

Histopathological Examination of Post-Tonsillectomy Specimens at a Southern Tertiary Hospital of Nigeria from Jan.2005- Dec.2012

Martin Anazodo Nnoli¹, Collins Ogbonna Nwabuko²,Chinenye Nnoli³

¹University of Calabar Teaching Hospital, Dept of Pathology, Calabar.

²Federal Medical Centre, Dept of Haematology, Umuahia.

³University of Uyo Teaching Hospital, Dept of Pediatrics, Uyo.

Abstract:Aims & Objectives: *Is to determine the necessity of histological examinations of post-tonsillectomy specimens.*

Materials and Methods: *A study of post-tonsillectomy histologically diagnosed were analyzed from January 2005 to December,2012. Almost all samples seen within this period showed reactive lymphoid hyperplasia. A total of 392 samples were collected,of which 228 were males and 164 females. The analyses was done using SPSS version 16. This was represented according to age range and gender distribution per each year of study. They were also further displayed in both bar and pie chat.*

Results: *The percentage of female affected within the study was 164(41.84%) and that of males was 228(58.16%). The study also showed the most affected age range are children under 10 years and this is closely followed by age range of 10-20years. These goes to show that the pediatric age is the most vulnerable age that was mostly affected.*

Conclusions: *These shows that lower age ranges are more affected and the males are the most vulnerable in our study. We could not deduce what actually may be the factor contributing to the increase in lesion of this gender.*

Keywords: *Post-tonsillectomy Samples, Histology, Examination*

I. Introduction:

The lymphoid tissue of the body plays an important role in the recognition and processing of foreign antigens such as viruses, fungi and bacteria. In addition, the lymphoid tissue has a protective function through a variety of direct and indirect mechanism. In responding to antigenic challenges, lymphoid cells proliferate, thus increasing their numbers, to combat the offending agent more effectively. This proliferation results in enlargement of the lymphoid tissue which is clinically termed lymphoid hyperplasia. These could affect lymph nodes, the lymphoid tissue of Waldeyer's ring or the aggregates of lymphoid tissue that are normally scattered throughout the oral cavity especially in the oropharynx, soft palate, lateral tongue and the floor of the mouth. Tonsillar size is variable from one person to another, but lymphoid tissue is normally more prominent in the younger individuals, usually reaching the peak early during the second decade of life and gradually diminishing thereafter. A few of patients have such large tonsils that it seems as if they would occlude airways so called 'kissing tonsils'.¹

Harsh Mohan study also noted that lymph nodes undergo reactive changes in response to a wide variety of stimuli which include microbial infections, drugs, environmental pollutants, tissue injury, immune complexes and malignant neoplasm. The most common causes of lymph node enlargement are inflammatory and immune reactions aside from primary malignant neoplasm and metastatic tumor deposits. Those due to primary inflammatory reactions are termed reactive lymphadenitis. Those due to primary immune reactions are referred to as lymphadenopathy.²

Lingual tonsils hyperplasia though rare but may cause obstructive sleep apnea (OSA). This is why it is advisable to evaluate this area during physical examination of patients with apnoea.³

Tonsillectomy which is removal of palatine tonsils has been a long practiced procedure hence is performed for a wide range of indications. This is divided into therapeutics, diagnostics and access for other procedures. However, the most common indication has been in infective causes. The other indications are patients with obstructive symptoms such as snoring and sleep apnea. Regardless of the indications, tonsillectomy specimens are routinely sent for histological analysis because of the fear that tonsils may harbor malignancy.⁴

The routine examination of this specimen (tonsils) have been intensified in most developing countries as a routine in physical examination. There is now divided opinion as to why this should be encouraged.⁵

However, it is advisable to perform a diagnostic tonsillectomy to exclude malignancy once there is tonsillar asymmetry. It is worthy to note that tonsillar enlargement may be a reactive response to a nearby primary tumor hence the need to rule out any local-regional primary lymphoma.⁶

It is not out of place that benign reactive hyperplasia of local-regional lymph nodes in response to malignancy has been seen as is not uncommon event in head and neck malignant lesions. These has equally been seen in response to squamous cell carcinoma affection of the head and neck region.^{7,8,9} In our view,it showed that tonsils could become hyperplastic as a response to several microbial infections.

It is imperative that exact pathophysiology for the cause of benign reactive hyperplasia in response to tumor is unknown; as the widely accepted theory of immunological reaction to tumor antigens is well known.^{8,10,11} This is due to the fact that lymphocytes and macrophages of hyperplastic node are specifically cytotoxic to autologous tumour cells.^{10,11} However,the specific tumor antigens for the lymphoma are not yet known.^{12,13,14,15,16} The lack of response of benign tonsillar reactive hyperplasia to local lymphoma,unlike to lymph nodes and that of waldeyer’s ring is likely due to unavailability of afferent lymphatic channels.¹⁷ Our study shows the high incidence of occurrence at lower age ranges and male though more affected as we could not deduce what actual might be the cause in this particular gender. However, we are of the opinion since this is of pediatric age there are possibility that there is late in development of adaptive immunity and lack of previous infections as to develop adequate antibodies to consequent exposure to microbes.

MATERIALS AND METHOD: A cross sectional study of post –tonsillectomy of 392 specimen study from 2005-2012 was undertaken. 228(58.16%) of the study were males and the rest 164(41.84%) were females. These was analyzed using SPSS version 16;and all ages/sexes(gender) were evaluated.They result obtained were presented in different modules/charts.

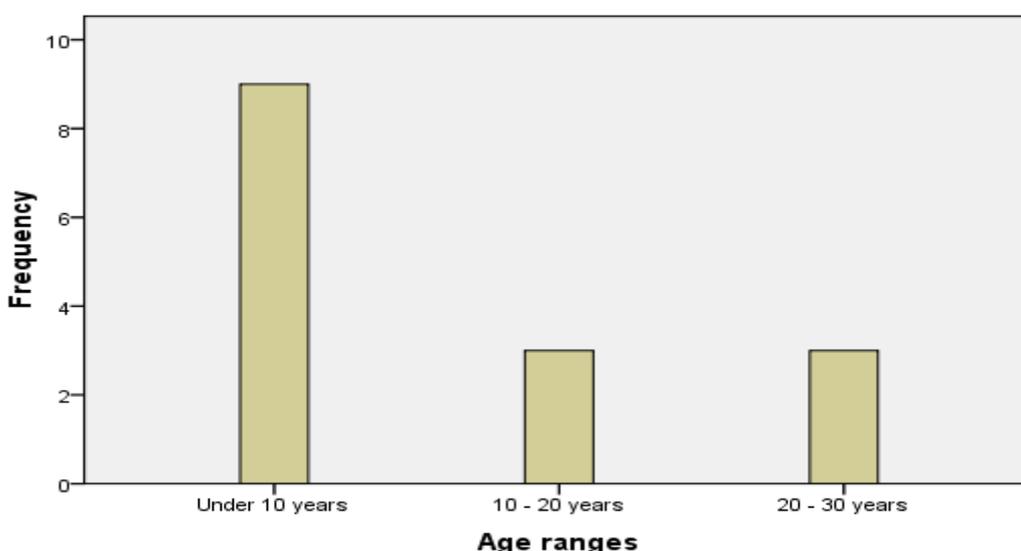
II. Results:

GENERAL DISTRIBUTION OF POST-TONSILLECTOMY SPECIMENS FROM 2005 – 2012

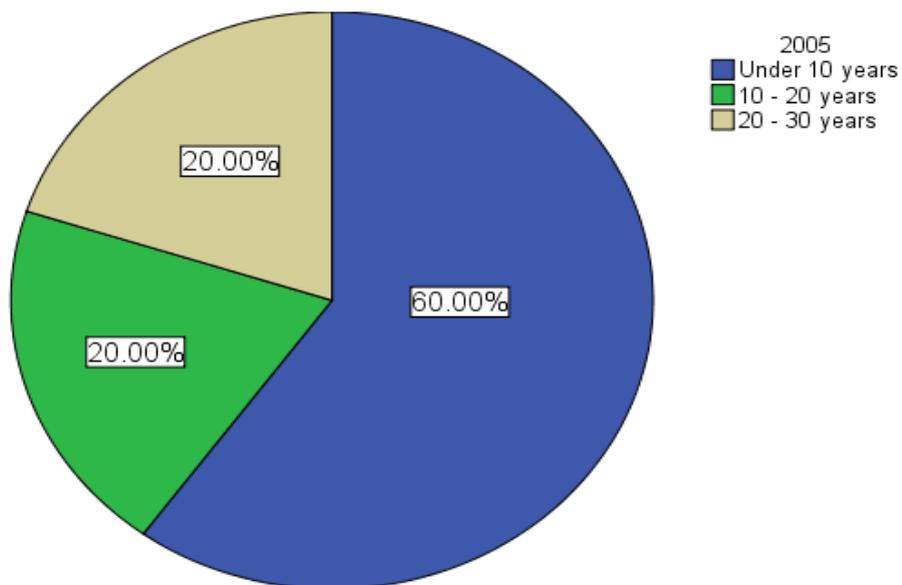
2005

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 10 years	9	8.6	60.0	60.0
	10 - 20 years	3	2.9	20.0	80.0
	20 - 30 years	3	2.9	20.0	100.0
	Total	15	14.3	100.0	
Missing	System	90	85.7		
Total		105	100.0		

Histopathological Exam of Post-Tonsillectomy Specimens in 2005



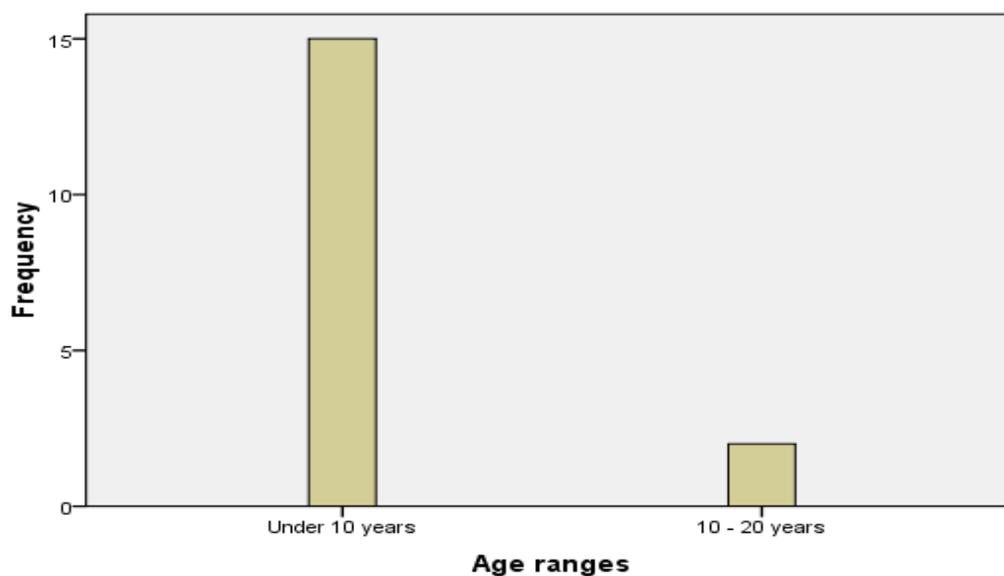
Histopathological Exam of Post-Tonsillectomy Specimens in 2005



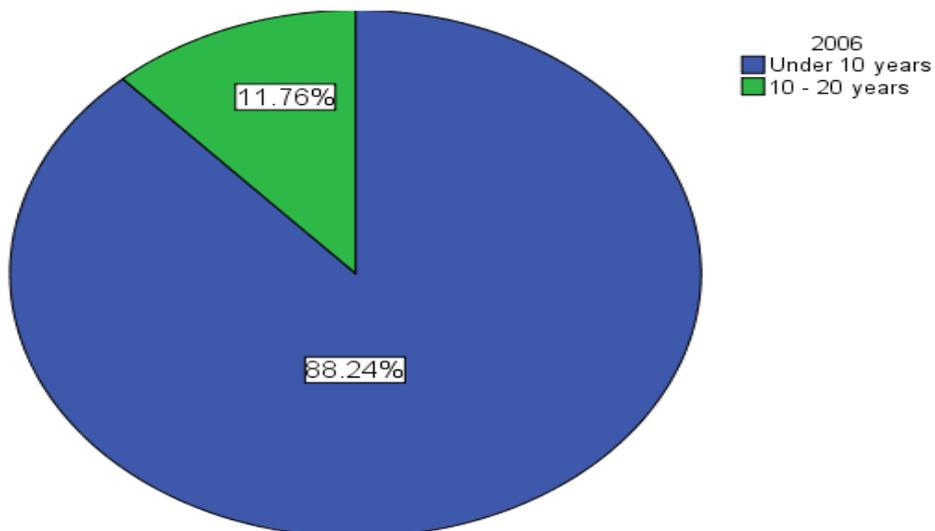
2006

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 10 years	15	14.3	88.2	88.2
	10 - 20 years	2	1.9	11.8	100.0
	Total	17	16.2	100.0	
Missing	System	88	83.8		
Total		105	100.0		

Histopathological Exam of Post-Tonsillectomy Specimens in 2006



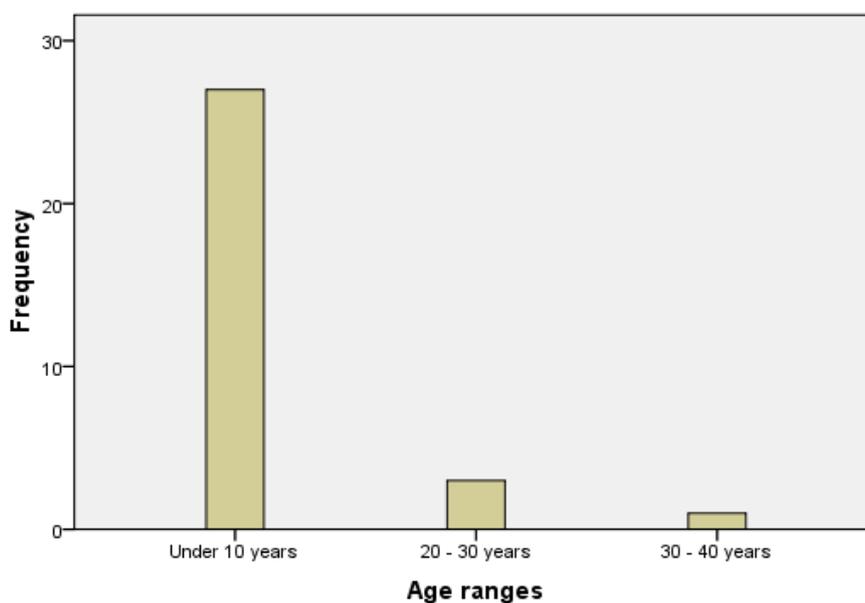
Histopathological Exam of Post-Tonsillectomy Specimens in 2006



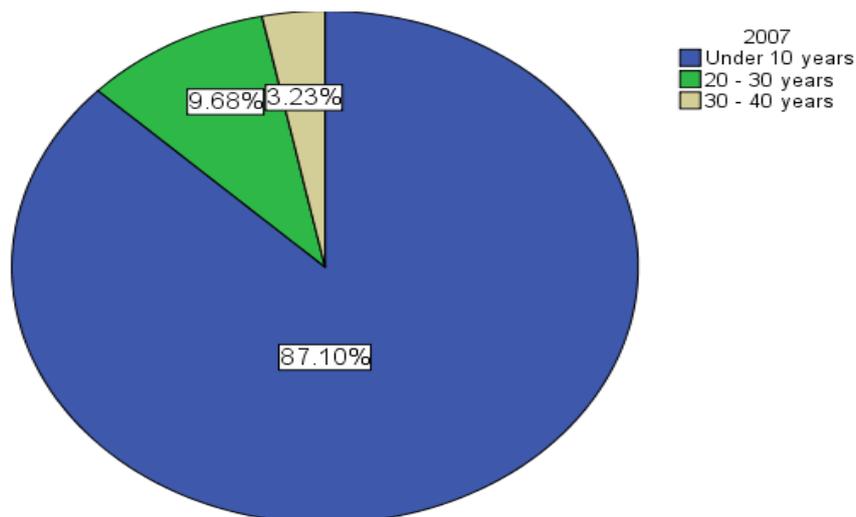
2007

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 10 years	27	25.7	87.1	87.1
	20 - 30 years	3	2.9	9.7	96.8
	30 - 40 years	1	1.0	3.2	100.0
	Total	31	29.5	100.0	
Missing	System	74	70.5		
Total		105	100.0		

Histopathological Exam of Post-Tonsillectomy Specimens in 2007



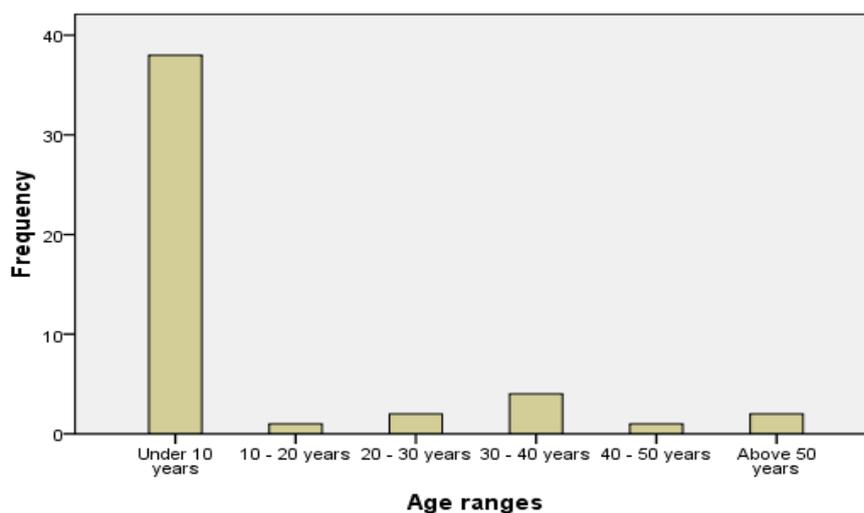
Histopathological Exam of Post-Tonsillectomy Specimens in 2007



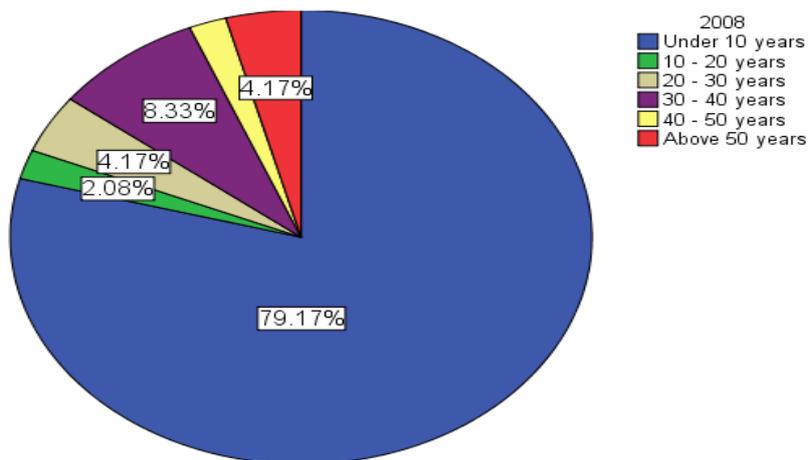
2008

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 10 years	38	36.2	79.2	79.2
	10 - 20 years	1	1.0	2.1	81.2
	20 - 30 years	2	1.9	4.2	85.4
	30 - 40 years	4	3.8	8.3	93.8
	40 - 50 years	1	1.0	2.1	95.8
	Above 50 years	2	1.9	4.2	100.0
	Total	48	45.7	100.0	
Missing	System	57	54.3		
Total		105	100.0		

Histopathological Exam of Post-Tonsillectomy Specimens in 2008



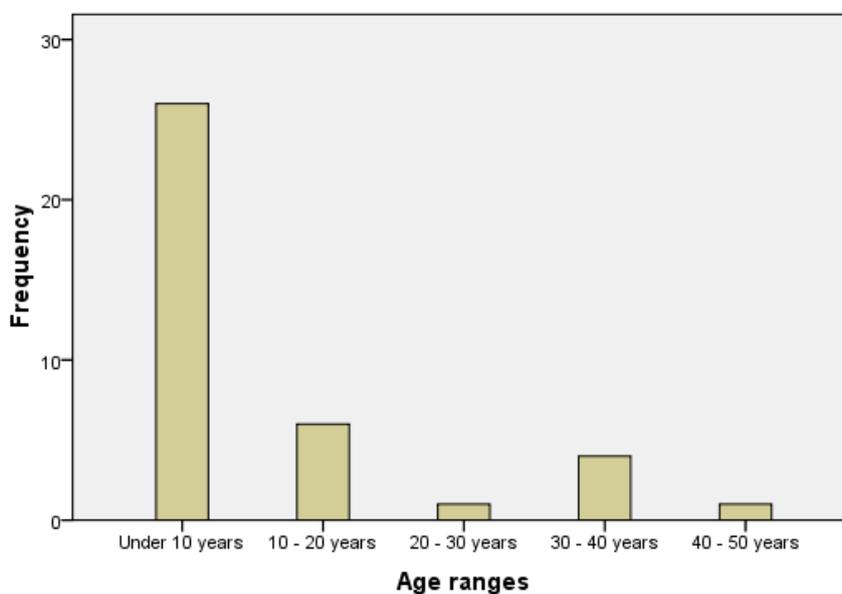
Histopathological Exam of Post-Tonsillectomy Specimens in 2008



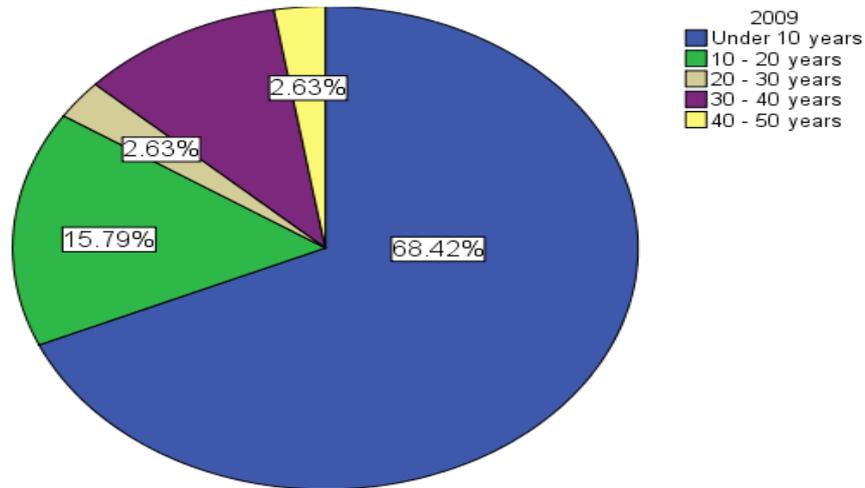
2009

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 10 years	26	24.8	68.4	68.4
	10 - 20 years	6	5.7	15.8	84.2
	20 - 30 years	1	1.0	2.6	86.8
	30 - 40 years	4	3.8	10.5	97.4
	40 - 50 years	1	1.0	2.6	100.0
	Total	38	36.2	100.0	
Missing	System	67	63.8		
Total		105	100.0		

Histopathological Exam of Post-Tonsillectomy Specimens in 2009



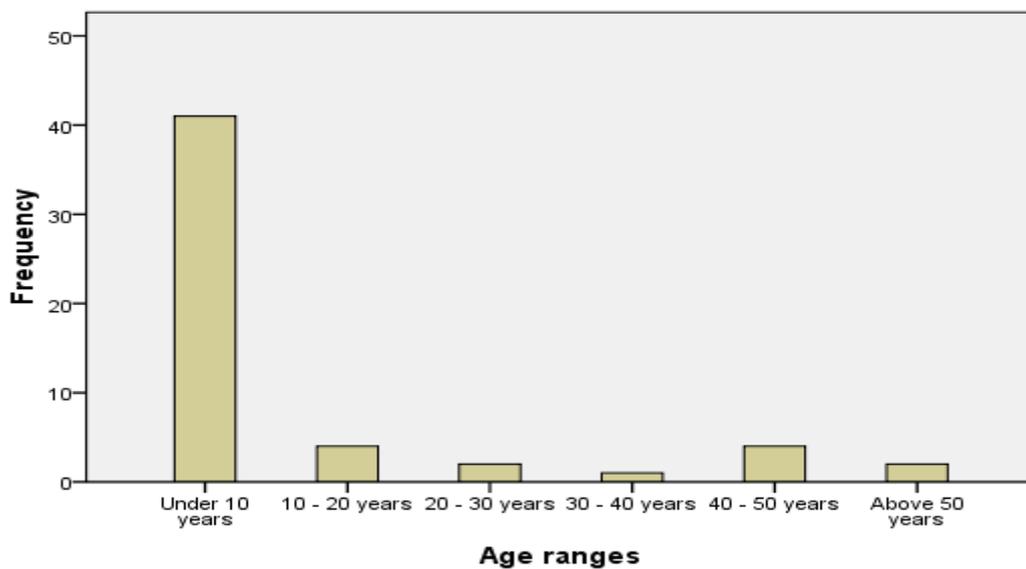
Histopathological Exam of Post-Tonsillectomy Specimens in 2009



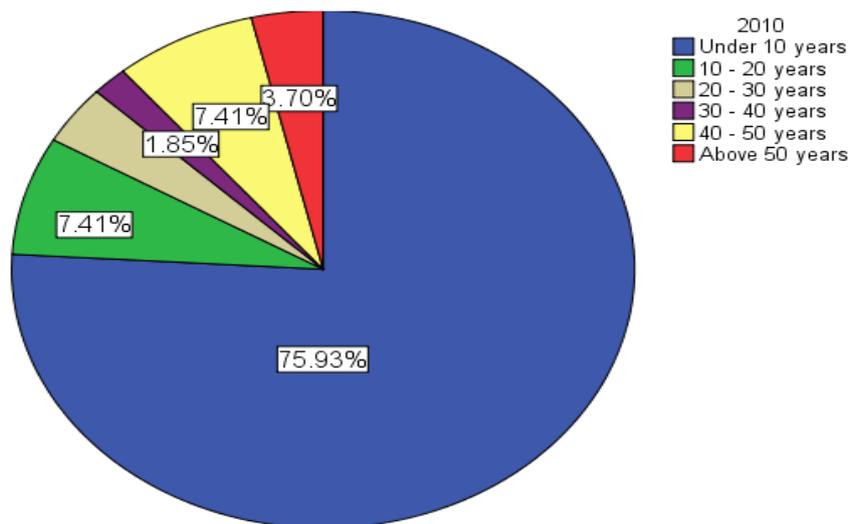
2010

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 10 years	41	39.0	75.9	75.9
	10 - 20 years	4	3.8	7.4	83.3
	20 - 30 years	2	1.9	3.7	87.0
	30 - 40 years	1	1.0	1.9	88.9
	40 - 50 years	4	3.8	7.4	96.3
	Above 50 years	2	1.9	3.7	100.0
	Total	54	51.4	100.0	
Missing	System	51	48.6		
Total		105	100.0		

Histopathological Exam of Post-Tonsillectomy Specimens in 2010



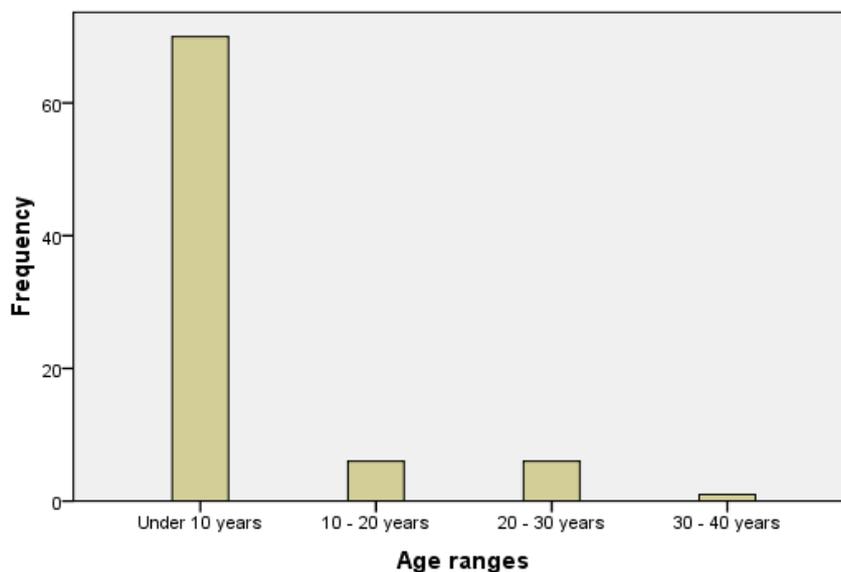
Histopathological Exam of Post-Tonsillectomy Specimens in 2010



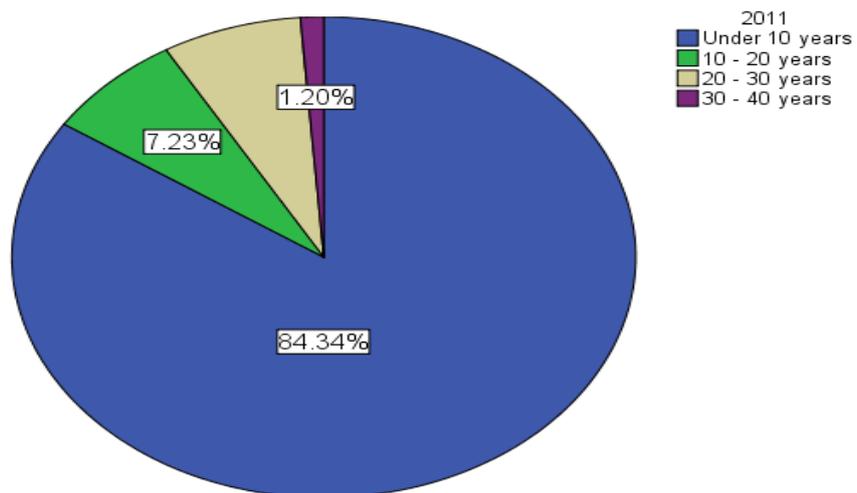
2011

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 10 years	70	66.7	84.3	84.3
	10 - 20 years	6	5.7	7.2	91.6
	20 - 30 years	6	5.7	7.2	98.8
	30 - 40 years	1	1.0	1.2	100.0
	Total	83	79.0	100.0	
Missing	System	22	21.0		
Total		105	100.0		

Histopathological Exam of Post-Tonsillectomy Specimens in 2011



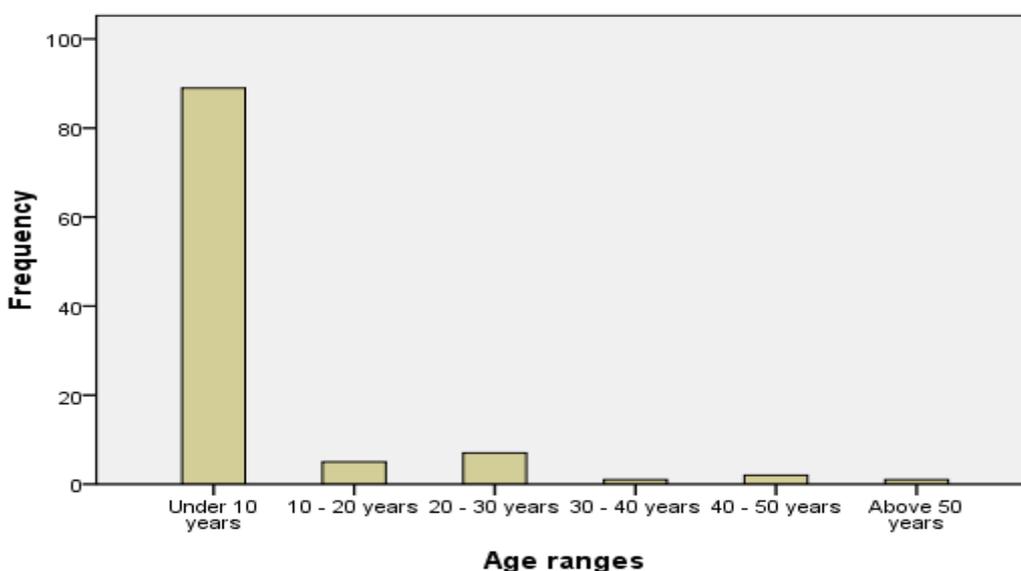
Histopathological Exam of Post-Tonsillectomy Specimens in 2011



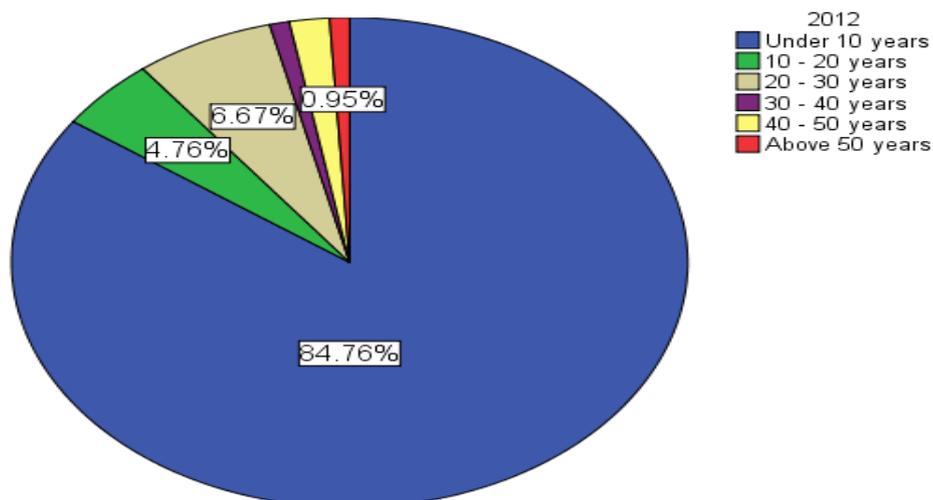
2012

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Under 10 years	89	84.8	84.8	84.8
10 - 20 years	5	4.8	4.8	89.5
20 - 30 years	7	6.7	6.7	96.2
30 - 40 years	1	1.0	1.0	97.1
40 - 50 years	2	1.9	1.9	99.0
Above 50 years	1	1.0	1.0	100.0
Total	105	100.0	100.0	

Histopathological Exam of Post-Tonsillectomy Specimens in 2012



Histopathological Exam of Post-Tonsillectomy Specimens in 2012



2005 – Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	11	64.7	68.8	68.8
Female	5	29.4	31.2	100.0
Total	16	94.1	100.0	
Missing System	1	5.9		
Total	17	100.0		

2006 – Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	9	52.9	52.9	52.9
Female	8	47.1	47.1	100.0
Total	17	100.0	100.0	

2007 – Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	16	51.6	51.6	51.6
Female	15	48.4	48.4	100.0
Total	31	100.0	100.0	

2008 – Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	29	60.4	60.4	60.4
Female	19	39.6	39.6	100.0
Total	48	100.0	100.0	

2009 – Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	17	44.7	44.7	44.7
Female	21	55.3	55.3	100.0
Total	38	100.0	100.0	

2010 – Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	29	53.7	53.7	53.7
Female	25	46.3	46.3	100.0
Total	54	100.0	100.0	

2011 – Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	56	67.5	67.5	67.5
Female	27	32.5	32.5	100.0
Total	83	100.0	100.0	

2012 – Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	61	58.1	58.1	58.1
Female	44	41.9	41.9	100.0
Total	105	100.0	100.0	

The sex mostly affected was seen to be males in most of the year under study. Also the age range of under 10 years and closely followed by 10-20years. However, none of the patient in our study population had clinical suspicious of malignancy.

III. Discussion:

The general overview of the data showed that children and infants under age range of below 10 years are the most vulnerable in the enlargement of the tonsils. Also when we compared the gender ratio of the rates of occurrence in the whole study male to female (228:164) we found it to be 1.39: 1. These may be attributed to late in development of the adaptive immunity which is more powerful than innate immunity in combating infections. The gender distribution per year representation showed marked increase in males though no definite reason was known to be the cause. In most of this cases it appeared unilateral tonsillar enlargement; while in a few cases bilateral enlargement are seen. The unilateral enlargement seen in few cases are considered to be a sign of a potential tonsillar malignancy.⁶ Hence the traditional belief of otolaryngology, is to think of unilateral hypertrophy neoplasm until proven otherwise. This is why in most regions there is this belief of performing tonsillectomy as a routine. In other areas tonsillectomy are merely performed based on infective causes and in cases of obstruction symptoms such as snoring and sleep apnea. It is common practice to send tonsillectomy specimens routinely for histology examination as to exclude occult malignancy. It is suggested that among other factors missing occult malignancy or chronic granulomatous disease could lead to medico-legal issues hence the need for this suspected samples to be examined in some cases at histological unit.

However, in our study none of the patient samples were seen to be malignant. This is equally the view of similar study done at Malaysia where all pediatrics cases that had tonsillectomy were seen to have no malignancy.⁴ A few other studies had same view as above that all tonsillectomy offered to these age groups had no malignant involvement.^{19,20} This is why we are of the opinion that routine histology examination of tonsillectomy in pediatric patients of these age range is un-necessary.

LIMITATIONS: In most if not all there is no follow up to verify other causes to the reactive responses of these group of lymph nodes of the patient. These could have indicated any primary lymphoma as a causative agent or any other secondary response from head and neck malignant lesion. The gender differentiation and any dietary attribute could not be known.

IV. Conclusion:

This study shows that the lower age range are the most vulnerable in our study. These falls into the pediatric age hence, we recommend that tonsillectomy should not be a basis of treatment in this age group except in highly life threatening situation.

Acknowledgement:

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