

Infectious Causes of Cavernous Thrombosis: A Rare Case of Mastoiditis

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Background

- Cavernous sinus thrombosis is a rare complication of infections of the face such as mastoiditis, sinusitis, periorbital cellulitis, dental infections, maxillofacial surgeries and otitis media.
- The mortality rate of the CST has been significantly reduced from 100% to about 30% after the introduction of antibiotics.¹
- The age distribution of CST range from 6 months to 81 years.¹
- We present a rare case of cavernous sinus thrombosis due to suspected mastoiditis involving a healthy 21 years old Hispanic female.

Case

- This is a case of a 21 years old Hispanic female with no significant past medical history who presented with **8 days history of headaches** and 1 day history of confusion. Per family, the patient self-treated with aspirin for headaches and sought help at a local clinic in Juarez, Mexico 3 days prior. She was treated with unknown oral antibiotics.
- In our ED, patient became unresponsive and required a rapid sequence intubation to protect her airways. She was admitted to the ICU. Code sepsis was initiated and **CT brain without contrast showed paranasal sinus and left mastoid air cell complex disease and acute dural venous sinus and deep cerebral venous thrombosis.**
- Vitals T 36° C, Pulse **53**, RR 18, BP 141/77mmHg, Spo2 96%
- Labs : **WBC 14.5, ESR 32, CRP 16.5, lactic acid 3**
- Patient was initiated on IV ceftriaxone, IV fluid, seizure ppx, anticoagulation and sedation.
- A **repeat MRI of brain** in the follow day showed left parieto-occipital venous infarct with **extensive dural venous sinus thrombosis**
- Patient deteriorated overnight and physical exam showed absence of brainstem reflexes. Unfortunately patient expired the following day.

Relevant Imaging Findings



Figure 1: CT brain without contrast day 1



Figure 2: CT brain without contrast day 1

Results

Age/sex	Clinical signs and symptoms	Sources of infection	Dx mode	Treatment	Prognosis	Reference
21yo F	Confusion Headaches	Mastoiditis	CT brain w/o contrast	Ceftriaxone Zosyn Heparin	Deceased	Presented case
88yo M	Neck pain due to recent mastoiditis	Mastoiditis	MRI w/contrast	Vancomycin Zosyn Dexamethasone Heparin drip	Survived	(1)
13yo M	Fever 38°C Headache Nausea Vomiting	Sphenoiditis	MRI w/contrast WBC CRP	Penicillin Endoscopic incision/drainage	Survived	(2)
10yo M	Paranasitis Periorbital sinusitis	Mastoiditis	CT MRI	Broad spectrum antibiotics	Survived	(3)
9yo M	Fever 38.9°C Periorbital swelling Proptosis	Orbital cellulitis	CT w/contrast	Vancomycin Cefotaxime Gentamicin and acyclovir Heparin drip	Survived	(4)
0.6 - 81yo 3 M 11 F	Headache Confusion Proptosis Ophthalmoplegia	Various: facial infections	Various modes: Brain imaging Blood cultures	Antibiotics, Anticoagulation	All survived	(5)

Table 1: literature review of patients with cavernous sinus thrombosis from infections of the face

Discussion

- Cavernous sinus thrombosis and venous sinus thrombosis are rare sequelae of infections of the face such as mastoiditis, sinusitis and periorbital cellulitis
- Septic cavernous sinus thrombosis mortality is close to 100% before the introduction of antibiotics
- Most common presenting symptoms of cavernous sinus thrombosis are ophthalmoplegia, headaches and orbital cellulitis
- Although the patient in our case sought medical care in Mexico she did not receive proper diagnostic evaluations promptly hence her late presentation to the US medical system
- Mastoiditis is most often the result of otitis media with bacterial infection and can be easily treated with antibiotics
- Untreated otitis media or other facial infections can easily spread to the central nervous system and can be fatal

Conclusion

We present a care case of mastoiditis associated with CVT. Lack of proper diagnostic evaluations and delayed care in the Mexico may have been contributing factors to the outcome. This case presents an opportunity to bring awareness about the rarity of cavernous sinus thrombosis and how important it is to keep this diagnosis in mind when a patient is being worked up persistent headaches.

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