Cerebral venous sinus thrombosis with meningitis and septicemia due to *Haemophilus influenza* type f in a healthy child

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Introduction

- After routine immunization with *Haemophilus influenzae* serotype b vaccine, *Haemophilus influenzae* serotype f (Hif) meningitis should be considered as potential pathogenic agents in children with invasive disease.
- Complications such as cerebral venous sinus thrombosis (CVST) are rare but increasingly diagnosed due to improved diagnostic modalities and the sensitization of clinicians. CVST is a potentially life-threatening disorder that may have fatal or morbid consequences, such as motor dysfunction or visual impairment.
- We report a case of a child with CVST after being diagnosed with Hif meningitis.

Case presentation

Patient information :

- Age : 26-month-old
- Sex : Male
- Chief complaint : fever, vomiting, lethargy
- Duration : 3days
- Neck stiffness/Kernig sign/Brudzinski sign (+/-/-)

Figure 1. Lab findings

	Day1	Day4	Day10	Day12	Day15
WBC (/mm ³)	19,000	12,600	12,800	13,800	6,000
Hb (g/dl)	10.7	11.5	10.7	10.8	10.5
Platelet (/mm ³)	102,000	231,000	540,000	426,000	188,000
ESR (mm/hr)	103	66	85	57	24
CRP (mg/dL)	>300.00	33.83	5.98	2.46	1.99

- CSF body fluid: RBC 10/uL. WBC 961/uL (PMN 95%)
Protein 51.95 mg/dl, Glucose 91mg/dl
- Blood & CSF culture: *Haemophilus influenzae* serotype f

Immunology test

T cell/Th cell/Ts cell %	45.96/21.76/22.93
Th/Ts ratio	0.95
IgG/A/M (mg/dL)	633.60/58.6/221.90
IgG1/G2/G3/G4 (mg/dL)	607.7/161.9/50.2/12.0
C3/C4 (mg/dL)	128.00/29.00
CH50 (CH50Unit/ml)	97

Treatment :

- Cefotaxime 300mg/kg/day for 14days
- Vancomycin 60mg/kg/day for 7days
- Enoxaparin 10mg q12hr for 7days
- Warfarin 2.5mg qd

Hospital course :

Day 1 : Lethargy, chilling
Day 2 : mental alert, obeying(+), fever subside
Day 15 : Discharge (No symptoms, no neurologic deficit)
Day 50 : follow up Magnetic resonance imaging

Figure 2. Brain CT findings

High density lesion is noted in right sigmoid-transverse sinus area (arrow)(A,B).

Figure 3. Brain MRI findings

On pre images, distended right side transverse-sigmoid sinus, filled with hyperintense on contrast-enhanced T1-weighted image (A) and hypointense material on SWI (C). Right side transverse and sigmoid sinus obstruction is seen on venography (E).
On post images, the aforementioned hyperintense lesion resolved on contrast-enhanced T1-weighted image (B) and hypointense lesion had almost disappeared on SWI (D). Recanalization of thrombosis had seen in right side transverse and sigmoid sinus on venography (F).

Conclusion

- Although the patient was vaccinated, non-b serotypes of *Haemophilus* meningitis could occur.
- CVST should be considered as one of the complications of bacterial meningitis. MRI with MRV is an excellent diagnosis tool.
- A high index of suspicion can lead to earlier diagnosis, and timely management can minimize sequelae.