

Utility of Sinus CT in the Evaluation of Patients with Febrile Neutropenia

Pooja Gurram, M.B.B.S., Natalia E. Castillo Almeida, M.D., Prakhar Vijayvargiya, M.B.B.S, Christopher Grimont, B.S., Zerelda Esquer Garrigos, M.D., Sarwat Khalil, M.D., Ruaa Al Ward, M.D., Maryam Mahmood, M.D., M. Rizwan Sohail, M.D.
 Division of Infectious Diseases, Mayo Clinic, Rochester, MN

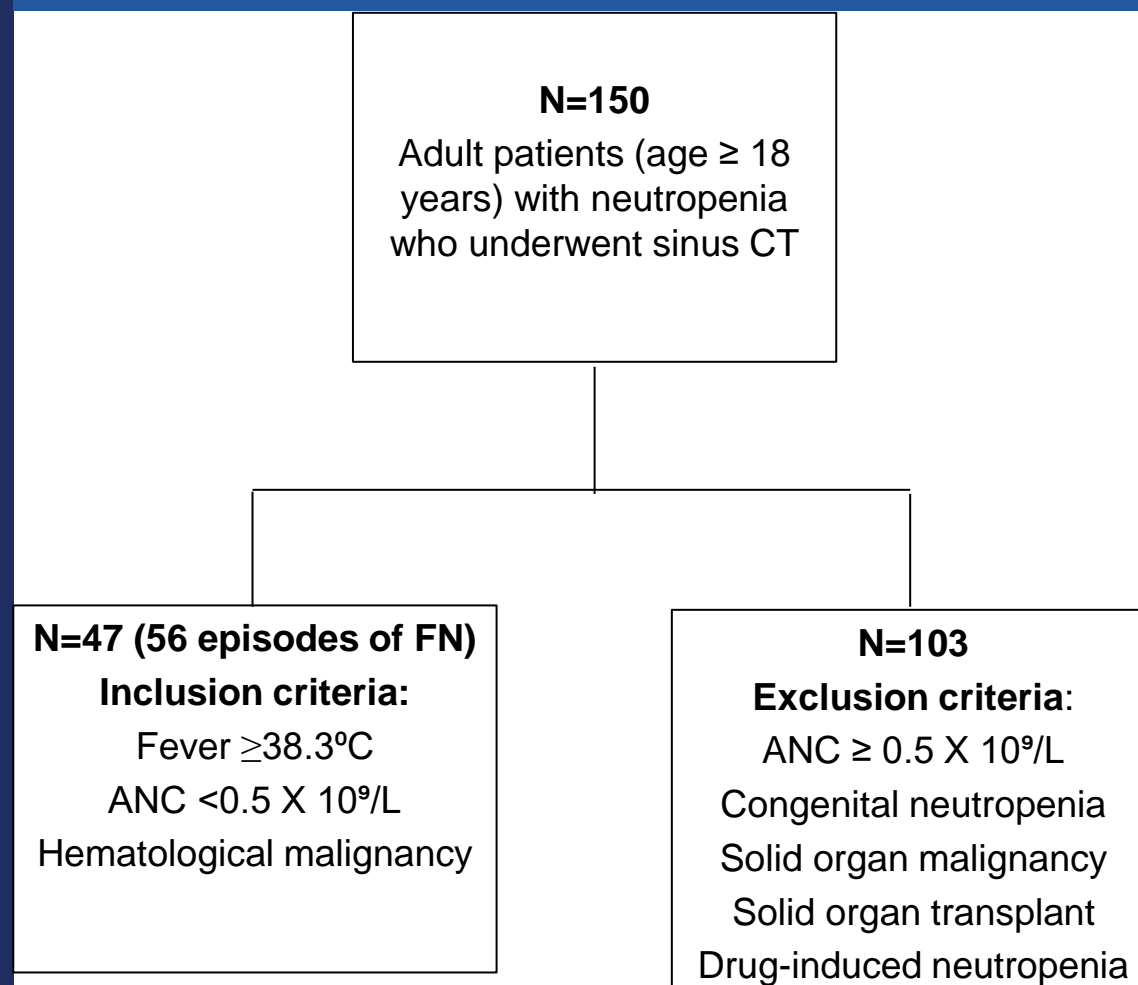
Background

- The etiology of febrile neutropenia in adult patients with hematological malignancy is identified in only 20-30% of cases.¹
- There are no clear recommendations on when to perform sinus computed tomography (CT) in this population.
- Sinus CT is used frequently, regardless of symptoms, to rule out the rhino-cerebral source of infection.
- Most of the current literature on the utility of sinus CT is based on retrospective studies in the pediatric population.^{2,3}

Study Aim

- To analyze the impact of sinus CT findings in the management of adult patients with hematological malignancy and febrile neutropenia.

Methods



Results

- The median age at presentation was 57 years (IQR: 42 – 68 years).
- The most common underlying malignancy was acute myeloid leukemia (51%), followed by myelodysplastic syndrome (19%).

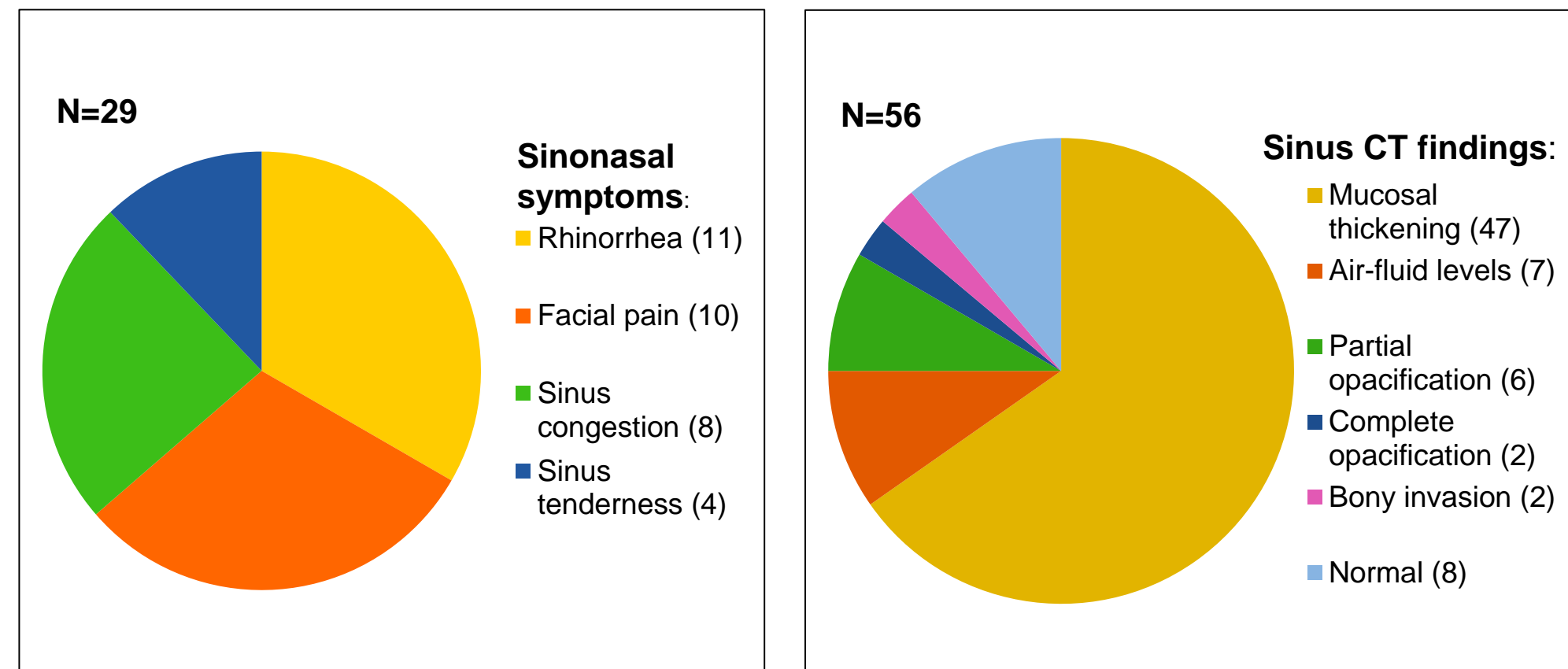


Table 1: Comparison between febrile neutropenic episodes with abnormal sinus CT findings (n=48) with and without a change in therapeutic management.

Variables	Change in management(n=9)	No change in management (n=39)	P value
Age (years), Median(IQR)	50 (27-67)	59 (45-68)	0.25
Disease status CR(%)	1 (11)	5 (13)	1.00
Sinonasal symptoms (%)	9 (100)	18 (46)	0.003
Mucosal thickening (%)	8 (88)	39 (100)	0.18
Air fluid levels (%)	5 (55)	2 (5)	0.001
Partial opacification (%)	3 (33)	3 (7)	0.07
Complete opacification (%)	2 (22)	0	0.03
Bone invasion (%)	2 (22)	0	0.03
Nasal endoscopy (%)	8 (88.9)	6 (15.4)	<0.0001

Results

- The primary source of febrile neutropenia was attributed to sinonasal disease in nine cases (9/48; 29%), leading to change in therapeutic management.
- All nine patients were symptomatic with evidence of necrosis in two (22%) and purulence in the other two (22%) on nasal endoscopy.
- Two patients (2/9) had invasive fungal sinusitis for which they underwent surgical debridement.

Conclusions

- Mucosal thickening is a frequent and non-specific imaging finding, particularly in patients without sinonasal symptoms.
- In febrile neutropenic patients without sinonasal symptoms, CT findings had no impact on clinical management.
- Based on our preliminary data, sinus CT may be reserved for febrile neutropenic patients with sinonasal symptoms.

References

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- Computed Tomography in the Evaluation of Febrile Neutropenic Pediatric Oncology Patients. Archibald S et al.
- Guideline for the Management of Fever and Neutropenia in Children with cancer and Hematopoietic Stem-Cell Transplantation recipients: 2017 Update.