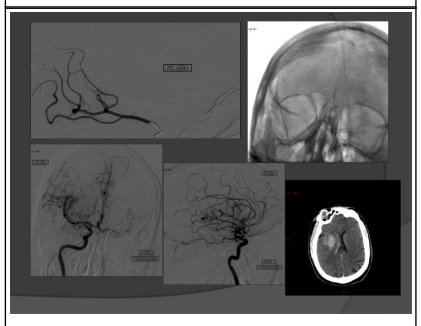
1-Endovascular therapy is effective and safe for carefully selected patients with AIS – arterial and venous sinus occlusion
2-Timely intervention is the crucial factor for a favorable clinical outcome in pharmacological and endovascular treatment
3-Patients who respond poorly to IV tPA and present with proximal or large arterial occlusions respond better to endovascular therapy



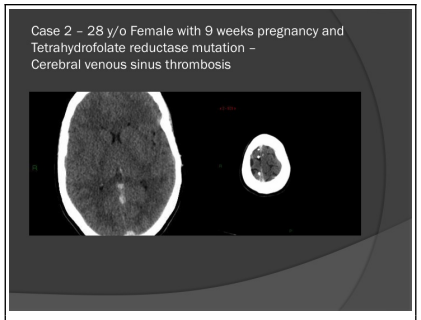
Right MCA stroke. Poor response to IVt-PA. Arrived to endo suite at 3.75 hrs post ictus.



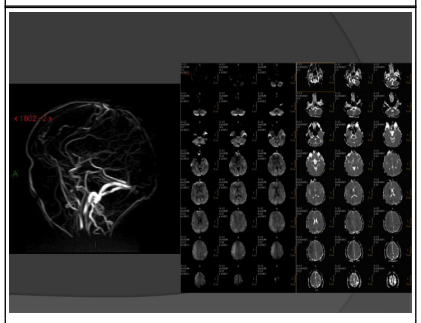
Right M1 thrombus with large perfusion defect.



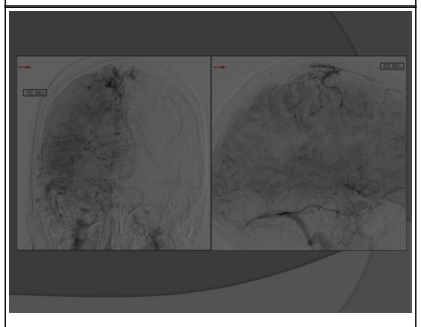
Solitaire deployed in Rt M1 with reperfusion (TIMI flow grade 3). Moderate Rt BG reperfusion bleed. mRS 3 after 2 weeks.



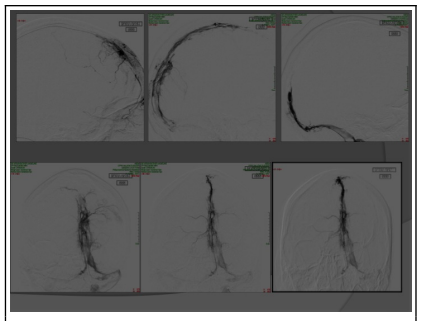
Presented with H/A and progressive deterioration of level of consciousness. NIHSS 20 at evaluation.



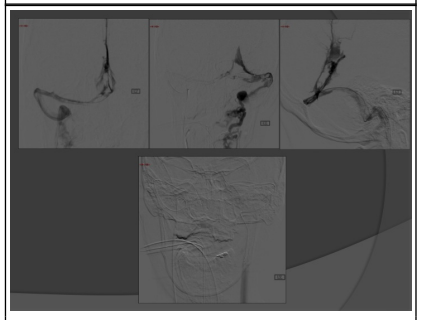
MRV shows SSS, SS, TSs flow defects. MR-DWI shows increased diffuse signal bilaterally.



DSA shows stasis of venous phase with marked flow defect of SSS, SS and TSs.



Mechanical clot disruption using a microwire and Reopro in SSS.



Mechanical clot disruption in SSS/TS with microwire

References

1. Go AS et al.: Heart Disease and Stroke Statistics 2013 Update: A Report From the American Heart Association. *Circulation*. 2013;127: e6-e245Dec 12, 2012.
2. Levy EI, Veznedaroglu E: Endovascular Management of Acute Symptomatic Intracranial Arterial Occlusion. *Neurosurgery* 59-5: SE-242 - SE- 250, 2006.
3. Jovin TG et al.: Intra-arterial Thrombolysis or Stent Placement During Endovascular Treatment for Acute Ischemic Stroke Leads to the Highest Recanalization Rate: Results of a Multicenter Retrospective Study. *Neurosurgery* 68:1618–1623, 2011