IT'S NOT JUST A BUMP ON HER FOREHEAD!

A rare case of Pott's Puffy Tumor: frontal sinus osteomyelitis with sub-periosteal abscess

Padappayil RP*, Del Greco G, and Bardash A**

*All India Institute of Medical Sciences Bhopal  **NewYork-Presbyterian Queens

Introduction

- Facial swelling is a commonly encountered complaint in the emergency department, with differential diagnoses ranging from benign soft-tissue swellings to life-threatening intracranial abscesses.
- It is important to determine which patients require further imaging and evaluation, and which patients are safe to be discharged.

History and Physical Examination

- History - An 11-year-old girl was brought to the ED with a progressive swelling on her forehead after bumping her head against a wall 8 hours prior. The patient also had a right-sided, peri-orbital headache over two weeks, mild fever over the last four days, and vomiting over the last few hours.
- ROS - Denied loss of consciousness, vertigo, seizures, photophobia, blurry vision, cough or nasal congestion
- Medical history - unremarkable
- Immunizations - up to date
- Vital signs - Normal except for T1019 F
- Physical examination - A single 5x5 cm, roughly midline, circular, tender swelling without surrounding erythema on the patient's forehead. Bilateral maxillary tenderness. Neurologic and other systems normal.

Investigations

- Total WBC count - 11,290/cu.
- Differential count - neutrophilic leukocytosis
- ESR of 82 mm/hr
- CRP of 9.8 mg/dL

Differential Diagnosis

Cutaneous - Cellulitis, infected dermoid or sebaceous cyst, carbuncle
Subcutaneous - Hematoma, orbital or peri-orbital cellulitis, unilateral non-Hodgkins lymphoma, lymphadenitis, inflammatory cutaneous tuberculosis
Subgaleal - Subgaleal hemorrhage
Subperiosteal - Pott's puffy tumor
Osteal - Sinusitis, osteomyelitis, tumors of the frontal sinus such as primary squamous cell or metastatic bronchogenic carcinoma

Structural Anatomy

- Figure 5 - Frontal sinusitis and the scope for extensions extracranially (A), intra-cranially (B) and intra-orbitally (C)

Treatment Plan and Outcome

- MRI showed right frontal sinusitis with associated osteomyelitis, epidural abscess, dural enhancement, and overlying subperiosteal abscess, with trans-osseous connections of the frontal sinus with the subperiosteal tissue and the epidural space.
- Functional endoscopic sinus surgery was performed for frontal sinus drainage.
- IV Ceftriaxone and IV Metronidazole were administered for a period of six weeks through a PICC line.
- Patient improved and the swelling was resolved.

Conclusion

- Pott's puffy tumor is a potentially life-threatening complication of acute sinusitis and should be considered in patients presenting with facial swelling.
- Clues on evaluation that might suggest this diagnosis include frontal headache, midline frontal swelling, fever, and neurological abnormalities.
- CT with contrast is the test of choice, and if a diagnosis of Pott's Puffy Tumor is made, admission, neurosurgery consultation, and urgent surgery is warranted.

Discussion

- Pott's puffy tumor is a rare non-neoplastic sequela of frontal sinusitis, complicated by acute osteomyelitis and subperiosteal abscess. This condition often presents with facial swelling.
- In the initial stages, this tumor is often misdiagnosed as hematomas or infected sebaceous cyst.
- Delay in diagnosis could lead to serious intracranial complications such as epidermal abscess, intracranial abscess, and pre-septal orbital cellulitis.

References

3. Case courtesy of Dr. Viren Shroff, Radiopaedia.org. ID: 14519