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RENAL ARTERY LESIONS IN MOYAMOYA DISEASE

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BACKGROUND

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- Moyamoya disease (MMD) is a chronic, noninflammatory, nonatherosclerotic progressive angiopathy characterised by gradual occlusion of terminal intracranial internal carotid arteries and their branches, with collaterals.
- The prevalence of hypertension in MMD ranges from 5 to 38%.
- The incidence of renal artery lesions in adult MMD is 8%.
- There are very few studies analysing the link between hypertension and renal lesions with moyamoya disease

MATERIALS & METHODS

- We systematically reviewed the electronic medical records of all patients who were diagnosed with Moyamoya Disease at Sree Chitra Tirunal Institute of Medical sciences and Technology from the year January 2010 to December 2024.
- The clinical, demographic and radiological data was collected and analysed for the prevalence of hypertension and renal artery lesions.

Baek JW et al. Eur J Paediatr Neurol. 2016; Yamada et al. Stroke. 2000;Lee J et al. Journal of Neurosurgery Pediatrics. 2020;Suzuki J, Stroke;1983.

RESULTS

121 Adults

51 Pediatric

15 had hypertension

1 had hypertension

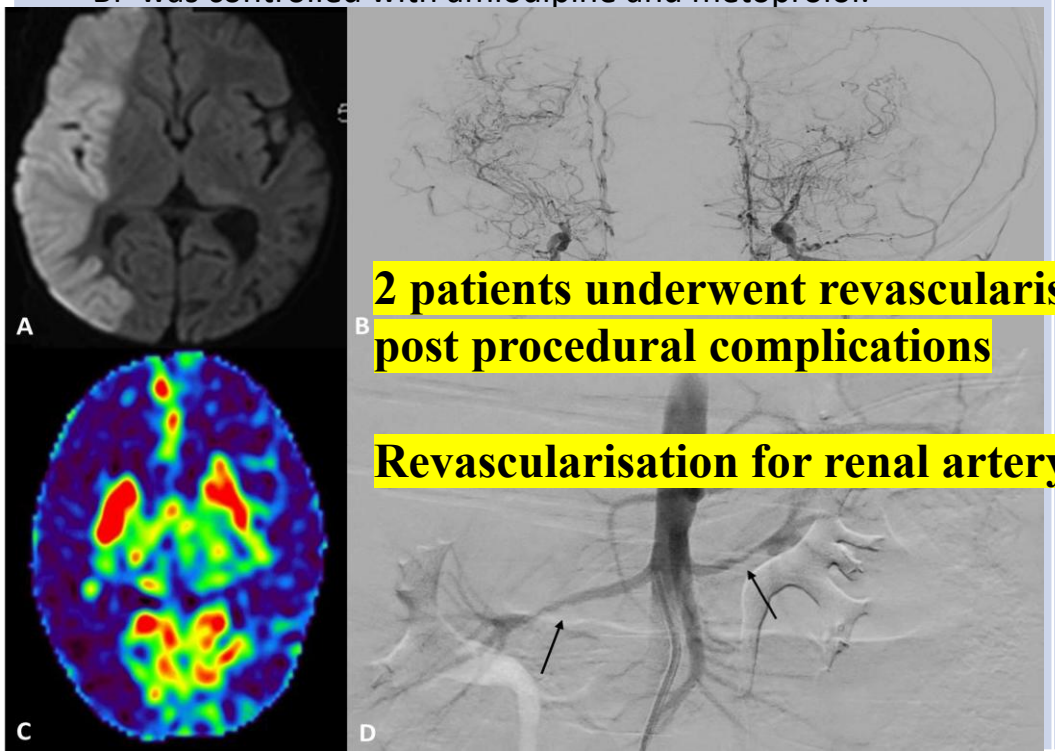
2 had Renal artery stenosis
(1 child & 1 adult)
1 had Renal artery duplication
(1 adult)

The child was positive for RNF 213 polymorphism (p.Arg4062Gln)

Secondary workup for MMD were negative in all the other patients.

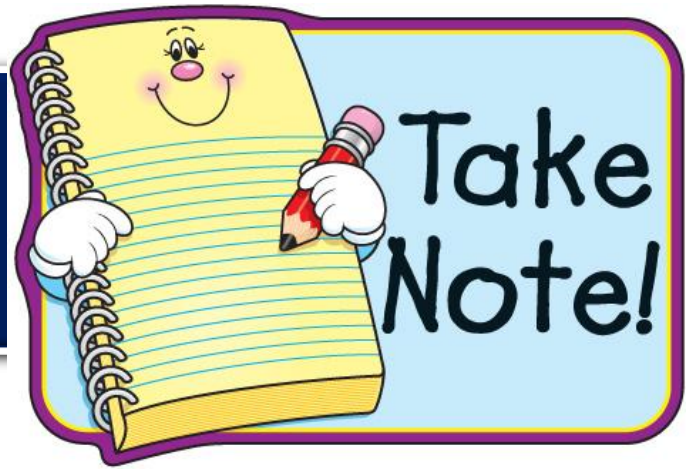
2 patients underwent revascularisation surgery for MMD without any post procedural complications

Revascularisation for renal artery stenosis was planned at a later date



Case 1	Case 2	Case 3
▪ 1 year 7-month-old male child with right MCA stroke ▪ BP was consistently 140/ 90 mmHg. ▪ MRI showed acute infarct in right middle cerebral artery (MCA) territory and left thalamus with gliotic changes in left MCA territory. (Fig A). ▪ Serum aldosterone was elevated (193 ng/dl for 5-90 ng/dl) ▪ Serum cortisol level was 49.23 mcg/ dl (7-25). ▪ DSA showed bilateral Suzuki grade 3 disease(Fig B,C) with ▪ BP was controlled with amlodipine and metoprolol.	• 44-year-old female who presented with recurrent episodes of right MCA stroke, one episode of left MCA stroke and complex partial seizures of right hemispheric origin. • BP was normal • MRI brain showed acute infarcts in left MCA, MCA PCA watershed zone and old infarcts in right MCA territory. • Her renin level was 26 mcg/ • DSA showed bilateral Suzuki grade 4 disease with bilateral renal artery stenosis, left more than right just after origin of around 60%.	▪ 55 yr old male with left MCA stroke ▪ BP was normal ▪ MRI showed acute infarct in left MCA territory with chronic infarcts in bilateral MCA-PCA watershed territory ▪ Renin and aldosterone levels were normal ▪ DSA showed bilateral Suzuki grade 3 disease with right renal artery duplication, without aneurysm or stenosis

CONCLUSION



✓Hypertension in MMD patients is not uncommon and therefore all MMD patients must be screened with a renal angiogram to look for renal artery lesions

✓ It is worthwhile to look for underlying RNF vasculopathy and elevated renin levels, especially in paediatric population

Early detection of hypertension in MMD patients is important to prevent hypertension related complications and has implications in management


Thank you!