

**Case Report:**

**Middle cerebral Artery (MCA) Bypass in MoyaMoya Disease**

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**Abstract:**

Moya Moya disease is cerebrovascular disease characterized by unilateral or bilateral progressive occlusion of internal carotid and the proximal part of anterior and middle carotid arteries. A case of 41-years old Saudi with MoyaMoya disease. Patient had a transitory ischemic attack in the anterolateral part of the right frontal lobe, MCA bypass and the operation successfully done.

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**Introduction**

Moya Moya disease was first reported in the late fifties by Shimizu and colleagues as hypoplasia of the bilateral internal carotid arteries (ICAs. The disease considers as cerebrovascular disorder occurring predominantly in the Japanese population, in which the vessels of the base of the brain become occluded and revascularized with a duplicated and fine network of vessels; it occurs commonly in young children and is manifested by sever CNS manifestation; the diagnosis is made by the angiographic picture(1). The incidence of Moya Moya disease usually found in two age groups: children who are approximately 5 years old and adults in their 40s. Chances of having Moya Moya disease is higher in female than male(1,2).

**Case presentation**

41-years old Saudi male patient known case of asthma presented to ER with intermittent repeated headache accompanied by tingling and hypoesthesia in the left side of the body. On examination, On physical examination, the patient had a pleasant disposition, was in no acute distress, and was awake, alert, and oriented to person, place, and time. She was obese, Vital signs (blood pressure, 147/88 mm Hg; body temperature, 37.7°C; heart rate, 101 beats per min) were notable for hypertension and tachycardia. Head, neck, and respiratory examinations were unremarkable (respiratory rate, 16 breaths per min; oxygen saturation, 95% on room air). Cardiovascular examination revealed tachycardia with regular rhythm. Findings from examinations of the abdomen, skin, extremities, and musculoskeletal system were within normal limits. On neurologic examination, the cranial nerves were intact and without focal deficits. Equal sensation and strength was noted in the bilateral upper and lower extremities, and deep tendon reflexes were normal. The patient's gait was normal with no signs of cerebellar dysfunction. Computed tomography. The patient was diagnosed by Moya Moya disease 3 years ago, located in the right hemisphere. 2 years ago, he had a right STA-MCA (Superior

Temporal Artery - Middle Cerebral Artery) bypass as a revascularization attempt. Patient had a transitory ischemic attack in the anterolateral part of the right frontal lobe supplied by the right MCA as immediate complication postoperatively causing major disturbance blood supply to right hemisphere. Based on patient history, he did CT angiography that showed a bilateral Moya Moya disease with a bilateral high-grade stenosis in the ICAs (Internal Carotid Arteries) and proximal MCAs. Among all those finding, a graft of the right radial artery of the patient was used to perfume right ECA (External Carotid Artery) and MCA bypass and the operation successfully done and the patient monitored for two weeks, as well as patient be receiving physiotherapy for the Post-OP rehabilitation, its recommended for this patient to do several checkup and also high possibility further operations due to the current presence of the disease.

**Discussion:**

The name MoyaMoyarefers to “puff of smoke” in Japanese and defines abnormal vascular collateral networks that develop adjacent to the stenotic vessels, Moya Moya is a rare cerebrovascular disease characterized by unilateral or bilateral progressive occlusion of internal carotid and the proximal part of anterior and middle carotid arteries(3).

The incidence of Moya Moya is relatively higher in Asian countries compared to Western countries and USA; the disease has also been reported from different countries especially India, Japan and china. The disease mainly affects young people and often presents with stroke or recurrent transient ischemic attacks that usually associated with paralysis affecting one side of the body, muscle weakness, and seizures(4). Medical management it is not curative but the mainstay of treatment remains surgery, drugs such as antiplatelet agents which are generally given to prevent thrombosis are the most common used as preventable measures.

Acute management is mainly symptomatic and aimed to improving cerebral blood flow reducing intracranial pressure, and controlling seizures. Revascularization are usually done to increase the perfusion to the hypoxic brain tissue(5). recently long-term positive outcome has been reported improvement in symptoms and positive angiographic follow-ups in all age groups. Prognosis of Moya Moyadisease related to age and the type of presentation. all age shows Hemodynamic improvement after surgical procedures. TIA and epileptiform clinical pictures have a better long-term outcome when compared to infarctions.

superficial temporal artery and middle cerebral artery (STA-MCA) anastomosis is the accepted first choice of treatment which includes combined with indirect revascularization(6). The treatment of choice among young children suffering from Moya Moya disease who presents with reversible ischemic changes. There are certain limitations related to direct revascularization age related procedure. The indirect revascularization technique is comparatively easier and results in fewer complications such as postoperative infarctions. Having said that, indirect surgeries offer poorer collateral circulation compared to direct procedures. Each procedure has its own advantages and disadvantages. Direct revascularization may lead to immediate improvement of symptoms and could decrease recurrent ischemic events. Although technically demanding and the possibility of life-threatening hemorrhage, direct bypass remains the preferred procedure(7).

revascularization will continue to be the major role in the treatment of Moya Moya disease. Surgeon experience and disease nature play big role for taking decision. Randomized prospective clinical trial

comparing the various procedures may be developed to define the most appropriate indications in different patient groups(8).

Moya Moya disease has worse prognosis in children younger than 3 years than in those aged 3 years or older. However, when comparing different age group, adult have worst prognosis because they have increased hemorrhagic episodes and thus a higher mortality. research conducted in Japan assessing the Long-term follow-up compared medical and surgical management modalities in adults and found a trend toward a decrease in the incidence of ischemic attacks after direct surgical revascularization(9).

**Conclusion:**

A better understanding of the natural history of patients with Moya Moya disease as well as the benefit of the various treatment modalities is needed. Moya Moya a rare disorder does not get much clinical attention and often remains underdiagnosed as it requires trained neurosurgeon and sound quality of neuroimaging techniques for its diagnosis.

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