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Internal Medicine

AN INTERESTING CASE OF SUBDURAL AV FISTULA

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ABSTRACT Dural arteriovenous fistulas are a heterogeneous collection of conditions that share arteriovenous shunts from dural vessels. They present variably with haemorrhage or venous hypertension and can be challenging to treat. Most dural arteriovenous fistulas present in adulthood and account for 10-15% of all cerebral vascular malformations. Clinical presentation is highly variable and depends on the location of the supplying and draining vessels, as well as the presence of complications. Dural arteriovenous fistulas are usually acquired and in most instances are idiopathic. In patients with a documented antecedent cause, most occur as the result of neovascularization induced by a previously thrombosed dural venous sinus. We present an interesting case of Dural arteriovenous fistula in an elderly female.

KEYWORDS : 1. Cerebral sinus thrombosis with venous infarct 2. Cerebral angiogram – Dural AV fistula 3. AV fistula embolization 4. Check DSA complete occlusion of dural AVF

INTRODUCTION:

Branches of dural arteries being connected either to dural veins or a venous sinus are known as Dural arteriovenous fistulas. The gold standard for diagnosis of Dural arteriovenous fistulas is Digital subtraction angiography (1). In this case our patient had a history of vertigo, electrolyte imbalances and recurrent headache(left>right) initially diagnosed as an acute organic neuropsychiatric disorder. Patient again presented to the hospital but with weakness of limbs, more in the lower limbs than the upper limbs and a GCS of 11/15. MRI brain with MRV showed left transverse and sigmoid sinus thrombosis with venous infarct involving left temperoparieto occipital region. In view of symptoms Heparin infusion was started as per low APTT protocol, adequate hydration and close neuro monitoring was done. Patient planned for emergency decompressive hemi craniotomy due to worsening symptoms. Patient initially shifted for angiogram and incidentally found a Dural AV fistula and AV fistula embolization was done. Patient also had a right sided aortic arch which made the angiogram a difficult procedure. Anti-edema measures followed. Patient recovered well post operatively. Patient followed up with neurosurgeon after 2 weeks. She had completely recovered from earlier symptoms. Check DSA revealed complete occlusion of Dural AVF.

CASE REPORT:

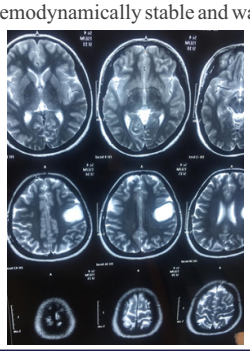
67 year old lady, who is a known case of systemic hypertension for 10 years, she also has asthma, vertigo and cervical spondylosis for which she was conservatively managed, was initially admitted with electrolyte imbalances and few episodes of headache(left>right) which were initially thought to be acute organic neuropsychiatric disorder. Patient then admitted again with complaints of difficulty to get up from bed for past 1 day. She also exhibited involuntary movements, drowsiness and irrelevant speech along with bladder and bowel disturbances.

On further neurological examination, she was able to move all 4 limbs with some weakness in right side which was more prominent in the lower limbs than upper limbs. GCS was 11/15 and bilateral pupils reactive. MRI brain with MRV was done and it showed left transverse and sigmoid sinus thrombosis with venous infarct involving left temporoparieto occipital region with few areas of haemorrhagic transformation and significant edema with mass effect on lateral ventricles and midline shift of about 9mm to right. Neurosurgeon consult was taken, and he suggested to start her on heparin infusion as per low APTT protocol, adequate hydration with NS/RL, leviteracetam injection stat dose and close neuro monitoring. CT brain plain immediately was planned if any deterioration in GCS or clinical condition, as she may require emergency decompressive hemi craniotomy. Her systolic BP was maintained around 140-160 mm Hg.

Patient however had progressive increase in right sided weakness and decreased motor response, CT brain plain was repeated which showed in mass effect and increased midline shift compared to previous CT. Patient initially shifted to cath lab for cerebral angiogram and incidentally found a Dural AV fistula and AV fistula embolization was done and post-operative period was uneventful. During angiogram we encountered it to be difficult as she had a right sided aortic arch which was an incidental finding as well, hence took more time to reach the blood vessels of the brain.

She was given mannitol and 3% Nacl as anti-edema measures during post op period. Her electrolytes were monitored regularly. Supportive care with RT feeding, IV fluids, 3% Nacl and active physiotherapy was given. She had dermatitis over buttock and perianal region and plastic surgery consult was taken for that and advice was followed. She improved clinically and hence is being discharged now in a hemodynamically stable condition with discharge advice. Patient advised low salt and low fat diet. Patient advised to repeat MRI brain with MRA and MRV to check for DSA after 2 weeks and review with neurosurgeon for further management.

Patient followed up with neurosurgeon after 2 weeks. She had completely recovered from earlier symptoms. Patient was devoid of headache, seizures or limb weakness. Patient however complained of giddiness during change of position and tremors on activity. She had now come for check DSA. After obtaining consent from patient and anesthetist clearance, she underwent digital subtraction angiogram. Right common femoral artery was punctured, 5 fr short sheath inserted. DSA revealed complete occlusion of Dural AVF. Patient tolerated the procedure well. Closure was done by manual compression. Post procedure close neuro monitoring was done. Patient was clinically and hemodynamically stable and was hence discharged.



DISCUSSION:

One study, two cases of dural arteriovenous malformations which were associated with sigmoid sinus thrombosis studied the interrelationship between sigmoid sinus thrombosis and dural arteriovenous malformations, and its spontaneous closure mechanism. The studies said that embolization by arterial route was the treatment of choice, but in a few cases transvenous approach or an operation might be necessary. Another study revealed that there were many anatomical variations and lesions of DVS and hence to find out the offending DVS, radiological examination are essential.

In another study 88 patients evaluated for symptomatic dural arteriovenous (AV) fistula over the past 8 years, 16 had large or complicated lesions that could not be treated with standard trans vascular approaches or in which such treatment had been unsuccessful. Eleven fistulas were located in the transverse sinus, two in the cavernous sinus, two in the straight sinus, and one in the falx-tentorial region near the vein of Galen. The patients were treated with a combination of endovascular and neurosurgical techniques. Fourteen patients underwent preoperative transarterial embolization; this procedure closed the fistula in one patient. In the remaining 15 patients, surgery was performed to provide access to the fistula for embolization from either the venous or the arterial side, or for excision of the fistula. Transvenous embolization completely obliterated the fistula in seven of nine patients; the fistulas were embolized incompletely through the feeding arteries in two patients; and complete surgical resection of the lesion was accomplished in four patients. Complications related to venous occlusion occurred in two patients and one patient suffered communicating hydrocephalus that was effectively treated by shunting. There were no deaths. The results suggest that combined endovascular and neurosurgical techniques are a safe and effective means for the treatment of selected complex dural AV fistulas.

In our case, transarterial AV fistula embolization was done and she was completely symptom free after 2 weeks of procedure.

CONCLUSION:

With presently available treatment modalities most of these lesions are either curable or, at the very least, patients may get significant clinical improvement. The natural history of the condition suggests that these lesions are aggressive and need prompt diagnosis and treatment.

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