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Background

- Spinal arteriovenous malformations (AVMs) are rare.
- A few case reports outline the management of spinal AVM complications in pregnancy, predominately in the 3rd trimester, and all patients were conservatively managed until after delivery.
- The physiological and hormonal changes in pregnancy increase the risk of myelopathy and rupture. Without prompt management, it can lead to permanent paralysis, and bowel and bladder dysfunction.

Case

- 31-year-old, G2P0, IVF pregnancy
- Past medical history:
 - childhood bilateral renal artery stenosis requiring auto renal transplant
 - chronic hypertension managed with labetalol 200 mg TDS
 - Thoracic scoliosis
 - Right breast DCIS cured with lumpectomy
 - MTHFR homozygote – managed with 40 mg clexane and 150mg aspirin
 - High natural killer cells managed with plaquenil and intralipid infusions
- She presented to antenatal clinic at 17+3; whilst walking into the room it was noted she had a broad shuffling gait
- She had a 3 day history of progressively lower limb weakness and numbness
- Examination
 - Normal cerebellar examination
 - Upper limb: brisk reflexes bilaterally, normal tone/power/sensation
 - Lower limb: Brisk patellar reflexes, reduced sensation to cold and pin prick to the umbilicus on the left and costal margin on the right
 - Upper motor neuron signs: Babinski positive, ankle jerk triggered clonus, sustained clonus
- **Examination summary:** asymmetrical, bilateral, combined sensory and upper motor neurone syndrome with low thoracic sensory level but brisk reflexes extending up to cervical myotomes
- **Urgent MRI showed**
 - Ischaemic myelopathy secondary to spinal arteriovenous malformation/fistula extending from T2-L2. She had 3 lipomas.
- She had DSA (angiography) for surgical planning

Management

- She was admitted but continued to deteriorate, it was advised that she have surgery to prevent permanent paralysis
- At 17+6 she had T1-T12 thoracic laminectomy + disconnection of spinal AVM
- Day 3 angiography showed no abnormal vascular connection
- Her post post operative course was complicated by a CSF leak and infection which required IV antibiotics and the insertion of a lumbar drain
- She had a fetal MRI at 28 weeks due to extensive general anaesthetic and radiation exposure in second trimester. This MRI was normal.
- She had q4weekly growth and wellbeing scans which showed good interval growth
- US 35+0: EFW 2,366g (18%), AC 40%, AFI 16.3, Dopplers normal
- She developed late onset pre-eclampsia which was managed well with labetalol and Nifedipine XR

Outcome

- She had a 38 week infraumbilical laparotomy classical caesarean section to reduce the risk of damage to the renal transplant, under a general anaesthetic
- Her baby was healthy and remained with her post birth
- She has undergone 9 months of intensive rehabilitation and attends spasticity clinic for Botox
- Initially she had to re-learn to walk without an aid, she was unable to hold her baby or drive. She is now able to do this. Her goals are now recommencing running

Conclusion

- Although rare, discussion of these cases informs future practice, promotes timely diagnosis, and improves patient outcomes.
- This case is one of the few reports of successful neurosurgical intervention in the second trimester with the uncomplicated delivery of a healthy baby at term.
- Considerations including risk of fetal radiation and general anaesthetic exposure, increased risk of complications secondary to physiological and hormonal changes are unique to pregnancy and increase the complexity of management decisions.