

## The Negative Impact of COVID-19 on Adenoids and Tonsil Samples Received At a Pathology Department in a Tertiary Health Institution, South-South, Nigeria

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DOI: [10.36347/sjams.2021.v09i05.018](https://doi.org/10.36347/sjams.2021.v09i05.018)

| Received: 09.04.2021 | Accepted: 16.05.2021 | Published: 23.05.2021

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### Abstract

### Original Research Article

**Background:** The burden caused by the world most recent novel virus, COVID-19 has been a major concern in the health sector, paralyzing the arms of functioning health facilities, public, private and federal. This single stranded RNA virus originated from Middle East, causes severe acute respiratory syndrome. It is reported to be the fastest spreading virus ever recorded worldwide because of its mode of transmission. Nose, nasopharynx and oropharynx are the common port of entry for COVID-19 into human body. Operation at these anatomical sites exposes health personnel to COVID-19 infection especially in facilities where protective equipment is very scarce. Adenotonsillectomy is one of the commonest surgeries performed in children for inflammatory pathologies or neoplasms affecting adenoids and tonsillar. **Objectives:** This study is to determine the prevalence of adenoid and tonsil cases seen Pre and Post-COVID-19 era, and to compare the number of Pre and Post-COVID-19 adenoid and tonsil specimen received from the Otorhinolaryngology department of our health institution. **Methodology:** Data on adenoids and tonsillar tissues submitted for histological evaluations were retrieved from the Department of Pathology histology Registers, University of Calabar Teaching Hospital. Pre-COVID-19 era data collected was from January 2009-December 2019 (eleven years), and Post-COVID-19 was from January 2020- January 2021 (one year). Data analysed using IBM Statistical Product and Service Solution version 26.0, and results were represented in both descriptive and tabular forms. **Result:** Our results show that less than half of average samples received in pre-SAR CoV2 era compared to what was received during the era. **Conclusion:** There is significant reduction in the number of adenoids and tonsillar operations and hence decreased number of tissues submitted for histological evaluation. However, it is highly commendable that the reduction is barely half despite paucity of personal protective equipment to Otorhinolaryngology surgeons and anaesthesiologists and other health works in our environments.

**Keywords:** COVID-19, Adenoids, Palatine tonsil, Adenotonsillectomy.

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## INTRODUCTION

Coronavirus is a large family of RNA virus, responsible for severe acute respiratory syndrome [1]. It is reported to spread by aerosol droplets from infected person when comes in contact with an uninfected person through the eye, nose or mouth. The new strain of coronavirus; novel coronavirus, Ncov or SARS-CoV-2 (COVID-19), is known to be the fastest spreading virus ever reported in human. It was first reported in December 2019, in Wuhan, Hubei province

in China [2] and on 27<sup>th</sup> February 2020 Nigeria was ranked among the first four African countries to confirm a positive.

The sudden death and uncontrolled mortality cases caused by these single stranded  $\beta$ -RNA virus has played a negative impact on the efforts put in by the medical personnel's and clinicians to provide quality medical service to patients especially patients with ear, nose and throat diseases. There is a great reduction in

ear, nose and throat operative procedures because COVID-19 has high potential human-to-human transmission [3] via nose and mouth.

According to [4] China, Iran, Italy, and United States claims they have a considerably high risk of contracting COVID-19 infection due to diagnostic or surgical aerosol-generating procedures such as nasolaryngoscopy, as well as during head and neck emergency and surgical procedures. And this challenge has a drastic effect on workflow, and it has lead to a substantial decrease in elective surgery and routine clinical practice.

This alarming report of COVID-19 infection coupled with paucity of personal protective equipment in our environment has caused drastic reduction in adenotonsillar and other elective surgeries of ear, nose and throat. Hence there is significant decrease in adenotonsillar tissue specimen sent for histological assessment in our facility since the onset of COVID-19 pandemic.

## METHODOLOGY

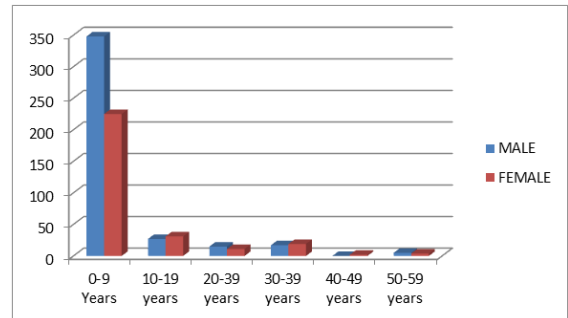
Data were obtained from the Department of Pathology histology Registers, University of Calabar Teaching Hospital. The data collected included age, sex, and clinical diagnosis from 2009 to 2019 for Pre-COVID era and from January 2020 to January 2021 for Post COVID era. Data collected were represented in both descriptive and tabular forms, after proper statistical analysis using IBM Statistical Product and Service Solution version 26.0,

## RESULTS

Total adenotonsillar specimens submitted for histological examination for the period of 11 years (Jan. Jan 2009 to Dec. 2019) Pre-COVID-19 pandemic is 704. This accounted for an average 64 specimens per year (Table 1). While 28 adenotonsillar specimens were received from Otorhinolaryngology (ORL) department from January 2020 to January 2021 (Table 2). The Pre-COVID-19 to Post-COVID-19 is 2.5:1. Surgery of adenoids and tonsil is high between the ages of 0-9 years in both Pre and Post-COVID-19 era. In this age group, females (15) are slightly affected more than male (7) in Post-COVID-19 era, ratio F: M= 2:1 (Fig. 2). While the contrast is in the Pre-COVID-19 era, where female (225) are less in number than male (348), F: M= 1:1.5 in Pre-COVID-19 era (FIG. 1).

**Table-1: Showing total number of Adenoid and Tonsil histology spacemen received from ENT unit from 2009-2019**

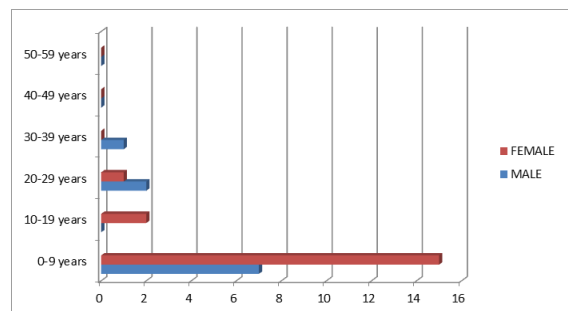
| AGE         | MALE | FEMALE |
|-------------|------|--------|
| 0-9 Years   | 348  | 225    |
| 10-19 years | 27   | 31     |
| 20-39 years | 15   | 11     |
| 30-39 years | 17   | 19     |
| 40-49 years | 0    | 2      |
| 50-59 years | 5    | 4      |
| TOTAL       | 412  | 292    |



**Fig-1: 1 showing the age distribution frequency distribution of adenoid and tonsil histological samples received from 2009-2019 in ucth, calabar**

**Table-2: Showing total number of Adenoid and Tonsil histology specimen received from ENT unit in Jan. 2020 to Jan. 2021**

| AGE         | MALE | FEMALE |
|-------------|------|--------|
| 0-9 years   | 7    | 15     |
| 10-19 years | 0    | 2      |
| 20-29 years | 2    | 1      |
| 30-39 years | 1    | 0      |
| 40-49 years | 0    | 0      |
| 50-59 years | 0    | 0      |
| Total       | 10   | 18     |



**Fig-2: Showing the age distribution frequency distribution of adenoid and tonsil histological samples received in january 2020 to january 2021**

## DISCUSSION

Adenotonsillectomy is the most frequently operation performed in children worldwide, with an annual US of approximately 500,000 [5-7]. Adenoids and tonsil hypertrophy occur commonly in children because of attempt to fight repeated upper airway infection stimulate these lymphoid tissues in the pharynx. A greater percentage of children who underwent adenoids and tonsil operations in our study are below 10 years of age.

Coronavirus is one of the viruses that cause upper airway infection. It is approximately 0.125  $\mu$ m in size and is frequently carried in respiratory droplets [8]. The Healthcare Infection Control Practices Advisory Committee established SARS-CoV-2 as being transmitted through the droplet route, thereby making it an airborne pathogen [9]. COVID-19 is highly virulent virus. At onset, it presents with symptoms and signs of upper airway infection, which may worsen pre-existing symptoms of adenotonsillitis or adenotonsillar hypertrophy. It has been observed that social distancing could prevent COVID-19 transmission. The prevention of transmission of COVID-19 between patient and health personnel involved the use of appropriate personal preventive equipment (PPE). It could also be achieved by use of Tele-medicine and Tele-health as a means of communication between doctors and patients. Telemedicine has been proven to help slow the spread of coronavirus by promoting social distancing [10] and the western world has employed this tech innovation. This hi-tech called telemedicine includes online consultations, tele-monitoring, tele-conferencing, chat box etc [11]. Its advantages include convenience, low cost and ready accessibility of health-related information and communication using the Internet and other associated technologies [12]. Our facility had paucity of PPE for health workers during and post-COVID-19 era, and also she does not have facility for telemedicine. Therefore the ORL surgeons and anaesthesiologists careful select patients for surgery during and Post- COVID-19 era so as to prevent its transmission. This then accounted for a significant reduction in number of adenoid and tonsil operations and tissues received by the pathologists during and after COVID-19 era in our facility.

## CONCLUSION

There is significant reduction in the number of adenoids and tonsillar operations and hence decreased number of tissues submitted for histological evaluation Post-COVID-19, not because there is rarity of adenoids and tonsils diseases. This is due to paucity of personal protective equipment to ORL surgeons and anaesthesiologists in our environments.

There is need for government to vaccinate the populace, and to provide adequate personal protective equipment for health personnel in order to prevent

further spread of this infection, and in order to curb any sudden increase in mobility and mortality associated with adenoids and tonsil diseases.

## RECOMMENDATION

The findings of this study may promote useful and innovative methods of patient care, such as triaging and tele-health, which will have a profound effect not only during this pandemic, but also beyond.

### Declaration of competing interest

The authors did not receive funding for this paper and hereby declare no conflicts of interest.

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