Not Your Typical Sinusitis

A Striking Cause of Recurrent Sinonasal Disease

Kaitlyn Ortgiesen[1] • Jan A. Niec[2] • Simone Montoya[2]

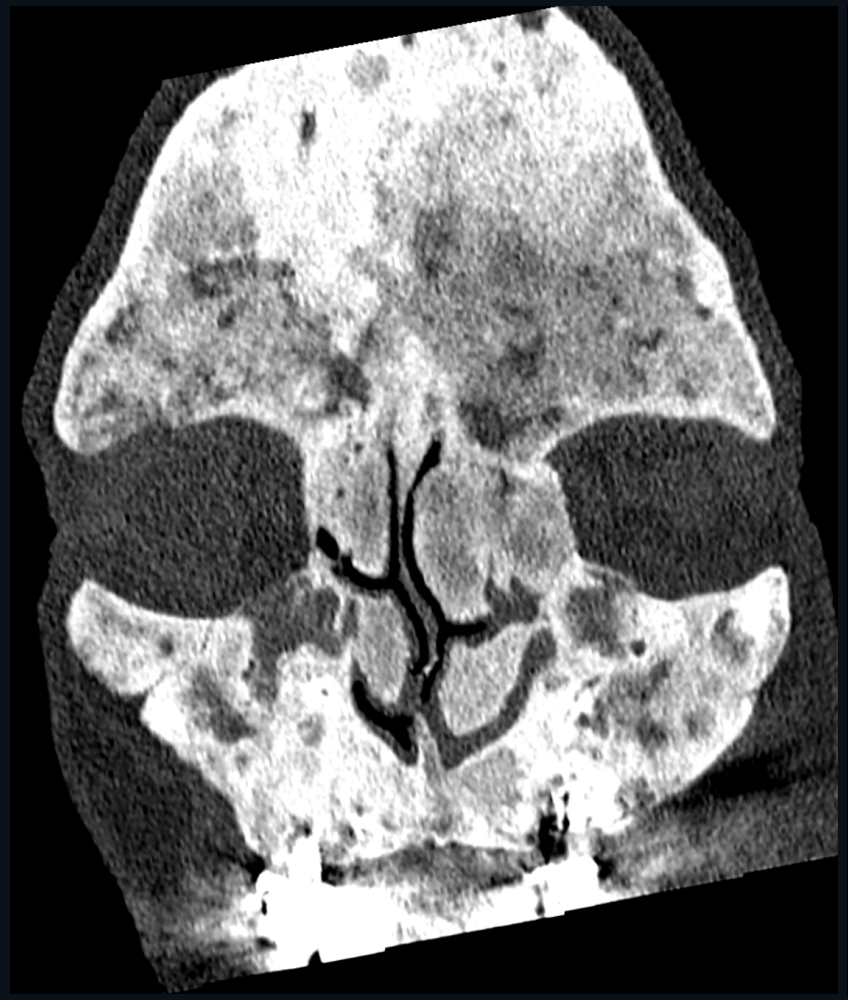
Vanderbilt University School of Medicine[1] | Vanderbilt University Medical Center[2]

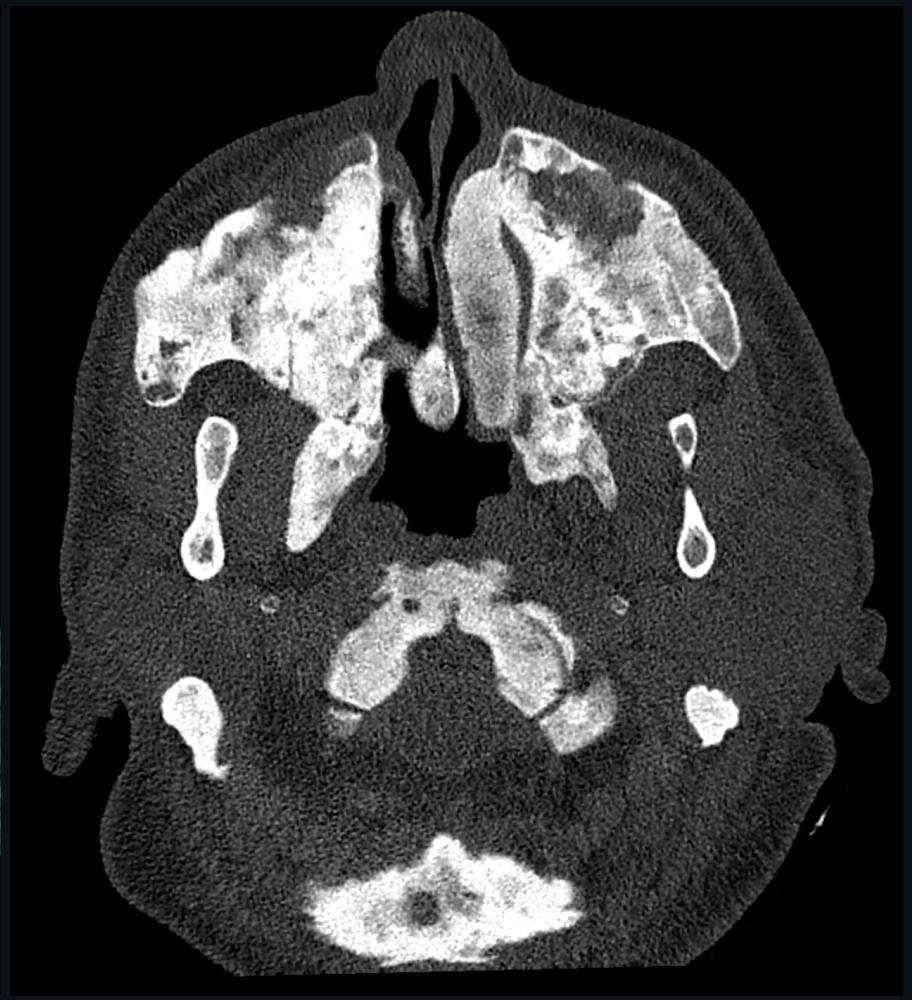
Clinical Presentation

38-year-old man presented with

- Recurrent sinusitis with acute flare
- Worsening left facial and maxillary pain
- Retro-orbital headache
- Purulent drainage from left medial canthus

CT: Maxilla / Sinonasal Region



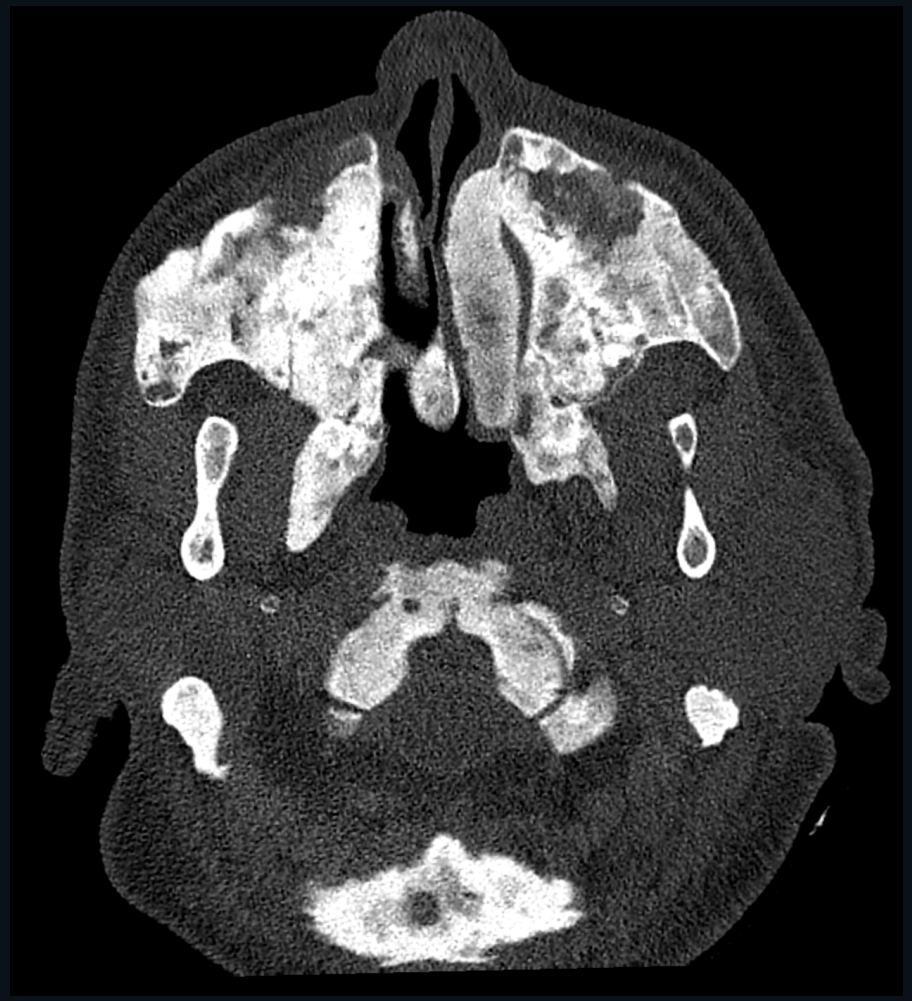




Axial, Coronal CT, bone window

CT: Maxilla / Sinonasal Region

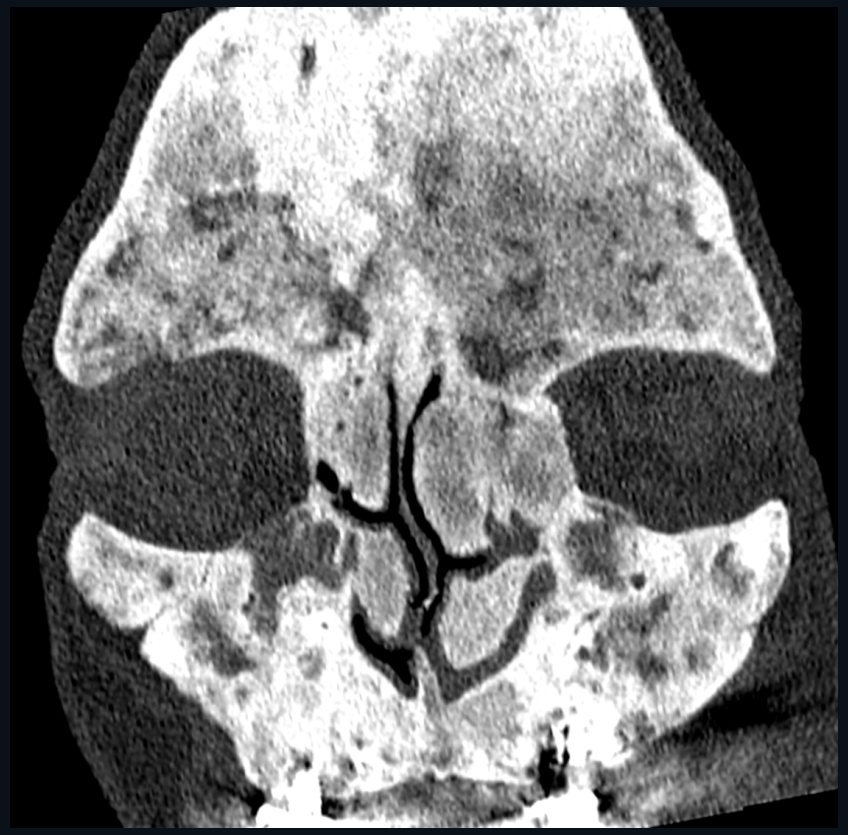
- Extensive diffuse osseous expansion
- Areas of cortical thinning
- Mixed lytic and sclerotic changes
- Ground-glass matrix

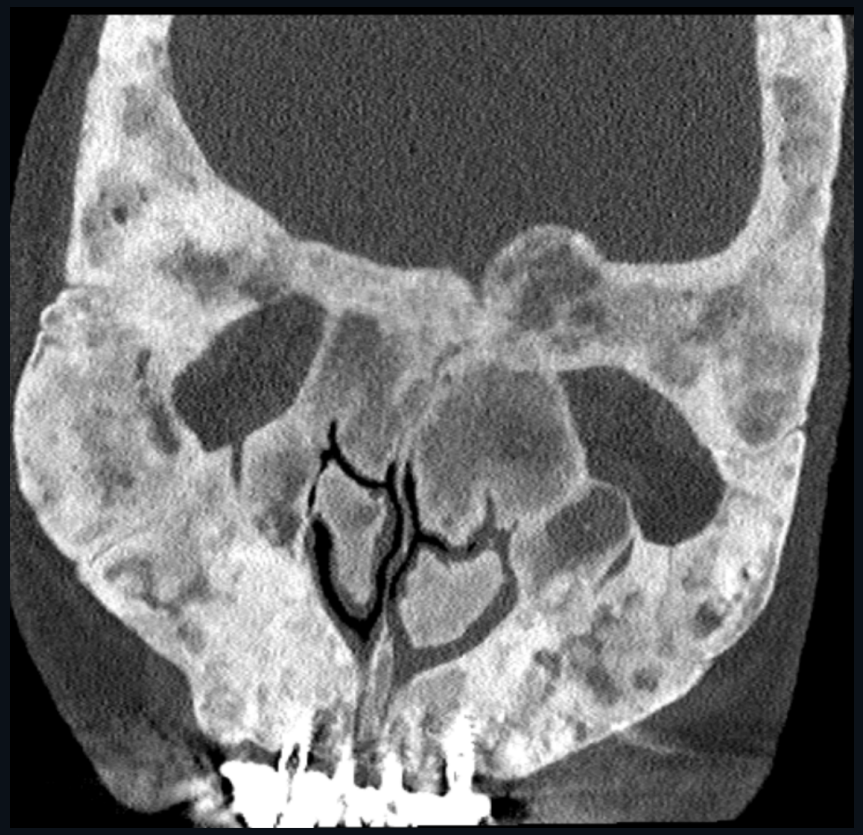




Axial, Coronal CT, bone window

CT: Maxilla / Sinonasal Region

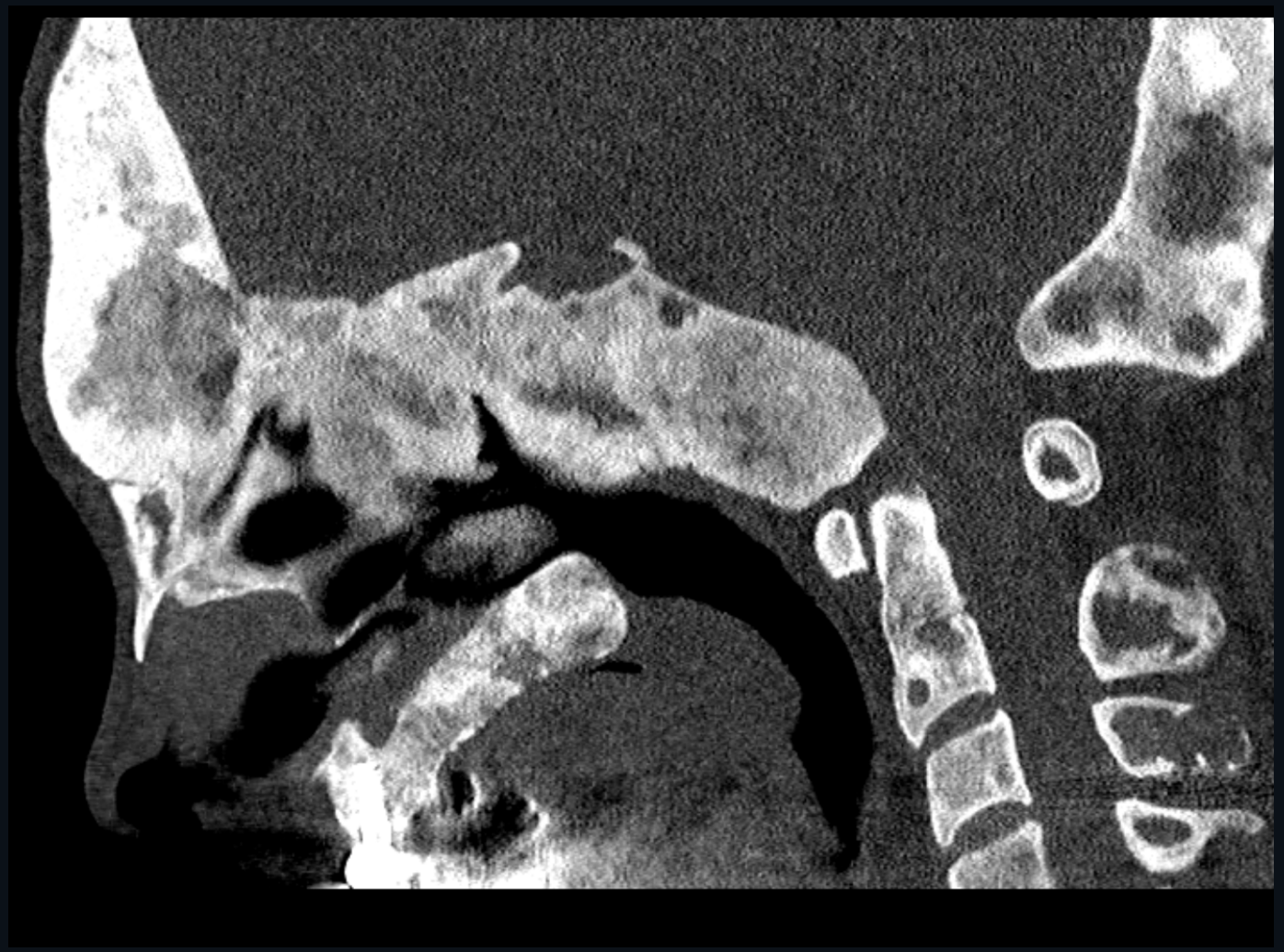




- Obliterated sinuses
- Orbital narrowing

Axial, Coronal CT Sinus, bone window

CT: Skull Base



Involves skull base, hard palate, and cervical spine

Sagittal CT, bone window

CT: Sphenoid / Skull Base



Lucent region centered in the left sphenoid (⟶) "blending" into adjacent ground glass matrix and bone.

Axial CT Sinus, bone window

Imaging Synthesis

- Diffuse process with osseous expansion
- Marked widening of the diploic space with predominantly ground-glass matrix.
- Paranasal sinus obliteration and orbital narrowing.
- Lytic/lucent lesions “blend” into adjacent bone.

Patient diagnosed with polyostotic fibrous dysplasia, later confirmed to have prior diagnosis of McCune Albright syndrome (not in our system).

Benign fibro-osseous processes

	Features
Fibrous Dysplasia (FD)	Ground-glass matrix, thinned cortex, polyostotic distribution, &patient age (38) makes this most likely.
Paget Disease	Often features thickened inner and outer table (⟹). Unlikely in patient of this age. Often cannot be differentiated from FD in older patients.
Osteopetrosis	Involves skull base, but does not expand into and obliterate sinuses/orbits. Different clinical context.



Neoplastic processes

	Features
Sarcomatous transformation	Consider when there is new soft tissue components with cortical break-through.
Intraosseous meningioma	Solitary—but can cross sutures. Classically with irregular inner table.

Management &Outcome

- Despite degree of orbital/apex narrowing, no orbital complication clinically.
- Treated as recurrent acute sinusitis, discharged with antibiotics + steroid dose pack.

Take-Home Points

- Craniofacial FD: ground-glass blending into bone, non-thickened inner table.
- Expect the matrix to evolve with age [2]:
  - Pediatric → typically homogenous ground-glass
  - Adult → mixed lytic-and sclerotic pattern



Don't over-call a lytic adult FD lesion as aggressive based on margins alone. If cortex is preserved and there is no soft-tissue component, let it be.

- The orbit is the organ at risk. FD lesions surrounding the orbit → recommend neuro-ophthalmologic examination. However, usually asymptomatic, and prophylactic orbital decompression is not indicated. May actually increase risk for vision loss [3].

References

1. Szymczuk V, Taylor J, Boyce AM. Craniofacial Fibrous Dysplasia: Clinical and Therapeutic Implications. Curr Osteoporos Rep. 2023;21(2):147-153. doi:10.1007/s11914-023-00779-6
2. Kushchayeva YS, Kushchayev SV, Glushko TY, et al. Fibrous dysplasia for radiologists: beyond ground glass bone matrix. Insights Imaging. 2018;9(6):1035-1056. doi:10.1007/s13244-018-0666-6
3. Chen PR, Chuang KT, Wang PF, et al. Craniofacial fibrous dysplasia: Long-term postoperative outcomes in a retrospective case series with up to 40 years of follow-up. Bone. 2026;203:117697. doi:10.1016/j.bone.2025.117697