

INTRODUCTION

- Pediatric Iron deficiency anemia (IDA) occurs in 25% of the world's infants.¹⁻³
- Most prevalent in patients with malnutrition or excess consumption cow's milk.²
- Ischemic stroke is a rare risk factor of cerebrovascular accidents.

Case 1: 18-month-old male with gross motor delays presented to ED and three days of progressive somnolence right hemi-body weakness and left facial droop. Neurological examination revealed dense right sided hemiplegia with right nasolabial fold flattening. MRI/MRA Brain and head demonstrates Left MCA restricted diffusion with ADC correlate and M1 occlusion (Figure A-C).

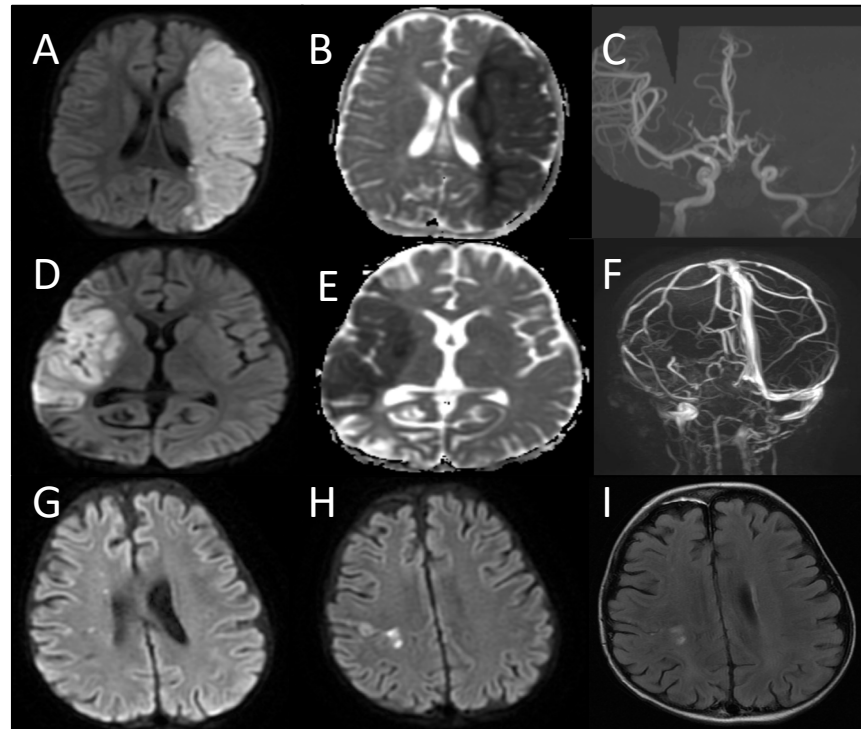
Case 2: 2-year-old female with history of febrile seizure presented to ED with seizure like activity. Parents revealed patient had 2-3 months of progressive left sided weakness with 1 week of left facial weakness. Neurological examination revealed left hemi-body and facial weakness, with right gaze preference. MRI Brain demonstrated restricted diffusion in right M2 distribution and right dural venous sinus thrombosis. (Figure D-F)

Case 3: 3-year-old female with autism presented to emergency room with 5-days of ascending left-sided weakness. Neurological examination was significant for left hemi-body weakness, diminished reflexes (+1/4 on NINDS scale), and left Babinski. MRI brain showed restricted diffusion in right hemisphere with FLAIR signal (Figure G-I).

TABLE 1

| Significant Labs | Case 1 | Case 2 | Case 3 | Reference |
|---------------------------|--------|--------|--------|-----------|
| Red Blood Cells (mil/mcl) | 3.52 | 4.05 | 1.10 | 3.5-5 |
| Hgb (g/dl) | 3.9 | 4.5 | 1.9 | 11.2-14.3 |
| Hct (%) | 16.9 | 18.8 | 6.3 | 34-40 |
| MCV (fl) | 48 | < 50 | 56.9 | 75-87 |
| MCH (pg) | 11.2 | 11.1 | 17.5 | 23-31 |
| RDW (%) | 24.9 | 24 | 22.6 | 11.5-15.5 |
| Platelets (K/mcl) | 236 | 338 | 328 | 150-450 |
| Ferritin (ng/dL) | 7 | 4 | 4.5 | 11-306 |
| Iron (mcg/dL) | < 10 | < 10 | 21 | 28-170 |
| Transferrin (mg/dL) | 423 | 363 | 319 | 135-309 |
| TIBC (mcg/dL) | 631 | 540 | 476 | 250-420 |
| Iron Saturation (%) | *omit | *omit | 4 | 25-58 |
| Daily intake of milk (oz) | 30-34 | 16-24 | > 64 | |

- Initial laboratory studies and daily dairy intake
- * Unable to calculate result due to measured limits of the instrumentation.



DISCUSSION

- Proposed mechanisms for cerebrovascular events due to IDA: reactive thrombocytosis, hypercoagulation, and heart failure.⁴
- Promotion of reactive thrombosis: IDA leads to elevated levels of serum transferrin, as there is overall less binding of iron to transferrin for transport.
- Hypercoagulable states can lead to cerebral venous sinus thrombosis (CVST).⁵
- Some studies show that IDA can lead to cardiac failure as iron deficiency is present in about 50% of heart failure patients.⁶⁻⁸

CONCLUSIONS

- We presented three cases of AIS in the setting of IDA, presumably from excess cow's milk intake.
- Anticipatory guidance from pediatricians should include symptoms of stroke which would allow improved timing of evaluation and life changing interventions.
- Iron studies should be a routine component of hypercoagulable evaluation for the neurologist

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