

## The superficial temporal to middle cerebral artery bypass : recipe for success!

Shashwat Mishra MCh

All India Institute of Medical Sciences, New Delhi

### Introduction

The results of the **EC-IC randomized trial (NEJM,1985)** and the **COSS (JAMA, 2011)** severely shrunk the indications for STA to MCA bypass. The resultant decline in surgical volumes was paralleled by an erosion of the skills necessary for executing this surgery. Hence, this paper, drawing upon the personal experience of the surgeon, is an attempt to sum up the surgical nuances necessary for the satisfactory execution of this surgery and would benefit the initiate who takes up this delicate operation.

### Methods

12 STA- MCA anastomoses were performed in 8 patients over a two year period between May 2015 – May 2017 by the author. All except one patient had Moya-Moya disease. 4 subjects were below 18 years of age and the rest were adults.

### Surgical technique

STA harvested from underneath the scalp flap in cases where it was not palpable superficially. A jeweller bipolar forceps helps in dissection of STA efficiently.



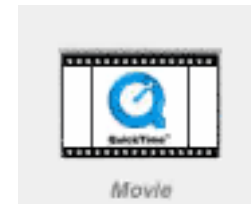
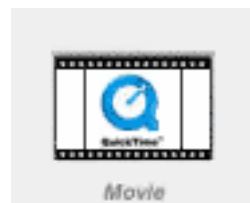
*The craniotomy is centred 6cm above the acoustic meatus over the sylvian fissure. The temporalis muscle is dissected off the bone with a bovie. Epidural hitches placed liberally as complete extradural hemostasis is necessary. Dural bleeders coagulated after scoring the dura along the incision line.*



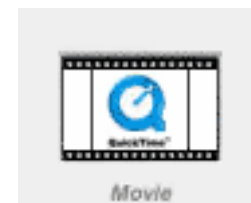
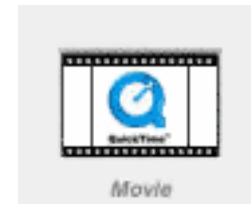
*small cortical branches meticulously coagulated with bipolar jeweller's forceps under **low power** for M4 preparation*



*The distal 1 cm of STA is cleaned, fish-mouthed and sutures are passed the heel and toe end of the STA mouth. The M4 arteriotomy is marked by laying the STA over it. Sutures passed through the STA are threaded through the arteriotomy ends-reduces M4 clamp time*



*Once the surgical field is properly set up for the anastomosis, the coaptation of the vessels becomes relatively easy. The back wall is sutured first followed by the front wall.*



### Results

At follow-up angiogram (CT/DSA), 8 bypasses were functional. Clinical improvement was reported in all 8 patients following surgery. The surgical time for completion of bypass declined from an average of 380 minutes to 240 minutes with growing experience. Demonstration of bypass patency by a delayed indocyanine green angiography was predictive of long term bypass patency.

### Conclusions

For the initiate, adherence to the critical surgical nuances described in this paper greatly increases the surgeon's efficiency and the possibility of success for the STA- MCA bypass operation.

### References

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