

## IMAGES IN EMERGENCY MEDICINE

## Imaging

# Man with forehead swelling

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## 1 | PATIENT PRESENTATION

A 60-year-old male presented to the emergency department with the complaint of “sinus infection and facial swelling.” The patient endorsed worsening symptoms for 1 month including nasal congestion, bloody nasal drainage, facial swelling and pain, and new onset diplopia. Physical examination was notable for forehead swelling extending to the periorbital area bilaterally (Figure 1). Point-of-care ultrasound was performed (Figures 2 and 3) and identified a heterogeneous highly vascular soft tissue mass with associated defect of the frontal bone. Computed tomography of the head and maxillofacial structures was obtained (Figure 4), confirming the diagnosis of a large anterior soft tissue mass with destruction of the frontal bone and mass effect on the orbits.



**FIGURE 1** Photograph demonstrating forehead swelling with bilateral periorbital mass effect noted.



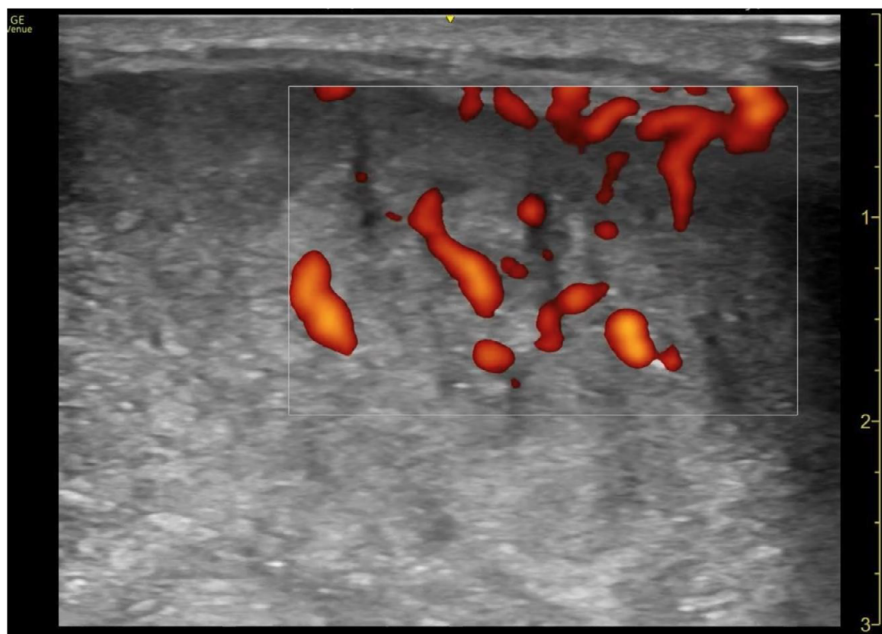
**FIGURE 2** Point-of-care ultrasound view of patient's anterior forehead demonstrating discontinuity and erosion of frontal bone (arrowhead) with protrusion of heterogeneous soft tissue mass (asterisk).

## 2 | DIAGNOSIS: SINONASAL SQUAMOUS CELL CARCINOMA

The patient underwent endoscopic biopsy, demonstrating squamous cell carcinoma originating from the skull base. In patients presenting with forehead swelling, point-of-care ultrasound (POCUS) provides a

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**FIGURE 3** Point-of-care power doppler ultrasound view of patient's forehead demonstrating extensive vascularity within the mass.



**FIGURE 4** Computed tomography in axial plane with view of orbits and cribriform demonstrating large mass centered at the cribriform plate (asterisk) involving the frontal and ethmoid sinuses as well as left nasal cavity with extensive mass effect with lateral displacement of the orbits (arrows).

rapid imaging modality for superficial soft tissue masses.<sup>1,2</sup> Given the broad differential for this presentation, POCUS can facilitate the evaluation of skin and soft tissue infections, soft tissue, and bony or vascular pathology. Importantly, the use of Doppler ultrasound can prevent inadvertent incision of occult vascular structures.<sup>3</sup> POCUS has aided the diagnosis of Pott's puffy tumor, a rare disorder which may present with forehead swelling due to an underlying abscess associated with

frontal bone osteomyelitis.<sup>4</sup> In evaluation of forehead masses, ultrasound can expedite further investigation by providing characterization of substance, vascularity, and compressibility.<sup>5</sup> POCUS examination in this patient rapidly facilitated appropriate additional imaging, consultation and diagnosis, and the avoidance of harmful bedside procedures.

#### CONFLICT OF INTEREST STATEMENT

The authors declare conflicts of interest.

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