Nasal biopsy in ANCA-associated vasculitis: a game changer or a false friend?

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Rhinology 64: 5, 0 - 0, 2026
https://doi.org/10.4193/Rhin26.217

Received for publication:
April 2, 2026
Accepted: June 8, 2026

Associate Editor:
Michael Soyka

Dear Editor:

Ear–nose–throat (ENT) involvement is common in ANCA associated vasculitis, particularly in granulomatosis with polyangiitis (GPA) and EGPA eosinophilic granulomatosis with polyangiitis (EGPA), with sinonasal manifestations frequently representing the earliest clinical features of disease [(1)].

Current recommendations support obtaining tissue biopsy from involved organs to assist the diagnostic process [(2-3)]. In this context, the nasal cavity and paranasal sinuses appear particularly attractive biopsy sites because of their high frequency of involvement, accessibility, and the possibility of obtaining samples with minimally invasive procedures. This represents a clear advantage compared with renal or pulmonary biopsies, which may carry significant procedural risks and are not always feasible in severely ill patients.

However, the diagnostic performance of nasal biopsy in ANCA-associated vasculitis remains limited. Histopathological examination frequently reveals only nonspecific chronic inflammatory changes rather than pathognomonic findings [(4)].

In the landmark analysis by Devaney and colleagues, 126 head and neck biopsies from 70 GPA patients were evaluated, including 60 nasal specimens [(5)]. The simultaneous presence of vasculitis, necrosis, and granulomatous inflammation, was identified in only 16% of cases, while granulomatous vasculitis alone was detected in just 6% [(5)]. More recent data suggest that diagnostic yield may have improved over time: Fernandes-Serodio et al. reported histological evidence of vasculitis or granulomas in 46.2% of 26 nasal biopsies. Overall, available studies suggest a diagnostic yield ranging from approximately 16% to 53% [(6)].

Several factors likely explain this variability. First, many studies were conducted in cohorts of patients with already established GPA diagnoses, meaning that pathologists were not blinded to the clinical context. This may have increased the likelihood that subtle or nonspecific findings were interpreted as disease related. Second, most reports do not clearly distinguish between small outpatient mucosal biopsies and larger surgical specimens obtained during endoscopic sinus surgery under general anaesthesia. Del Buono demonstrated that specimens larger than 5 mm in at least one dimension were significantly associated with detection of active vasculitis and fibrinoid necrosis [(7)]. Such samples are often difficult to obtain in an outpatient setting, where bleeding risk may limit the amount of tissue that can be collected. Moreover, there may be a tendency to limit tissue sampling, particularly at the level of the nasal septum, to avoid potential septal perforations in this patient population, which is already predisposed to such complication. Another potentially relevant but poorly investigated factor is prior treatment that could reduce the likelihood of detecting histological features of active vasculitis in nasal specimens [(7)].

In EGPA, interpretation is even more challenging. While eosinophilic infiltration is frequently observed in sinonasal samples, reported in 35–100% of cases, necrotizing vasculitis and eosinophilic granulomas are rarely detected. Histological findings therefore often overlap with those observed in type-2 inflammatory airway diseases, particularly eosinophilic chronic rhinosinusitis with nasal polyps [(8-9)].

Rather than questioning the usefulness of nasal biopsy per se in GPA and EGPA, the key challenge for the field is how to improve its diagnostic performance. Several strategies deserve consideration, including optimized sampling techniques (e.g., obtaining multiple specimens and larger tissue fragments), careful selection of biopsy sites, integration with clinical and radiological findings, and close collaboration between ENT specialists, rheumatologists/nephrologists, and pathologists. Further clarification is needed on whether biopsies should be limited to clinically

evident lesions or whether random biopsies of clinically normal-appearing mucosa offer meaningful diagnostic yield.

Nonetheless, nasal biopsy remains essential in the differential diagnosis of sinonasal malignancies and infections in doubtful cases, particularly in patients with destructive lesions. At present, however, evidence remains insufficient to determine whether it can reliably assess disease activity in vasculitis.

Authorship contribution

LG, MB, SN and IG conceived and wrote the manuscript. LC reviewed the manuscript.

Conflict of interest

None.

Funding

None.

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