



Indirect Revascularization Surgery for Moyamoya Disease in Adults and Children: A Review of 68

Procedures

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Introduction

Moyamoya disease is an idiopathic cerebrovascular disease characterized by stenosis culminating in occlusion of the terminal internal carotid artery and its major branches. This in turn causes diminished blood flow to the corresponding cerebral territories which may be appreciated qualitatively and quantitatively by various imaging modalities in order to assess the cerebrovascular reserve.

The aim of revascularization surgeries - the mainstay strategy in the treatment of moyamoya patients, is to increase collateral blood flow to hypoperfused areas of cortex, using the external carotid circulation as a donor supply.

The aim of this study was to evaluate the success rate of indirect revascularization, review the clinical profiles of pediatric and adult moyamoya patients and to assess outcome.

Methods

Patients diagnosed with Moyamoya disease at a tertiary center between 1998 and 2014 were enrolled in this study. All patients were surgically treated with indirect revascularization. The clinical presentations, underlying diseases, concurrent diseases, radiological findings, treatment and outcome of the patients were reviewed in a retrospective fashion.

Results

64 revascularization operations were performed in thirty-seven patients with angiographically proven Moyamoya disease. The age at diagnosis varied between seven months and forty-three years (mean 20.7 years). Included were eighteen adult patients and 19 pediatric patients with an equal male to female distribution. The mean follow-up period after diagnosis was 81.7 months. In three patients, the initial clinical presentation was intra-cranial hemorrhage. Six pediatric patients harbored moyamoya syndrome as part of a syndromatic presentation. Subsequent to medical and surgical treatment, one patient suffered from a recurrent hemorrhagic event and died. All other patients recovered without sequelae.

Conclusions

Surgical indirect revascularization provides long-term, durable, and marked reduction in stroke risk for children and adults with moyamoya.

Learning Objectives

Understanding the different diagnostic and follow-up modalities.

Understanding the variety of surgical methods available in treating moyamoya disease.

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