

## CASE REPORT

### CEREBRAL SINUS THROMBOSIS IN A CASE OF ANTI-PHOSPHOLIPID ANTIBODY SYNDROME WITHOUT ASSOCIATED CONNECTIVE TISSUE INVOLVEMENT

Biswarup Banerjee<sup>1</sup>, Prerana Aggarwal<sup>2</sup>, Shirshendu Ganguly<sup>3</sup>, Anwesa Pal<sup>4</sup>, Subhadip Bharati<sup>5</sup>

#### HOW TO CITE THIS ARTICLE:

Biswarup Banerjee, Prerana Aggarwal, Shirshendu Ganguly, Anwesa Pal, Subhadip Bharati. "Cerebral Sinus Thrombosis in a Case of Anti-Phospholipid Antibody Syndrome without Associated Connective Tissue Involvement". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 69, December 11; Page: 14870-14873, DOI: 10.14260/jemds/2014/3998

**ABSTRACT:** The association of antiphospholipid antibodies with vascular thrombotic episodes is well established. In absence of other connective tissue disease such an association is very rare & known as the primary antiphospholipid antibody syndrome. Cerebral venous sinus thrombosis is associated with hypercoaguable states and a number of immune-mediated conditions. However the report of cerebral venous sinus thrombosis with antiphospholipid antibodies alone is limited. Here a case presenting with painful bilateral ophthalmoplegia with bilateral optic disc edema (due to raised intra cranial tension) showing positive lupus anticoagulant in serum and right central venous sinus (transverse and sigmoid) thrombosis on MRI and MR venogram is reported which showed clinical improvement with anticoagulant therapy.

**KEYWORDS:** Primary Anti-phospholipid antibody syndrome, cerebral sinus thrombosis, painful ophthalmoplegia, lupus anticoagulant/ antiphospholipid antibodies.

**KEYMESSAGE:** Cerebral venous sinus thrombosis is associated with hypercoaguable states and a number of immune-mediated conditions but its association with antiphospholipid antibody alone is rare. In the case presented here the condition was diagnosed with the help of magnetic resonance imaging (MRI) of brain and MR venogram, which revealed thrombotic narrowing of right transverse and sigmoid sinus and positive antiphospholipid antibody in serum. Symptoms improved with anti-coagulation, which further strengthened the clinical diagnosis.

**INTRODUCTION:** Antibodies to phospholipids were first described in patients showing positive tests for syphilis without any signs of infections and then with systemic lupus. Dr. Graham Hughes in 1983 described the association of these antibodies with arterial and venous thrombosis.<sup>1</sup> In the absence of other connective tissue disease such an association is known as the primary antiphospholipid antibody syndrome. In clinical practice antiphospholipid antibodies (APLA) may be detected by one of two methods. First, in plasma, by prolongation of clotting time in phospholipid-dependent tests this being termed the 'lupus anticoagulant'. Another, in serum, where anticardiolipin antibodies are detected by immunoassay. These methods identify different members of a group of antibodies with varying specificity for phospholipids. In general, anticardiolipin antibodies are more common than the lupus anticoagulant, anticardiolipin antibodies occurs approximately 5 times more often than the lupus anticoagulant in patients with the APLA syndrome.<sup>1</sup>

Cerebral sinus thrombosis refers to occlusion of cerebral sinuses or feeding cortical veins that may lead to secondary effects like vascular congestion or focal/ generalized neurological deficits.<sup>2</sup> Thrombosis of these venous sinuses is caused not by any single etiological factor but many factors acting together.<sup>3</sup> One of these factors is hypercoaguable state as seen in APLA syndrome. But

## CASE REPORT

---

association of cerebral venous thrombosis with APLA but without involvement of connective tissue is rare.

**CASE HISTORY:** A 20-year-old lady was admitted with a 7 days history of intense headache, nausea and vomiting. On the day prior to admission she had double vision (binocular) followed by deterioration in visual acuity in both eyes, swelling of eyelids, conjunctival congestion and edema. She had a miscarriage 1 year ago (medical details were not available). There was no history of OCP intake, use of other hormonal contraceptive or any chronic medication. Any history of earache, auditory deficit, discharge from ear or toothache was absent.

**EXAMINATION:** On neurological examination visual acuity was reduced to 6/36 on the left, 6/24 on the right with bilateral, non-hemorrhagic papilledema. She had bilateral lateral rectus palsy and significant lid and conjunctival chemosis. There was no nuchal rigidity, no palpable neck nodes. External ear canals were normal with intact tympanic membranes.

**INVESTIGATIONS:** Investigations showed elevated inflammatory markers; ESR 58, C-reactive protein 88mg/l. Computed tomography (CT) head scan was normal, cerebrospinal fluid (CSF) opening pressure greater than 40cm water with normal microscopy and biochemistry. Magnetic resonance imaging (MRI) of brain and MR venogram revealed narrowing of right transverse and sigmoid sinus (Fig. 1 & 2). There was no meningeal enhancement with Gadolinium contrast.

Routine autoantibody screen (antinuclear factor- ANF), ds DNA, ANCA, RF and anticardiolipin, anticentromere antibodies were negative. Partial thromboplastin time (PTT) and platelet count were normal.

Prothrombotic screen showed normal levels of protein C, S and antithrombin III. The lupus anticoagulant was positive in serum (as determined by the Exner and Russell Viper Venom methods).

**MANAGEMENT:** Some improvement in headache was seen with oral steroids, acetazolamide and antioedema measures (20% mannitol). In view of the previous unexplained 1<sup>st</sup> trimester abortion, central venous sinus thrombosis and a positive lupus anticoagulant, a presumptive diagnosis of primary antiphospholipid antibody syndrome was made and the patient was put on oral anticoagulant after 48hrs overlap with Enoxaparin.

Her symptoms resolved over four weeks, visual acuity returned to normal and papilledema disappeared. She was advised to continue lifelong Warfarin (target INR=2-2.5), to be replaced with unfractionated Heparin during pregnancy and requested to follow up in neurology OPD.

**DISCUSSION:** Initially clinical picture of the patient suggested thrombosis of cavernous sinus bilaterally. Otorhinolaryngeal and dental source of infection was ruled out. MR venogram of brain showed right sided thrombosis of sigmoid and transverse sinus. Anatomically there can be 2 explanations of the presentation in the above case:

1. There was initially cavernous sinus thrombosis (Which is known to spread bilaterally via intercavernous veins). But as the anticoagulant therapy was started before MR venogram was done, the thrombus in the left side had lysed and thrombus from right cavernous sinus had reached the right sigmoid and transverse sinus.

## CASE REPORT

---

2. Another explanation can be that it was a right sigmoid sinus thrombosis primarily. Eye symptoms are due to raised intracranial pressure.

The lupus anticoagulant was positive in blood. This points towards APLA syndrome which is further strengthened by the history of spontaneous abortion one year back. This association of APLA syndrome with cerebral sinus thrombosis is rare.

Antiphospholipid antibodies are present at low titre in approximately 4% of the general population. Persistent high titres in particular of IgG cardiolipins are clearly associated with thrombosis at multiple sites.<sup>4</sup> In the absence of connective tissue disease the APLA syndrome is associated with a large number of distinct neurological presentation like chorea, seizure disorder, transverse myelitis and psychiatric disturbances. The case discussed above illustrates the association of APLA syndrome alone with cerebral venous sinus thrombosis.

Case like this demonstrates the importance of screening for anti-phospholipid antibodies in patients presenting with cerebral venous sinus thrombosis. In patients where such antibodies are identified clinician should be aware not only of the risk of recurrent thrombosis but also of the possible later development of associated immunologically mediated conditions.

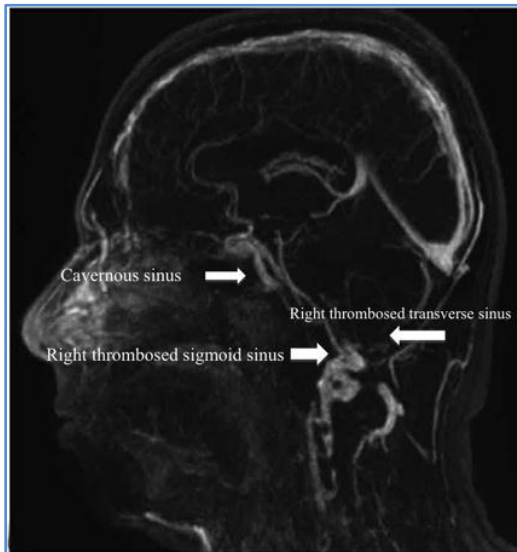
It is now a known fact that phospholipids play some role in the coagulation cascade, but the exact mechanism by which the antiphospholipid antibodies and anticardiolipin antibodies induce thrombophilic state is still not known.<sup>1</sup>

From this study, we come to the conclusion that in case of cerebral venous sinus thrombosis particularly involving cavernous sinus without any infective etiology it is prudent to screen the patient for both connective tissue disorders and prothrombotic states, as the later may occur without the presence of former. However these patients need close follow up for long time even after complete dissolution of signs and symptoms, as there are many reported cases of development of connective tissue disorders even after years.

### REFERENCES:

1. [www.med.illinois.edu/hematology/ptaps.htm](http://www.med.illinois.edu/hematology/ptaps.htm).
2. Ahmed Itrat, Sana Shoukat, Ayeesha K. Kamal. Pathophysiology of Cerebral Venous Thrombosis – An overview. J Pak Med Assoc. 2006; Vol. 56: 506-508.
3. Sasidharan P.K. Cerebral Vein Thrombosis Misdiagnosed and Mismanaged. Thrombosis. vol. 2012: p1- 11.
4. Boggild M.D., Sedhev R.V., Fraser D., and Heron J. R. Cerebral venous sinus thrombosis and antiphospholipid antibodies. Postgrad Med J.1995; v.71: 487-489.

## CASE REPORT



**Fig. 1 MR VENOGRAM: SAGITAL SECTION**



**FIG. 2 MR VENOGRAM : TRANSVERSE SECTION**

### **AUTHORS:**

1. Biswarup Banerjee
2. Prerana Aggarwal
3. Shirshendu Ganguly
4. Anwesa Pal
5. Subhadip Bharati

### **PARTICULARS OF CONTRIBUTORS:**

1. Attending Consultant, Department of Neurology, Medica Institute of Neurological Diseases, Kolkata.
2. Assistant Professor, Department of Anatomy, IPGME & R, Kolkata.
3. Demonstrator, Department of Anatomy, CMC & H, Kolkata.

4. Post Graduate Trainee, Department of Anatomy, IPGME & R, Kolkata.
5. Post Graduate Trainee, Department of Anatomy, IPGME & R, Kolkata.

### **NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:**

Dr. Prerana Aggarwal,  
# 185, Garfa Main Road,  
Kolkata-78.  
Email: dr\_prerana@yahoo.com

Date of Submission: 27/11/2014.  
Date of Peer Review: 28/11/2014.  
Date of Acceptance: 05/12/2014.  
Date of Publishing: 09/12/2014.