



ORIGINAL RESEARCH PAPER

General Medicine

HAEMORRHAGIC STROKE IN A YOUNG NORMOTENSIVE PATIENT DUE TO MYCOTIC ANEURYSM: A Case Report

KEY WORDS:

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ABSTRACT

This article describes about the rare occurrence and further management of Hemorrhagic Stroke in Young individual secondary to Mycotic Aneurysm. This clinical case is studied in Madras Medical College and the follow-up showed improvement in Patient's Condition following the treatment with Combined approach of aggressive Antibiotic Management and Surgical repair.

BACKGROUND

A Stroke is defined as an abrupt onset of focal/Global Neurological deficit due to a Vascular cause (Ischemic/Hemorrhagic). Stroke is the leading cause of long-term Neurological disability in the general population. Stroke in Young Patients (Age 18-45 years) are rather uncommon, have a different set of risk factors and requires an extensive workup to investigate the cause and to prevent further occurrences. The common risk factors of developing a Hemorrhagic Stroke in Young are Hypertension, Obesity, Trauma, AV Malformations, Genetic predisposition, Coagulopathies, Vasculitides, Aneurysm rupture, Illicit Drug Use, Excessive Alcohol intake, Cigarette Smoking etc., [1] Hemorrhagic Stroke resulting from the rupture of a Mycotic Aneurysm (develops in 1-5% of Infective Endocarditis) is a rare occurrence that its presentation is discussed extensively in this article. Despite having low Incidence rates (4.9 per 100,000) [2] Non-traumatic Stroke in Young causes significantly high Mortality and long-term Morbidity in Young adults. A structured follow-up and periodic assessment is required to prevent further attacks.

CASE

A 37 year old Indian Male with a known history of Congenital heart disease lost to follow up –probably VSD with spontaneous closure presented with complaints of low grade fever for 10 days, followed by giddiness and altered sensorium for 1 day. He has no previous history of Systemic Hypertension/Diabetes mellitus. He consumes Alcohol occasionally and has no history of Illicit Drug usage.

On admission his
 GCS - 8/15 E2V2M4
 Temperature - 38.1°C (100.5°F)
 Heart Rate - 108/minute
 Blood Pressure - 110/80 mm of Hg
 O₂ saturation - 96% in room air.
 On further examination,
 Pan digital clubbing was noted
 No signs of Pallor/Pedal Edema is noted

Neurological examination showed hypertonia with hyperreflexia of all extremities with bilateral extensor plantar response. Formal assessment of Power, Cranial Nerve and cerebellar function could not be elicited. Bilateral Pupils

Equal in size and reacting to light. There were no signs of Meningeal irritation

Cardiovascular assessment revealed the presence of Pansystolic Murmur in the Mitral area (3/6) with no associated thrill. With the above details an initial diagnosis of embolic stroke secondary to infective endocarditis was considered. Baseline investigations showed an elevated total count of 19700 with neutrophilic predominance.

Echocardiogram revealed

A single vegetation attached to Anterior Mitral Leaflet with independent motion. Mitral Regurgitation is seen. LV systolic function was normal. No evidence of AR/AS/MS/TR. Features suggestive of Infective Endocarditis

Non-contrast CT Brain showed

Interventricular Hemorrhage in both lateral, 3rd and 4th Ventricles with Hydrocephalus. Mild Perihaemorrhagic Edema noted. No signs of Infarct

CT Cerebral Angiogram showed:

A 6*5*6 mm Saccular Aneurysm arising from the Posterolateral aspect of Right Medial Posterior Choroidal Artery is visualized. Rupture of the Aneurysm is noted

Serial Blood Cultures

Growth of Streptococcus viridans sensitive to Ceftriaxone and Gentamycin

Basic Metabolic Panel revealed no abnormalities.

Patient was started on an Aggressive course of Antibiotics intravenous ceftriaxone and gentamycin with Edema Protection measures such as mannitol. He was immediately taken up for External Ventricular Drain (EVD) placement and surgical clipping of Aneurysm was done after 3 weeks of Stabilization. Despite adequate treatment he suffered Cardiac arrest and expired on Day 25 since admission.

DISCUSSION

Mycotic Aneurysm (synonymous to Infective/Microbial Aneurysm) is one of the rare complications of Infective Endocarditis. Although estimated embolism rate is 20-25%, symptomatic Mycotic Aneurysm develops in only about 1-5%

of cases. Mycotic Aneurysm has a rarer incidence among all Intracranial Aneurysms^[3]. The development of herniation, Large vessel involvement, Aneurysm rupture and Non-surgical treatment of the aneurysms are predictive risk factors associated with increased mortality. They usually arise from septic micro emboli from Cardiac vegetation's occluding Vasa vasorum leading to vessel wall infection. This leads to the release of Cytokines which attracts Neutrophils thereby activating Matrix Metalloproteinases (MMP). These enzymes cause breakdown of the vessel wall of the adventitia which then gradually spreads inwards causing weakness of the vessel wall^[4]. The arterial pulsations against this weakened wall results in Aneurysm formation. They are most commonly seen at terminal branches and are prone to Spontaneous rupture. Some studies correlate the MMP activity with the chances of Aneurysmal rupture. The cerebral arteries, femoral arteries, aorta, superior mesenteric and hepatic arteries are usually involved. The Histopathological examination of the affected tissue will usually show features of Transmural inflammation with focal necrosis and Thrombosis. Nearly 70% of cases arise as a complication of Left Sided Infective Endocarditis. The early diagnosis of Infective Endocarditis is required to promptly initiate Antibiotic therapy. Unruptured Aneurysm could thrombose spontaneously and could resolve completely with conservative Antibiotic therapy for 6 weeks alone. Empirical Antibiotics covering the common pathogens (*S. aureus*, *S. viridans*, *Salmonella* spp, *T. Pallidum* etc.) should be used before the availability of sensitivity reports. Treatment response has to be monitored with Serial Cell counts, clinical response and biomarkers^[5]. Surgical Repair (Open/Endovascular) combined with Antibiotics course is recommended for Aneurysmal rupture leading to Intracranial Hemorrhage. Proximal ligation and resection of aneurysm followed by revascularization with Graft placement is usually preferred. This approach also has an advantage of preserving distal blood flow. Cardiac assessment and subsequent treatment of the underlying condition prevents further complications. Stroke in Young affects Quality of Life (QoL) earlier than usual. The Physical, Economical and Occupational rehabilitation aimed towards maintaining the productivity of the patient is required.

LIMITATIONS

Medical Records regarding the previous history of Congenital Heart Disease could not be obtained.

Aneurysmal Clipping wasn't attempted immediately owing to the presence of Hydrocephalus

CONCLUSION

Despite the relative rarity of Incidence, Young Normotensive Patients can present with Mycotic Aneurysm as the initial presentation of Infective Endocarditis. Hence it should be suspected in all Young Patients with Non-traumatic Intracerebral Hemorrhage. Unruptured Aneurysm has a better prognosis than a ruptured one. Aggressive Management by combined use of Antibiotics and Surgical (Open/Endovascular) repair is recommended for better outcome. This case study also highlights the importance of regular follow-up to Patients with Congenital Heart Diseases as a mode of Secondary Prevention to avoid complications like Infective Endocarditis.

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