Clinical vignette: It was only a zit

Noopur Goyal

Charles Pizanis

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It Was Only A Zit
Noopur Goyal, B.A.; Charles Pizanis, M.D.
Albuquerque, NM

Learning Issues

- Report a relatively rare condition of septic cavernous sinus thrombosis.
- Identify the need to consider cerebral venous infections associated with pimple popping, alongside awareness of altered mental status on exam.

Case

A 45-year-old woman, with a medical history of IV drug use and chronic hepatitis C virus infection presented to our institution with complaints of painful right eye, periorbital swelling and inability to see after recently popping a pimple on her right cheek.

On physical exam, the patient was afebrile and confused. Her right eye was swollen with purulent discharge, and she had nerve palsy of CN III-VII on the right side. A 4-mm indurated eschar was noted on the right cheek. With the exception of track marks and coarse breath sounds, the remainder of the exam was normal.

Laboratory studies showed leukocytosis with neutrophilia, and an elevated ESR, CRP, and lactate. CT of the head without contrast showed a prominent cavernous sinus. MRI further indicated ventriculitis, as well as concern for cavernous sinus thrombus (see Figure). Blood cultures grew out methicillin-resistant *Staphylococcus aureus*.

During her hospital stay, she underwent canthotomy but deteriorated with subsequent development of septic shock and multi-organ failure. Five days after presentation, the patient passed away.

Discussion

- Cerebral vein thrombosis (CVT) incidence: <1.5 per 100,000 patients. Higher prevalence is noted in neonates, children, and young adults.
- In the case of septic cavernous sinus thrombosis, symptoms include: fever, headache, frontal and retro-orbital pain, and diplopia. CN III, IV, V1 and V2 all reside within the cavernous sinus. Therefore, ptosis, proptosis, extra-ocular dysmotility, hyperesthesia, and decreased corneal reflex may be noted.
- Most common bacterial organisms include *Staphylococcus aureus* (60-70%), *Streptococcus pneumoniae*, gram-negative bacilli, anaerobes.
- Most common fungal organisms include *Aspergillus spp.*, *Mucoraceae* (e.g. *Mucor*).
- Complications of CVT: venous infarct, elevated intracranial pressure, cerebral herniation, hemorrhage.
- Treatment of CVT includes supportive care and anticoagulation IV thrombolytic agents or thrombectomy should be considered if no clinical improvement.
- Treatment of septic CVT includes antimicrobial therapy for appropriate infection.

Pathophysiology of Septic CVT

![Diagram of Pathophysiology of Septic CVT](image)

Figure: MRI brain revealing abnormal contours of the cavernous sinus suggestive of thrombosis

References


Conclusion

Despite the low incidence of cerebral venous thrombosis, clinicians should consider infected thrombosis in septic patients who present with a seemingly harmless pimple flaw. Furthermore, a heightened sense of concern should exist if altered mental status, focal neurologic deficits, and other evidence of increased intracranial pressure are present. This case illustrates the severity of cerebral venous infections and secondary thrombosis.