



A Ten-Year Study of Otorhinolaryngology Biopsies in a Tertiary Health Care Institution

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SUMMARY

Keywords:

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Objectives: There is a dearth in literature on the spectrum of Otorhinolaryngology (ORL) disorders in countries such as Nigeria despite its importance in making health care policies.

Methods: We conducted a ten-year retrospective study of all ORL biopsies sent to our laboratory from January 2006 to December 2015. The slides were retrieved and re-examined microscopically. Special stains were performed in cases suspicious of fungal or tuberculous lesions. The age, sex, anatomical locations, and histological diagnoses were all recorded in pre-designed data forms. All the data were analyzed using the Statistical Package for Social Sciences (SPSS) version 18.

Results: There were 572 biopsies received out of 21,633 samples during the period representing 2.64% of the total biopsies. The age range in this study was between 4 months and 87 years. The mean, mode and median ages were 21.19 ± 22.10, 10 and 2 years respectively. There were 356 (62.2%) males and 216 (37.8%) females with a male to female ratio of approximately 1.6: 1. The most common site of biopsy was the throat (72.6%) while the least was in the ear (4.5%). Follicular hyperplasia was the most common diagnosis (63.1%). Nasal, benign polyps and carcinomas accounted for 14.7%, 10.7% and 8.6% respectively.

Conclusion: Follicular hyperplasia was the most common diagnosis, while throat was the most common region of biopsy. Carcinoma peaked in the 6th decade.

INTRODUCTION

There is a broad spectrum of ear, nose and throat diseases that are usually presented to the Otorhinolaryngologists in a tertiary health care facility. These diseases include infections, inflammatory disorders, trauma and neoplasms and they have constituted public health concern affecting all ages.[1, 2]

Occupational and environmental exposures to carcinogens, susceptibility to genetic basis, smoking and viruses have all been implicated in the etiology of the tumours,[3] in these parts of the body.

Tumors accounted for 8.7% of ORL disorders in a study earlier.[4] In another study, [5] non-neoplastic lesions accounted for 60% while neoplastic constituted 40%. Sino nasal polyp was the commonest non-neoplastic lesion while angiofibroma accounted for the most common benign lesion. The dearth in literature on the spectrum of Ear, Nose and Throat disorders in resource-limited countries like Nigeria has been emphasized; this, despite its importance in working out health care policies.[4] There is paucity of studies carried out on the pattern and anatomical distributions of ORL lesions in this part of the world. Few studies that were done

elsewhere had only focused on sinonasal and oral malignancies. Therefore, the aim of this study is to look in totality at the age, sex distribution, anatomical locations as well as the histological diagnoses of all lesions sent to the histopathology laboratory by the ORL specialists in this tertiary centre in the last ten years. The findings in this work would serve as a form of reference for other centers..

PATIENTS AND METHODS

This is a ten-year study of all the biopsies submitted from the ORL department to our laboratory from January 2006 to December 2015. The tissues were processed by the routine histological techniques and paraffin blocks obtained. The slides were stained with routine Haematoxylin and Eosin stains (H&E) and examined microscopically. In cases of lost or broken slides, sections were re-cut and read by the pathologists. Where indicated, special stains were performed on suspicious cases of fungal and tuberculous infections. Such stains included Mucicarmine, AFB stain, PAS and Grocott's Methenamine Silver stains. All the formalin -fixed paraffin-embedded (FFPE) slides were retrieved and reviewed by SSS and FAF.

The age, sex, anatomical locations and histological diagnoses were all recorded in a pre- designed data form. All the data were analyzed using the Statistical Package for Social Sciences (SPSS) version 18. The results were then presented in tables.

RESULTS

There were 572(2.64%) ORL biopsies out of 21,633 histopathological samples submitted to our laboratory over the ten-year period. The age range in this study was 4 months to 87 years. The mean, mode and median ages were 21.19 ± 22.10 , 10 and 2 years respectively. There were 356 (62.2%) males and 216 (37.8%) females with a male to female ratio of approximately 1.6:1 (Table 1).

The most common site of biopsy was the throat which accounted for 415 (72.6%) while the least was in the ear representing 4.5%. Follicular hyperplasia/obstructive adenoid were the most common diagnosis in this study representing 63.1%. Nasal polyps and carcinomas accounted

for 14.7% and 8.6%, respectively. The nasal polyps comprise essentially of allergic and inflammatory polyps. Also seen in this study were benign polyps comprising of inverted papilloma, haemangioma, benign fibrohistiocytoma, angiofibroma. This accounted for 10.7% while tuberculous lesions constituted 2.6% (Table 1).

Table 2 shows the age group distribution with the gender, there was a higher male preponderance in the first decade of life representing 69% of cases. The female gender was higher than the males only in the second decade of life.

Table 3 shows 67.7% of throat biopsy were in the age group 0-10 years. Most 61.5% biopsies from the ear were in the first two decades of life and there is fair distribution of nasal masses in all age group.

Table 4 shows carcinoma with increasing frequencies from age group 31-40 years and above. Over half (53.3%) of the tuberculous lesions were diagnosed in the first two decades of life and 279(77.3%) of follicular hyperplasia were diagnosed in the first decade of life.

Table 1: Table showing the age distribution, gender and distribution of the lesions and diagnoses.

Parameter	Frequency	Percentage
Gender		
Male	356	62.2
Female	216	37.8
Age Category in years		
4 months – 10	297	51.9
11 – 20	52	9.1
21 – 30	45	7.9
31 – 40	57	10.0
41 – 50	45	7.9
51 – 60	36	6.3
61 – 70	23	4.0
Above 70	17	3.0
Part of the body		
Ear	26	4.5
Nose	107	18.7
Throat	415	72.6
Not specified	24	4.2
Diagnosis		
Nasal Polyps	84	14.7
Carcinoma	49	8.6
Tuberculous Inflammation	15	2.6
Follicular hyperplasia	361	63.1
Benign polyps	61	10.7
Not available	2	0.3

Table 2: Table showing age group distribution with sex

	Age Category in years (%)								Total
	4/12– 10	11 - 20	21 – 30	31 - 40	41 – 50	51 - 60	61 - 70	Above 70	
Gender									
Male	205	18	27	36	26	23	12	9	356
	69.0%	34.6%	60.0%	63.2%	57.8%	63.9%	52.2%	52.9%	62.2%
Female	92	34	18	21	19	13	11	8	216
	31.0%	65.4%	40.0%	36.8%	42.2%	36.1%	47.8%	47.1%	37.8%
Total	297	52	45	57	45	36	23	17	572
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3: Table showing the age group distribution with the anatomical regions

	Age Category in years (%)								Total
	0 – 10	11 – 20	21 – 30	31 – 40	41 – 50	51 – 60	61 – 70	Above 70	
Ear	6 2.0%	10 19.2%	1 2.2%	-	3 6.7%	2 5.6%	3 13.0%	1 5.9%	26 4.5%
Nose	4 1.3%	13 25.0%	15 33.3%	26 45.6%	21 46.7%	15 41.7%	6 26.1%	7 41.2%	107 18.7%
Throat	281 94.6%	26 50.0%	28 62.2%	24 42.1%	18 40.0%	17 47.2%	12 52.2%	9 53%	415 72.6%
Not specified	6 2.0%	3 5.8%	1 2.2%	7 12.3%	3 6.7%	2 5.6%	2 8.7%	-	24 4.2%
Total	297 100.0%	52 100.0%	45 100.0%	57 100.0%	45 100.0%	36 100.0%	23 100.0%	17 100.0%	572 100.0%

Table 4: Table showing the age group distribution with the diagnoses

		Age Category in years (%)								Total
		0 – 10	11 – 20	21 – 30	31 – 40	41 – 50	51 – 60	61 – 70	Above 70	
Diagnosis	Carcinoma	-	1 1.9%	5 11.1%	9 15.8%	10 22.2%	11 30.6%	4 17.4%	9 52.9%	49 8.6%
	Nasal Polyp	4 1.3%	17 32.7%	11 24.4%	19 33.3%	14 31.1%	11 30.6%	5 21.7%	3 17.6%	84 14.7%
	Tuberculous Inflammation	3 1.0%	5 9.6%	-	-	3 6.7%	1 2.8%	3 13.0%	-	15 2.6%
	Follicular hyperplasia	279 93.9%	21 40.4%	19 42.2%	18 31.6%	12 26.7%	8 22.2%	4 17.4%	-	361 63.1%
	Benign polyp	9 3.0%	8 15.4%	10 22.2%	11 19.3%	6 13.3%	5 13.9%	7 30.4%	5 29.4%	61 10.7%
	Unavailable	2 0.7%	-	-	-	-	-	-	-	2 0.3%
	Total	297 100.0%	52 100.0%	45 100.0%	57 100.0%	45 100.0%	36 100.0%	23 100.0%	17 100.0%	572 100.0%

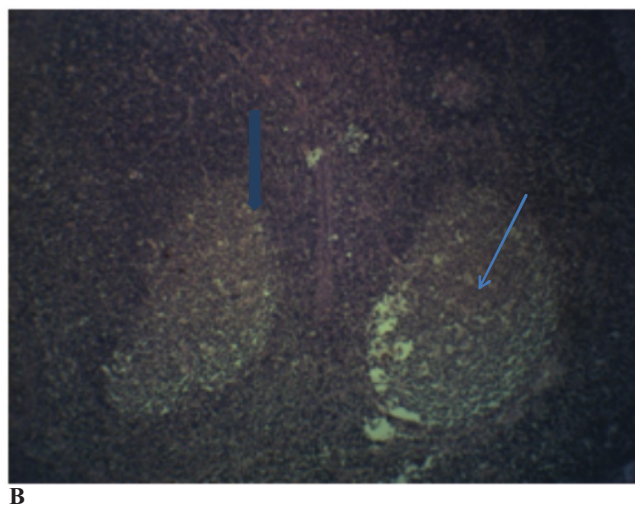
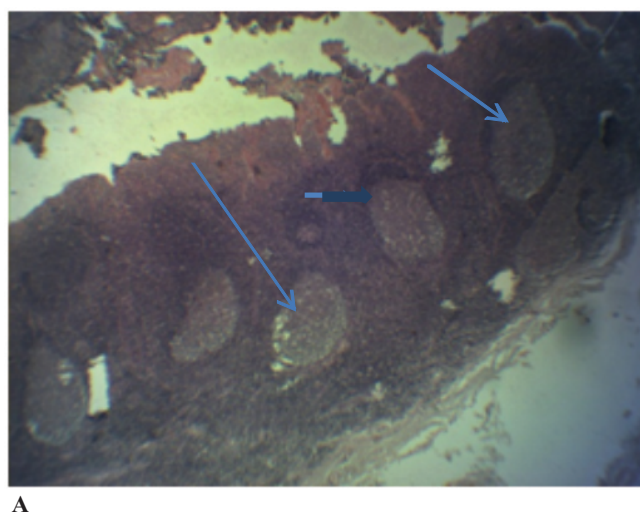


Figure 1: Low (A) and high (B) power micrographs showing proliferating lymphoid follicles with prominent pale germinal centers (thin arrow) surrounded by a mantle zone (thick arrow).

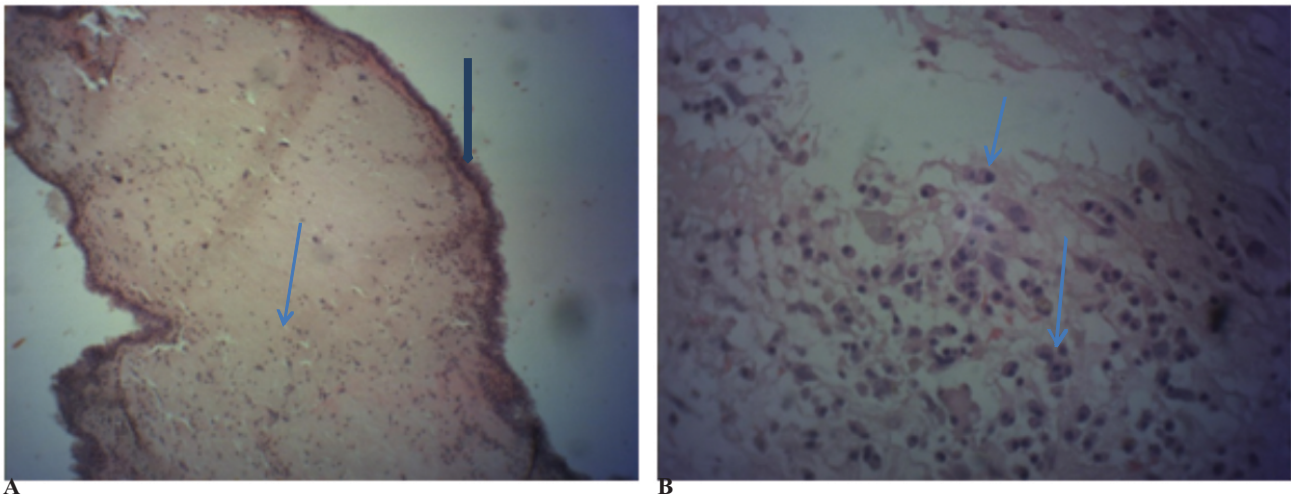


Figure 2: A. Low power micrograph showing a polypoid lesion lined by respiratory-type epithelium (thick arrow) overlying a loose, oedematous stroma with moderate infiltration by inflammatory cells (thin arrow). B. Higher power view of the same lesion showing stroma infiltrates of plasma cells (arrows).

DISCUSSION

This present study revealed a male to female ratio of 1.6. Other previous works have reported similar sex ratio.[6-10] The most common site of biopsy was the throat which accounted for 415 (72.6%) while the least was in the ear representing 4.5%. Follicular hyperplasia/ obstructive adenoid were the most common diagnosis in this study representing 63.1%. Nasal polyps and carcinomas accounted for 14.7% and 8.6% respectively. The nasal polyps comprise essentially of allergic and inflammatory polyps. Also seen in this study were benign polyps comprising of inverted papilloma, haemangioma, benign fibrohistiocytoma, angiofibroma. These accounted for 10.7% while tuberculous lesions constituted 2.6%. This study revealed that 7 out of 10 biopsies from the otorhinolaryngology unit were from the throat while 6 in every 10 diagnoses represented follicular hyperplasia.

This is the first retrospective observational study done in this part of the world that looked at the pattern of all ENT biopsies in a tertiary health care center. Literature search was painstakingly done and none was found. The closest to our work was a 5-year retrospective study that looked at the clinical presentations and clinical diagnoses of ENT disorders in another similar tertiary hospital in Ibadan, Western Nigeria.[4] Their study revealed a male to female ratio of 1.1 to 1 with 41% of the study population less than 15 years. Another study done in India [11] in a 5-year retrospective study observed that 3.06% of the total workloads were from the ENT with no single specimen from the ear. In the same study, inflammatory and tumour-like lesions were the most common representing 74.0% while malignant and benign lesions accounted for 13.4% and 12.5% respectively. These findings are fairly close and compatible with our present work which revealed 2.64% of the total workload. Our study further observed that follicular hyperplasia, malignant lesions, nasal polyp and benign lesions accounted for 63.1%, 8.6%, 14.7% and 10.7%, respectively. The predominance of non-neoplastic lesions in our study is further corroborated by previous studies.[9,10,12]

An interesting twist was however, seen in the work of an earlier study in Northern Nigeria which studied the clinico-pathologic profile of only sinonasal masses and reported a predominance of benign lesions (77.6%) and malignant lesions of 2.6%.[13] This finding is at variance with our work and that of others.[9,10,12] Despite the fact that their study included paediatric age (age range 5-64 years), follicular hyperplasia was not reported. This was however, the commonest presentation in our study. The reason for not reporting any case of follicular hyperplasia/obstructive adenoid was unknown. However, it might be due to the fact that majority of the patients who presented with the sinonasal masses were in the 4th to 5th decade which likely supports their peak incidence of 41-50 years. This is in contrast to our work which observed an overall peak incidence at 4 months to 10 years.

Our present study revealed biopsy from the throat (72.6%) as the most common with the least being biopsy from the ear (4.6%). The reason for this could be added to the fact that suctioning and drilling which is part of the methods used in obtaining samples and specimens from the ear is not done in this centre. We also noticed that cases of requisition forms not being properly filled had been reported. The abysmally low samples from the ear in our study is in great contrast to a study [4] which reported the ear as the most common (62.7%). Well-differentiated squamous cell Carcinoma of nasal cavity with peak at 51-60 years was the most common malignancy in this study. This finding is compatible with most works.[14-17]

This study has its own limitation in that we could not get adequate literature materials since there are no previous works that looked at the distribution of the lesions into each anatomical region. A similar future study to look at the distribution of the lesions into each anatomical region will be a welcome development in other centers. The findings in this work would now serve as a form of reference for other centers.

CONCLUSION

Follicular hyperplasia was the most common diagnosis, while throat was the most common region of

biopsy. Squamous cell Carcinoma peaked at the 6th decade.

Consent

Consent for the publication of this paper was obtained from the departments.

Conflict of Interest

The authors declare that they have no competing interests.

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