Teaching NeuroImages: Rare skull base involvement in neurosarcoidosis

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Figure 1 Imaging

(A) Sclerotic and potentially ground-glass appearance of skull base (arrowhead) (CT). (B) Contrast enhancement of the irregular central skull base changes (arrow); left: MRI T1; right: MRI T1 with gadolinium contrast. (C) White matter edema and gadolinium-enhancing frontal pachymeningeal thickening (arrow); left: MRI FLAIR; right: MRI T1 with gadolinium contrast.

A 57-year-old woman was admitted with a tonic-clonic seizure on a background of systemic sarcoidosis with uveitis and hilar lymphadenopathy. She had previously been well and stopped steroids 1 year before presentation. CT showed a sclerotic lesion with focal lucent areas in the skull base (figure 1, A and B). MRI revealed a frontal fluid-attenuated inversion recovery hyperintense edematous lesion with meningeal enhancement in gadolinium T1 (figure 1C). This appearance on imaging evokes broad differential diagnoses such as sarcoidosis, fungal (although she had increasing lesion size despite 6-month treatment with amphotericin B), craniofacial fibrous dysplasia, atypical lymphoma, nasopharyngeal carcinoma, myeloma, and tuberculosis, therefore necessitating biopsy for definitive evaluation. Transsphenoidal biopsy revealed noncaseating granulomatous inflammation and the patient was started on oral glucocorticoid therapy for sarcoidosis (figure 2). Neurosarcoidosis with skull base bone involvement is uncommonly reported.^{1,2}

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Transsphenoidal biopsy. (A) Numerous granulomata are seen between the vital woven bony trabeculae of the sphenoid wall. (B) Non-caseating granulomas (arrowheads). (C) Multinucleate giant cells (arrows). Hematoxylin & eosin; scale: (A) 250 µm; (B) 500 µm; (C) 100 µm.

Disclosure

The authors report no disclosures relevant to the manuscript. Go to [Neurology.org/N](https://www.neurology.org/N) for full disclosures.

Appendix Authors

Name	Location	Contribution
Christoph Friedrich Mahler, MD	Royal London Hospital, UK	Data collection, drafting and revising the manuscript
Ashok Adams, MD	Royal London Hospital, UK	Radiologic imaging analysis and report

Appendix (continued)

Name	Location	Contribution
Krishna Suchak, MD	Royal London Hospital, UK	Histology microscopy, analysis and report
Sharmilee Gnanapavan, MD, PhD	Royal London Hospital, UK	Study supervision, clinical care for the patient and critical comments during manuscript revision

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