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PREVALENCE OF PREAURICULAR SINUS AMONGST ANNANGS AND IBIBIOS

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ABSTRACT

Preauricular sinus is a congenital anomaly that occurs at the anterior margin of the ascending limb of the helix of the external ear. Its prevalence varies significantly across different ethnic and geographical populations worldwide. This study aimed to determine its prevalence among Annang and Ibibio patients attending an ENT outpatient clinic in Southern Nigeria.

It is a cross-sectional observational study, involving a systematic observation and assessment of patients attending the ENT outpatient clinic of the University of Uyo Teaching Hospital, Akwa Ibom State.

Three hundred and two subjects with a mean age of 25.2 years were recruited in this study, out of which 35.4% [107/302] were of the Annang tribe and 64.6% [195/302] were of the Ibibio tribe. The M:F ratio of respondents was 1:1.5. A prevalence of 17.6% [53/302] was noted. The Annang subjects had the highest prevalence rate of 19.6% [21/107], while the Ibibios had 16.4% [32/195]. Only 24% [72/302] of the participants had heard of PAS prior to the survey, while 25% [18/72] of those affected sought medical attention. Health education to improve public awareness of the condition is advocated.

Pre-auricular sinus

Annang

Ibibio

INTRODUCTION

Preauricular sinus (PAS) is an interesting congenital anomaly of the preauricular soft tissue that Carl Friedrich von Heusinger first described.^{1,2} It is a common abnormality of the head and neck region that usually occurs at the anterior margin of the ascending limb of the helix of the external ear.¹

The most accepted theory suggests that PAS arises when there is an incomplete or defective fusion of the six auditory hillocks of His, which are responsible for the embryogenesis of the auricle.^{3,4} The sinus is typically located anterior to the helix or near the tragus, reflecting its embryonic origin.^{1,5} A less accepted hypothesis suggests that PAS develops during the embryonic stage from an isolated ectodermal folding.^{1,6} Genetically, preauricular sinus is inherited in an incomplete autosomal dominant pattern, with a reduced penetrance pattern and variable power of expression commonly seen in bilateral cases.¹

The prevalence of PAS varies significantly across different ethnic and geographical populations of the world, with higher rates reported among certain African and Asian populations.^{2,4,7} The reported prevalence varies between 0.1 – 0.9% in USA and England, 1.6 – 6% in Asia, and 3 – 10 % in African regions.⁸

It is more often unilateral, while bilateral forms usually occur as an inherited disorder, and their association with deafness and as part of syndromic disorders has been reported.^{1,9} The presence of a PAS should prompt further evaluation to rule out renal or auditory abnormalities.⁹

It is a congenital malformation that may go unnoticed in many individuals, but warrants medical attention when symptoms arise. The most common complications associated with PAS is infection, which can lead to recurrent abscess formation or persistent sinus drainage, often requiring both medical and surgical interventions.⁹

Despite numerous studies conducted globally, there is no data specifically addressing the prevalence and awareness of preauricular sinus amongst the Annang and Ibibio populations of Southern Nigeria. The Annang and Ibibios are the two major closely related ethnic groups in Akwa Ibom state, that share deep cultural, ancestral and linguistic ties. While PAS is a relatively common congenital anomaly, much of its research has focused on Asian and Western populations.¹⁰ This study, therefore, aims to determine the prevalence of preauricular sinus amongst the Annang and Ibibio patients attending an ENT outpatient clinic in Southern Nigeria.

METHODOLOGY

This is a cross-sectional study that involved the systematic observation and assessment of patients attending the ENT outpatient clinic of the University of Uyo Teaching Hospital from January to March 2026. Only persons aged 10 years and above who were monoethnic natives of the Annang or Ibibio ethnic groups of Southern Nigeria were recruited for the study. Congenital anomalies such as microtia and anotia were excluded from the study. Informed consent was obtained from all eligible patients who presented to the clinic. A thorough head and neck examination was conducted to identify the presence of any PAS, and data were collected using an interviewer-administered questionnaire. Data collected included age,

sex, tribe, knowledge of PAS, and educational status. All data were coded and analyzed using IBM SPSS Statistics version 27.0, with descriptive and inferential statistical methods employed. The level of statistical significance was set at $p < 0.05$. Results were presented using frequency tables and charts where applicable.



Figure 1: Diagram showing a preauricular sinus.

RESULTS

Three hundred and two subjects with a mean age of 25.2 years were recruited in this study, out of which 35.4% [107/302] were of the Annang tribe and 64.6% [195/302] were of the Ibibio tribe. The M:F ratio of respondents was 1:1.5.

Variable	Category	Frequency (n)	Percentage (%)
Age Group (years)	10 – 20	61	20.2
	21 – 30	103	34.1
	31 – 40	86	28.5
	41 – 50	32	10.6
	51 – 60	16	5.3
	> 61	4	1.3
Subjects by Ethnic Group	Annang	107	35.4
	Ibibio	195	64.6
Sex	Female	181	59.9
	Male	121	40.1
Educational qualification	No formal education	2	0.7
	Primary	37	12.3
	Secondary	112	37.1
	Tertiary	151	50.0

Fifty-three of the 302 participants in this study had PAS (M:F ratio of 1:1.3), demonstrating an overall prevalence of 17.6%. Seven (13.2%) were bilateral, and 46 (86.8%) were unilateral (25 right-sided, 21 left-sided).

The prevalence of PAS among the Annangs was 19.6% [21/107], and 16.4% [32/195] for the Ibibios with no statistically significant ethnic variation ($p = 0.558$).

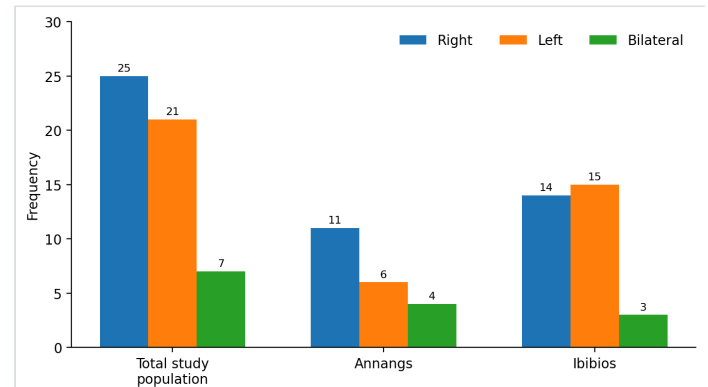


Figure 2: Laterality patterns of PAS in the Annangs and Ibibios

A positive family history of PAS was defined as the presence of a PAS in a first-degree relative. Of the 53 respondents identified with PAS, 22 (41.5%) had a positive family history. All 7 (100.0%) respondents with bilateral PAS and 15 (32.6%) of those with unilateral PAS had a positive family history. There was no statistically

significant association between bilaterality of PAS and positive family history ($p = 0.592$).

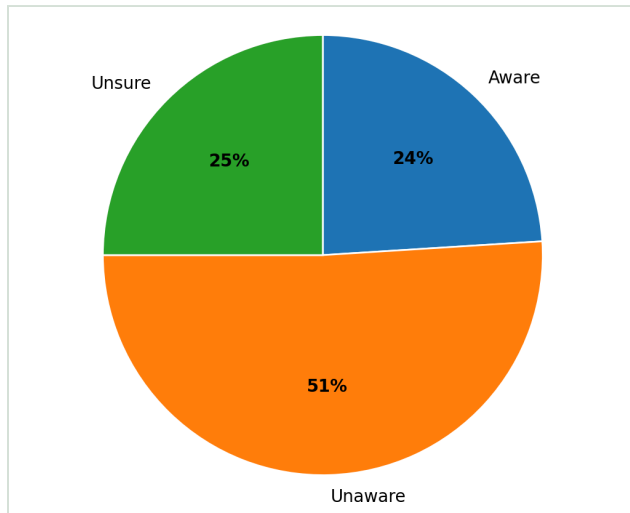


Figure 3: Knowledge of PAS among the study population.

Only 60% [32/53] of respondents with PAS were aware of having the condition before the survey, with 15.1% [8/53] having experienced symptoms related to PAS, and sought medical attention. The symptoms occurred more in those with bilateral PAS 62.5% [5/8]. None of the subjects with PAS had other auricular defects, dysmorphic facial features, or any other sinuses or fistulas in the head and neck region.

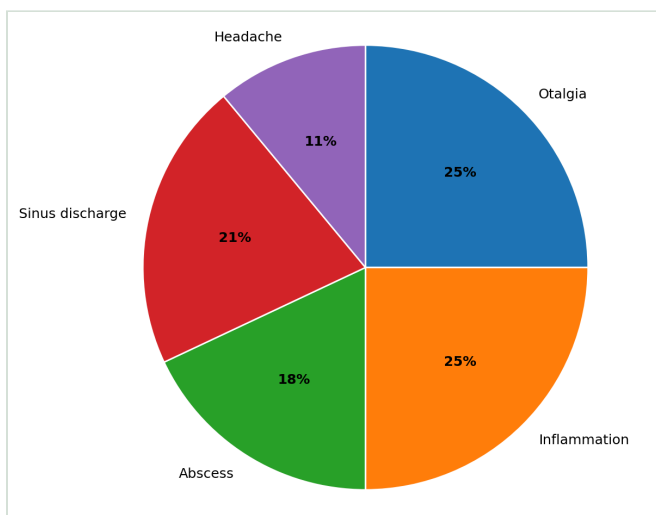


Figure 4: Symptomatology of PAS

DISCUSSION

The present study represents the first investigation of PAS in these ethnic groups. Although the prevalence rate observed in our study was higher, it remains consistent with the broader finding that PAS is more common among African populations.^{8,11} Previous Nigerian studies, predominantly conducted in the South-West and encompassing all age groups, reported slightly lower prevalence rates than ours.^{2,6,12} Like many of those South-western studies, our work was hospital-based, with the observed inter-study differences possibly reflecting genetic or environmental predispositions.^{2,13} Notably, the Annang ethnic group exhibited the highest prevalence in our study. While global prevalence rates of PAS appear to vary considerably, most published studies have examined ethnically homogenous samples and have not specifically explored differences between ethnic groups co-habiting the same geographic area.^{14,15}

The literature presents conflicting evidence regarding sex predisposition to the development of PAS.^{2,4} While some studies have reported an equal distribution between sexes, others have observed a male predominance.^{6,14,16} In contrast, our study identified a female preponderance, corroborating findings from other reports.^{12,17}

PAS may occur sporadically or be inherited; bilateral lesions are more frequently associated with a hereditary pattern.³ In the present cohort, no statistically significant association was observed between a positive family history and the development of PAS. However, this negative finding should be interpreted with considerable caution, given the limited number of affected individuals identified. Accordingly, these data do not preclude a heritable component, as has been substantiated in prior otolaryngology and genetic literature. Our study failed to demonstrate an association between positive family history and bilateral PAS. Nevertheless, given the small number of affected persons, this finding is inconclusive and does not exclude a potential genetic link.^{18,19} In addition, environmental causes have been suggested in the aetiopathogenesis of PAS.⁵ A prior report from Israel has suggested that PAS may function as an epidemiological marker of teratogenic exposure, with its decreasing incidence reflective of reduced environmental teratogens.²⁰ Extending this reasoning to our setting, the petrochemical byproducts associated with crude and gas exploration in the Annang and Ibibio territories could represent a relevant teratogenic exposure. This offers a plausible, albeit speculative, explanation for the relatively high PAS prevalence seen in our study.

Concerning laterality, right-sided PAS was more prevalent than left-sided PAS in our study, a finding consistent with previous reports.^{6,13,19} However, a left-sided predominance has also been documented in other series.^{2,14} These discrepancies may simply reflect random variation or underlying environmental influences.

Another notable finding was the low level of PAS awareness among our cohort. Only 24% [72/302] of the participants had heard of PAS prior to the survey, and merely 25% [18/72] of those affected sought medical attention. This aligns with the observations of Alshehri and Hadi, who attributed the under recognition of minor congenital ear anomalies to inadequate public health education.²¹ In the literature, 17% - 47% of individuals with PAS are reported to be symptomatic, which is consistent with our data.²² These findings suggest that PAS is frequently overlooked unless it becomes symptomatic. Consequently, there is a pressing need to incorporate congenital anomaly screening into routine general health checkups. Among those who did present for care, the commonly reported symptoms - otalgia, inflammation, sinus discharge, abscess, and headaches - were comparable to those reported elsewhere.^{2,22}

CONCLUSION

This study revealed a statistically non-significant differential prevalence of PAS between Annang and Ibibio patients attending an ENT outpatient clinic. There was no association between a positive family history of PAS and bilaterality of the condition. We advocate for enhanced health education to improve public awareness of the clinical characteristics of PAS.

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