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Histopathological Patterns of Inflammatory and Eczematous Dermatoses in Abuja, Nigeria: A 10-Year Retrospective Study

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ABSTRACT

Introduction: *Inflammatory skin lesions constitute a significant proportion of dermatological presentations, yet their demographic and clinicopathological patterns remain underreported in many African settings. This study aimed to describe the distribution of inflammatory lesions by age, sex, procedure type, and anatomical site in a Nigerian cohort.*

Methods: *A retrospective analysis of 672 histologically confirmed inflammatory skin lesions was conducted. Data on age group, sex, biopsy procedure, and anatomical site were extracted and analysed descriptively. Chi-square goodness-of-fit tests were performed to assess whether cases were evenly distributed across categories within each variable.*

Results: *The majority of lesions occurred in patients aged 30–49 years (25.1%), followed by adults of unspecified age (21.6%) and those aged 10–29 years (20.8%). Females accounted for 57.4% of cases, compared with 38.4% in males, yielding a female-to-male ratio of approximately 1.5:1. Shave biopsy was the most frequently performed procedure (35.4%), followed by tissue sampling (27.4%) and punch biopsy (22.9%). The lower limb was the most commonly affected site (27.1%), followed by the upper limb (20.8%), with the limbs combined accounting for nearly half of all cases (47.9%). All four distributions differed significantly from a uniform distribution ($p < .001$).*

Conclusion: *Inflammatory skin lesions in this cohort predominantly affected adults of working age, with a clear female preponderance and limb-dominant anatomical distribution. Shave biopsy remains the preferred diagnostic technique, reflecting its cost-effectiveness and practicality in resource-limited settings. These findings reinforce existing African dermatopathology literature and highlight the need for accessible, targeted dermatological services, particularly for female and limb-affected patients.*

Keywords: *Dermatopathology; Histopathology; Inflammatory Lesions, Skin Biopsy, Nigeria.*

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Introduction

Inflammatory dermatoses are a mixed bag of non-cancerous skin conditions that often look alike, both to the naked eye and under the microscope. This group spans spongiotic (eczematous) reactions, psoriasiform changes, lichenoid or interface patterns, vesiculobullous disease, vasculitis, granulomatous inflammation and panniculitis [1]. Eczematous conditions in particular are marked by spongiosis, fluid building up between epidermal cells and cover a range of familiar diagnoses including atopic dermatitis, contact dermatitis and seborrhoeic dermatitis [2]. Because so many of these disorders can present with the same red, scaly, itchy lesions, the clinical picture alone often isn't enough to pin down a diagnosis. A skin biopsy, read alongside the clinical history, is usually what settles the question, rules out mimics and points toward the right treatment [1].

The burden these conditions place on patients worldwide is considerable. The 2019 Global Burden of Disease study estimated 171 million people were living with atopic dermatitis alone that year a figure that speaks to how widespread eczematous disease really is [3]. Beyond the itching, scaling and general discomfort, these disorders can chip away at sleep, work, and quality of life more broadly.

How common different diagnoses are, and what the biopsy mix looks like, varies a lot from place to place shaped by population age, environmental exposures, how easily people can access care, and whether dermatopathology expertise is even available locally.

Data from sub-Saharan Africa bears this out: inflammatory disease makes up a large share of what pathologists see on skin biopsy. In Tanzania, a five-year review of 1,554 biopsies found inflammatory conditions in 45% of cases, with lichenoid disorders topping the list [4]. Yet dermatopathology services across much of Africa remain thin on the ground, so what turns up in biopsy series may not fully reflect the disease burden out in the community [4].

Nigerian data tell a similar story, though with some differences between centres. In Ibadan, a review of non-neoplastic skin biopsies found that a large share of the dermatitis/eczema group ended up classified as non-specific a reminder of how much overlap there is among these conditions [5]. A more recent study from a dermatology clinic in Kano found inflammatory dermatoses accounted for the majority of diagnoses (61.2%), though eczematous conditions showed up on biopsy less often than one might expect given how common they are clinically [6].

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In Abuja, adult atopic dermatitis has also been documented, with chronic eczema standing out as the most frequent presentation [7].

Despite this body of work, little has been published on inflammatory and eczematous dermatoses seen at private diagnostic laboratories in Abuja specifically. Reviewing a decade's worth of cases offers a chance to map out the specific diagnoses and reaction patterns involved, along with the age and sex characteristics of affected patients. Findings like these can inform day-to-day diagnostic practice, support clinicopathological correlation, and lay groundwork for future multicentre research. With that in mind, this study set out to characterise the histopathological patterns of inflammatory and eczematous dermatoses diagnosed at a private histopathology laboratory in Abuja, Nigeria, between January 2016 and December 2025.

Materials and Methods

This was a retrospective descriptive study of skin biopsy specimens diagnosed as inflammatory or eczematous dermatoses at Histoconsult, a private histopathology laboratory in Abuja, Nigeria. The study covered a 10-year period, from January 2016 to December 2025.

The laboratory database, histopathology request forms, and archived pathology reports were reviewed to identify all skin biopsy specimens received during the study period. Cases with histopathological diagnoses of inflammatory or eczematous dermatoses were selected for analysis.

Cases were included if they had a definitive histopathological diagnosis and sufficient demographic and clinical information, including age, sex and biopsy site. Neoplastic, infective and traumatic skin lesions were excluded. Cases with inadequate or non-representative tissue, missing or poorly preserved slides, or incomplete essential data were also excluded.

Archived haematoxylin and eosin-stained slides were retrieved and reviewed by two consultant histopathologists to confirm the diagnosis and determine the predominant histopathological reaction pattern. Where slides or tissue blocks were unavailable for review, the original authorised histopathology report was used, provided that the diagnosis and relevant clinical details were adequately documented.

Cases were classified into major reaction patterns, including spongiotic/eczematous, psoriasiform, lichenoid/interface, vesiculobullous, vasculitic, granulomatous and panniculitic dermatoses. Where possible, cases were further classified into specific diagnostic entities, such as atopic dermatitis, contact dermatitis, seborrhoeic dermatitis, psoriasis and lichen planus. Diagnostic disagreements were resolved by consensus; where necessary, a third consultant histopathologist reviewed the case.

Data extracted from the records included patient age, sex, anatomical site of biopsy, clinical diagnosis or differential diagnosis, and final histopathological diagnosis. Age was categorised into decades for descriptive and comparative analyses.

Data were entered into Microsoft Excel and analysed using IBM SPSS Statistics version 29.0. Categorical variables were summarised using frequencies and percentages. Continuous variables, including age, were summarised as mean ± standard deviation for normally distributed data or median with interquartile range for skewed data.

Associations between diagnostic categories and demographic characteristics were assessed using the chi-square test or Fisher's exact test where appropriate. A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations: This study was conducted following approval by the institutional ethics committee. All patient-identifying information was removed prior to data analysis to ensure confidentiality. Given that the study involved a retrospective review of anonymised laboratory records, individual informed consent was not required, in line with institutional guidelines.

Results

A total of 672 inflammatory skin lesions were included in this analysis. The distribution of cases was examined by age group, sex, biopsy/procedure type, and anatomical site. One-sample chi-square goodness-of-fit tests were performed for each variable to determine whether cases were evenly distributed across categories.

The majority of lesions occurred in patients aged 30–49 years (n = 169, 25.1%), followed by adults of unspecified age (n = 145, 21.6%) and the 10–29 age group (n = 140, 20.8%). Lesions in patients aged 50–69 years accounted for 16.2% (n = 109) of cases, while those under 10 years and aged 70 years or older represented smaller proportions (5.8% and 2.8%, respectively). Age was unrecorded in 7.5% (n = 51) of cases (Table 1.0). Collectively, individuals aged 10–69 years accounted for approximately 62.1% of all cases, indicating that inflammatory lesions in this cohort predominantly affected adults of working age. A chi-square goodness-of-fit test confirmed that cases were not evenly distributed across age groups, $\chi^2(6, N = 672) = 219.15, p < .001$.

Table 1.0: Distribution of Inflammatory Lesions by Age Group

Age Group	Frequency	Percent (%)
<10	39	5.8
10–29	140	20.8
30–49	169	25.1
50–69	109	16.2
≥70	19	2.8
Adult – Unknown Age	145	21.6
Age Unknown	51	7.5
Total	**672**	**100.0**

Females accounted for the majority of cases (n = 386, 57.4%), compared with males (n = 258, 38.4%), yielding a female-to-male ratio of approximately 1.5:1. Sex was not specified in 4.1% (n = 28) of records (Table 2.0). A chi-square goodness-of-fit test indicated a significant deviation from an even distribution across sex categories, $\chi^2(2, N = 672) = 293.82, p < .001$.

Table 2.0: Distribution of Inflammatory Lesions by Sex

Sex	Frequency	Percent (%)
Female	386	57.4
Male	258	38.4
Not Specified	28	4.1
Total	**672**	**100.0**

Shave biopsy was the most frequently performed procedure (n = 238, 35.4%), followed by tissue sampling (n = 184, 27.4%) and punch biopsy (n = 154, 22.9%). Together, these three techniques accounted for 85.7% of all procedures performed. Excision of a lesion, mass, or cyst comprised 10.9% (n = 73) of cases, while excisional biopsy (1.6%), incisional biopsy (1.2%), and ablation/cauterisation (0.6%) were performed less frequently (Table 3.0).

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The distribution of procedure types differed significantly from an even distribution, $\chi^2(6, N = 672) = 575.35$, $p < .001$, reflecting a strong clinical preference for minimally invasive sampling techniques.

Table 3.0: Distribution of Inflammatory Lesions by Procedure

Procedure	Frequency	Percent (%)
Shave Biopsy	238	35.4
Tissue Sample	184	27.4
Punch Biopsy	154	22.9
Lesion/Mass/Cyst	73	10.9
Excisional Biopsy	11	1.6
Incisional Biopsy	8	1.2
Ablation/Cauterisation	4	0.6
Total	**672**	**100.0**

The lower limb was the most commonly affected site, accounting for 27.1% (n = 182) of lesions, followed by the upper limb (20.8%, n = 140). Multiple sites were involved in 13.4% (n = 90) of cases. The back (9.7%) and scalp (8.3%) were the next most frequently affected regions, while the face accounted for 6.4% of lesions. Less common sites included the chest/breast (3.6%), abdomen (2.5%), buttock (2.4%), and groin/genital/perineal region (2.1%). The neck, axilla, shoulder/clavicle, ear, and flank/loin regions each individually accounted for fewer than 2% of cases (Table 4.0). Notably, the limbs (upper and lower combined) accounted for nearly half of all lesions (47.9%), consistent with these being common sites of cumulative sun exposure and mechanical trauma. Distribution across anatomical sites deviated significantly from an even distribution, $\chi^2(14, N = 672) = 925.54$, $p < .001$.

Table 4.0: Distribution of Inflammatory Lesions by Skin Site

Skin Site	Frequency	Percent (%)
Lower Limb	182	27.1
Upper Limb	140	20.8
Multiple Sites	90	13.4
Back	65	9.7
Scalp	56	8.3
Face	43	6.4
Chest/Breast	24	3.6
Abdomen	17	2.5
Buttock	16	2.4
Groin/Genital/Perineum	14	2.1
Neck	13	1.9
Axilla	6	0.9
Shoulder/Clavicle	3	0.4
Ear	2	0.3
Flank/Loin	1	0.1
Total	**672**	**100.0**

Statistical Testing

Table 5.0: Chi-Square Goodness-of-Fit Tests by Variable

Variable	χ^2	Df	p-value
Age Group	219.15	6	< .001
Sex	293.82	2	< .001
Procedure	575.35	6	< .001
Skin Site	**925.54**	**14**	**< .001**

Note. χ^2 values reflect one-sample goodness-of-fit tests against the null hypothesis of an equal distribution of cases across categories within each variable. Significant results ($p < .05$) indicate that observed frequencies departed from a uniform distribution.

Discussion

The peak occurrence of inflammatory lesions in the 30–49 age group (25.1%) fits with earlier Nigerian findings, though the exact peak age varies 30–39 years in a Central Nigerian cohort versus 20–29 years in Ibadan [8,5].

South-Eastern Nigeria showed a similar pattern, with non-neoplastic skin lesions concentrated in younger and middle-aged adults [9]. Together, these studies point to early-to-middle adulthood as the period when inflammatory skin conditions most often prompt biopsy. The slightly older peak seen here may reflect differences in referral patterns, lesion types, and the Abuja population itself.

Women made up 57.4% of specimens, a ratio of roughly 1.5:1. This mirrors findings from South-Eastern Nigeria [9] and an Ethiopian referral cohort, where women accounted for 72% of dermatology patients and inflammatory dermatoses dominated the diagnoses [10]. Global Burden of Disease data likewise show that inflammatory skin disease burden varies by age, sex, and setting [11]. Still, this female skew should be read cautiously as a histopathology-based rather than population-based study, it's shaped by who seeks care and who gets biopsied, not necessarily by true disease prevalence.

Shave biopsy was the most common procedure (35.4%), which makes sense given how quick and straightforward it is for superficial lesions [12,13]. Punch biopsy, better suited to sampling deeper dermal or subcutaneous tissue, was used where that depth mattered [12,13]. The mix of techniques here likely tracks the types and depths of lesions encountered, along with individual clinician preference not one method outperforming another.

The strong showing of inflammatory lesions echoes patterns elsewhere in sub-Saharan Africa. At Tanzania's Regional Dermatology Training Centre, inflammatory disease was the single largest diagnostic category at 45% [4]. In Addis Ababa, a review of 2,342 specimens found inflammatory dermatoses in 27% of cases [14]. The gap between these figures likely comes down to differences in referral populations, biopsy thresholds, and how conditions get classified across centres.

Lesions were most common on the lower limb (27.1%) and upper limb (20.8%), broadly matching a Central Nigerian series where extremities accounted for over half of all specimens [8]. This limb predominance could stem from how often lesions actually occur there, occupational or environmental exposure, or simply how accessible these sites are for biopsy. Site distribution still needs to be read alongside the specific disease mix in each study, since different conditions favour different locations.

Taken together, the pattern seen in this Abuja cohort inflammatory lesions concentrated in adulthood, a female skew, and frequent limb involvement — lines up well with findings across Nigeria and the wider region [8,5,9,10,4,15]. It reinforces how valuable well-chosen skin biopsy and histopathology remain for diagnosing inflammatory dermatoses, especially when the clinical picture alone isn't conclusive.

Conclusion

Overall, this study shows that inflammatory skin lesions mostly affected adults in their 30s and 40s, with noticeably more women than men presenting for biopsy. Shave biopsy was the most commonly used procedure, likely because it's simple, affordable, and easy to care for afterward, a practical choice in settings with limited resources. The limbs carried the heaviest burden, accounting for almost half of all cases, probably due to years of sun exposure and everyday physical wear.

These results line up well with similar African and Nigerian studies, confirming that inflammatory skin conditions are a real and ongoing concern for adults of working age, especially women and those with limb involvement.

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Going forward, studies that look at how age, sex, and site interact together would give a clearer picture and help guide more focused care for this population.

Recommendations

Health facilities should invest in stronger dermatopathology services, more trained staff, better equipment, and improved reporting since inflammatory skin lesions clearly place a significant burden on patients. Clinicians should pay closer attention to adults in their 30s and 40s and to female patients, who seem most affected, and should routinely check the limbs carefully, especially in people who spend a lot of time in the sun or do manual work. Shave biopsy should stay the go-to first step for straightforward cases, since it's quick and affordable, while punch or excisional biopsy can be kept for trickier lesions. Better record-keeping is also needed, so details like age and site aren't missed as often. Looking ahead, future studies should track how different factors interact (like sex and site together) rather than just looking at each one alone, and should involve multiple centres over a longer time to get a fuller picture. Finally, simple public health messaging around sun protection could go a long way in preventing some of these conditions before they start.

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