

Traumatic Forehead Mass: An Ultrasound Lens

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Case Report

- 29 year old male with no past medical history who presented with a chief complaint of forehead pain.
- Associated symptoms included intermittent headaches.
- Two months prior the patient had a blunt trauma to his forehead with a safe door.
- Since then, the patient had an outpatient ultrasound study done that showed a masslike structure.
- Denied vision changes, nausea, vomiting, dizziness or focal neurological deficits.
- Vital Signs on arrival were:
 - T: 36.4°C, HR: 76, RR: 14, BP: 107/69, SpO2 97% on RA
- Physical exam demonstrated a pulsatile mass in the center of the forehead with no overlying erythema, induration or fluctuance. Rest of pertinent exam were negative.
- Eyes: PERRLA, EOM intact, No loss in visual acuity
- ENT: No septal hematoma, Bilateral ear exam normal, No battle sign or periorbital ecchymosis
- Neuro: NIH Scale 0, CN II-XII Intact, no focal neurological deficits, gait normal, memory normal
- The following images were obtained using point of care ultrasound.

What is your diagnosis with these images?
What imaging findings lead you to that diagnosis?

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Imaging

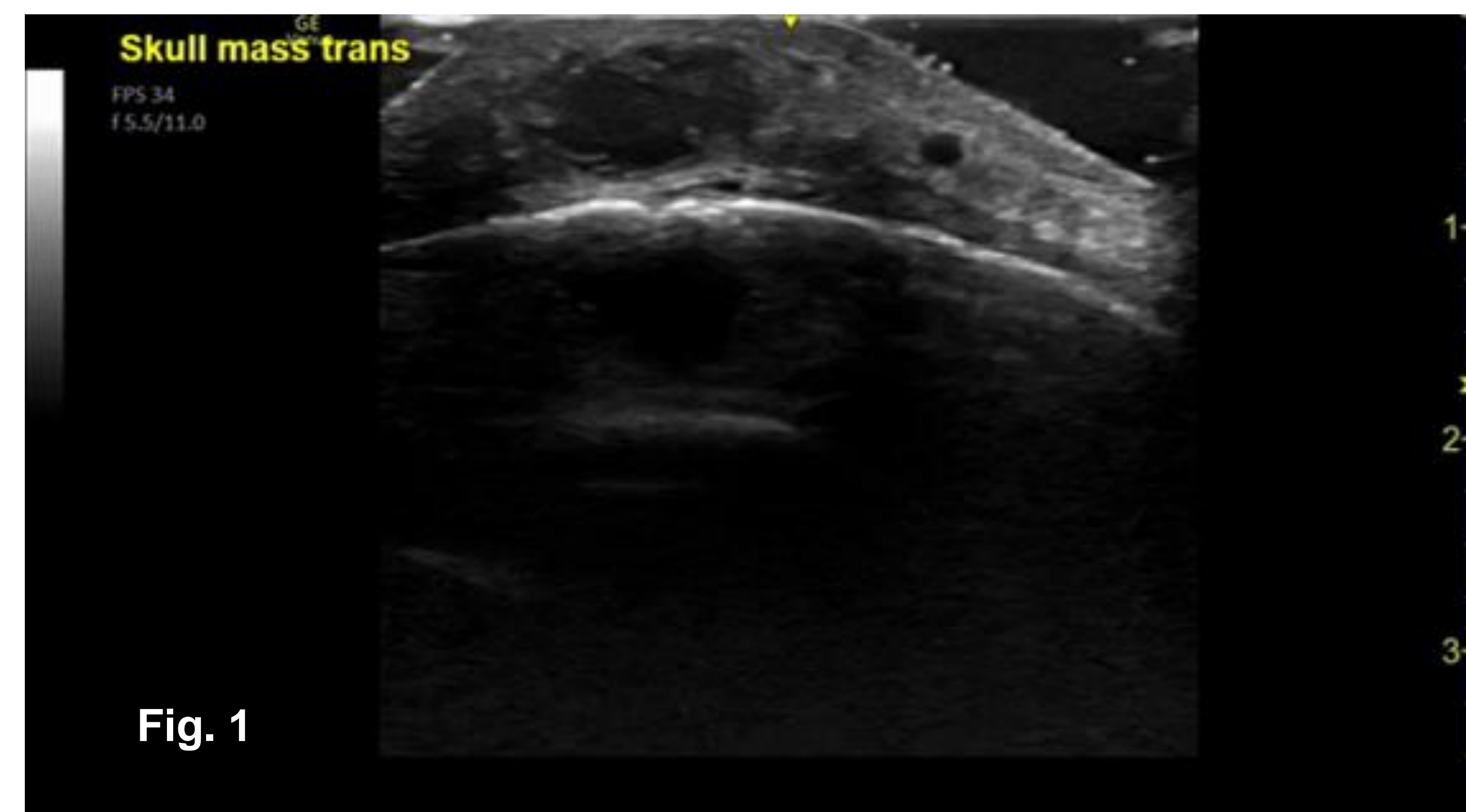


Fig. 1

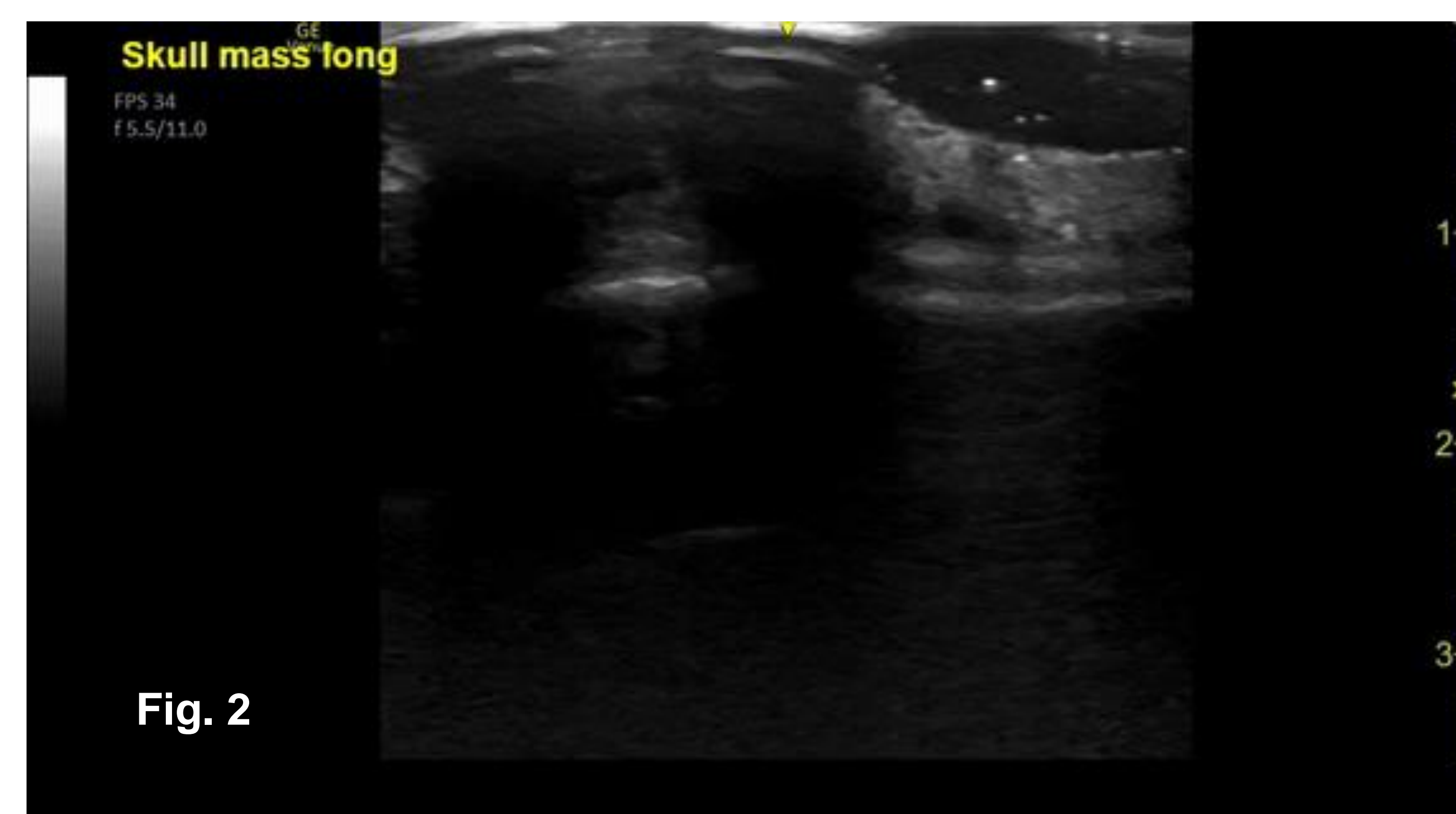


Fig. 2

Fig. 1 and 2 Forehead mass transverse and sagittal views, respectively, using a linear probe. Showing a masslike structure as previously described on outpatient ultrasound.

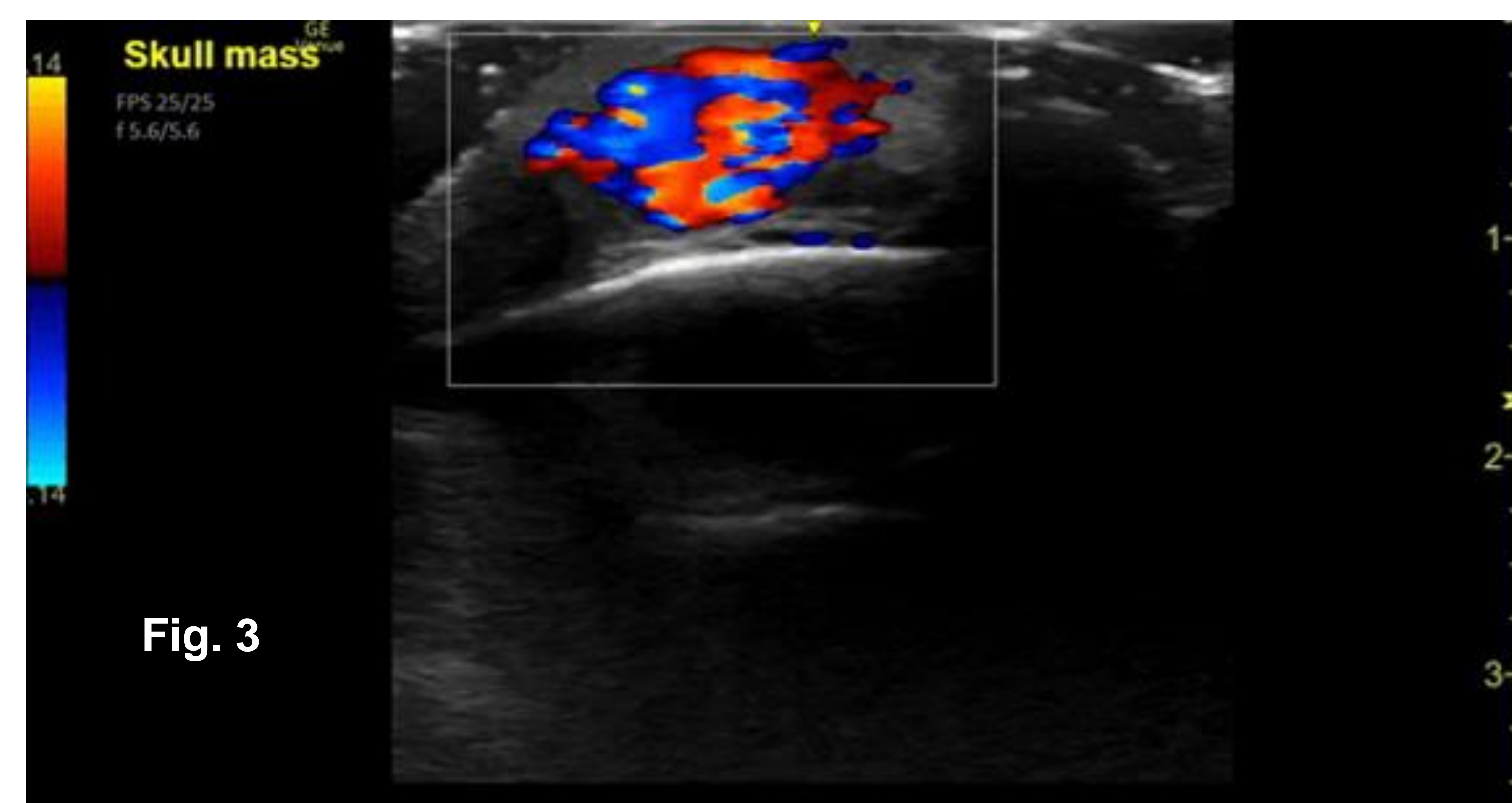


Fig. 3

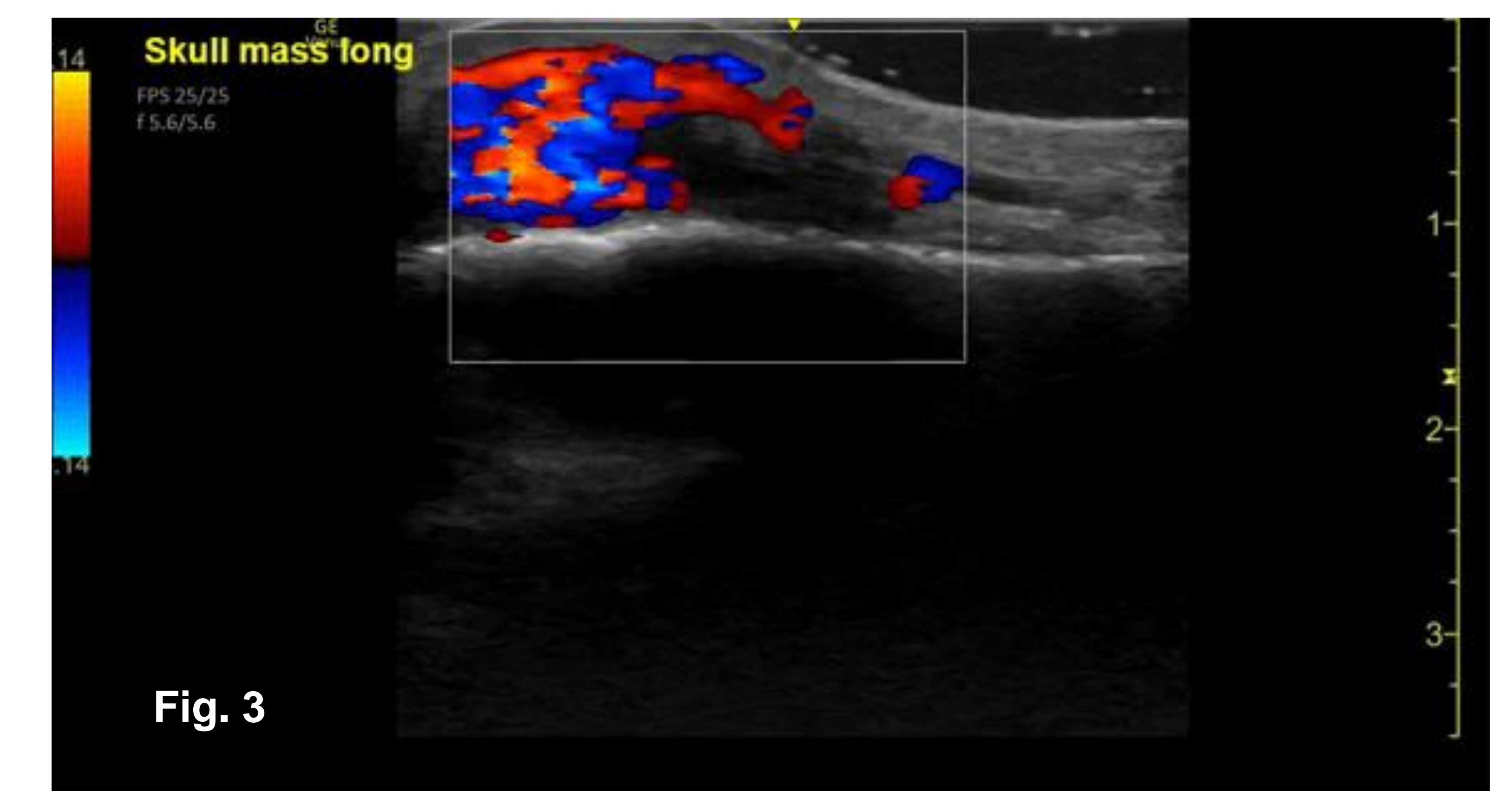


Fig. 3

Fig. 3 and 4 Forehead mass transverse and sagittal views, respectively, using color flow. Revealing turbulent flow .

Discussion

- Color flow US findings were consistent with arteriovenous malformation versus pseudoaneurysm.
- CT angiogram of the head was done showing a 1.7 x 1.2 x 2.5 cm arteriovenous malformation of the midline forehead fed by the bilateral facial arteries.
- Ultimately the patient was guided to the appropriate treatment as outpatient with Neurointerventional radiology.

Take home points

1. The utility of bedside ultrasound (especially color-flow Doppler) in guiding management with patients with traumatic AVM.
2. Importance of addressing vascularity on any masslike structure found on ultrasound, especially if related to trauma.
3. Obtaining further imaging to confirm definitive diagnosis and appropriate specialized treatment.

References

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2. Holt, G.R., Holt, J.E., Cortez, E.A., Thornton, W.R. and Young, W.C. (1980), Traumatic facial arteriovenous malformations†‡. The Laryngoscope, 90: 2011-2020. <https://doi.org/10.1288/00005537-198012000-00012>