

Bacteriology of the Core of Adenoids in A group of Iraqi Patients Undergoing Adenoidectomy.

Wifaq M.Al-Wattar, MSc*
HusseinM.Hassan,CABMS/ENT**
Eman F. Abdullah,B.Sc***

Summary:

Background: Upper air way obstruction secondary to chronically inflamed adenoid and / or tonsil is a common problem, in the presence of recurrent infection; tonsillectomy and or adenoidectomy are the most common surgery applied among pediatric population.

Objective: The aim of this study was to assess the type of bacteria encountered with- in the core of the adenoid tissue at time of operation.

Subject and Methods: During a period from Feb.2005 to May 2005, twenty two adenoid samples were removed by surgery ,and cross sectioned and sent for culture and sensitivity, at the department of ENT in Al-jerहत hospital for surgical specialties , most of the patients were under 10 year's old.

Results: This study showed that the bacteria isolated from the core of adenoid tissue were mostly part of bacterial flora of the upper respiratory tract, only 7 patients showed a growth of pathogenic bacteria; to which special sensitivity tests were performed to detect antibiotic sensitivity.

Conclusion: The bacteria of the core of the adenoid were mostly composed of normal flora, and few of them were pathogenic and resistant to most ordinary antibiotics.

Key Words: (Core of adenoid, Adenoidectomy, Antibiotics)

Introduction:

Adenoid are generic terms applied to the lymphatic tissue located within the nasopharynx. In reality they are part of lymphatic tissues around the nasopharynx and oropharynx at the entry point to the upper aerodigestive tract. Several separate structures from this ring, classically known as the Walderyers ring⁽¹⁾.

Adenoids are the superior extent of the ring and are located within the nasopharynx. They are diffuse or nodular collection of lymphoid tissue that forms a number of folds within the mucosa of the roof and posterior wall of the nasopharynx.

Hypertrophy of the adenoids commonly results in snoring, rinorrhoea, or both; and may cause otitis media or obstruction of the nasopharynx and sinusitis.

Adenoidectomy and or tonsillectomy were indicated for children with recurrent or persistent symptoms of infection or hypertrophy, which are among the most frequent operations performed⁽²⁾.

The adenoids of healthy individuals, in contrast to those with recurrent respiratory tract infections, are generally colonized by aerobic and anaerobic organisms that are capable of interfering with the growth of potential pathogens. Maintaining the beneficial effects of normal flora by avoiding unnecessary exposure to antimicrobial therapy may be a useful tool in preventing colonization of the adenoids by potential pathogens^(3, 4).

Subject and Methods:

This study was performed on 22 patients attending the department of Otolaryngology at Al-jerहत hospital for surgical specialty, from February till May2005.

Core culture and touch slides were taken from the adenoid of patients at the time of surgery for adenoidectomy.

This study was preformed to investigate the microbiological contents of the core of the adenoid.

All adenoidectomies were done under general anesthesia by the classical curettage method at the department of ENT.

Concomitant tonsillectomy, myringotomy and \or grommet insertion were done for those patients having also recurrent tonsillitis or middle ear effusion respectively.

The mass of the Adenoid tissue was then taken and a cut through was made, a swab for culture and sensitivity test was taken from the core, then a two touch –slides of the same tissue were obtained.

*Department of Microbiology /College of Medicine /Baghdad University.

**Department of Surgery/ College of Medicine /Baghdad University.

*** Dept. of Microbiology/Al-Jerहत Hospital for Surgical Specialty

Almost all of our patients were frequent antibiotic users for their recurrent symptoms of sore throat, rhinorrhoea... etc, however, the antibiotics were stopped at least 5 days preoperatively and all of our patients brought to the surgery in non-infectious state.

The slides were stained with gram stain for direct microscopical examination, and the swabs were cultured on Blood, Chocolate and MacConkey agar, in the next day antibiotic sensitivity was done for the samples giving growth of pathogenic microorganisms.

Results:

The patients were selected for the operation according to the severity of the symptoms; the types of the operations were described in Table 1. The age of the patients was ranging from (2.5-18) years, with a mean (6.29years±3.32), they were 10 females and 12 males. See Table 2

Type of operation	Adenoidectomy (A)&Tonsillectomy (T) and	Adenoidectomy	Adenoidectomy & Myringotomy (My)	T- & My	A
Number of the patients	16	3	2	1	

Table 1: The type of the operation done for the patients

Table 2: The age distribution of the cases

The patient's age(year)	N	Mean	Maximum	Minimum	Std. Deviation
	22	6.2917	18.00	2.50	3.32944

Mixed aerobic and anaerobic normal flora was obtained in most patients (68.18%). Only six patients (31.82%) showed growth of pathogenic species like staphylococcus aureus, α-haemolytic

streptococci, pseudomonas aeruginosa, candida albicans and homophiles influenzae. The distribution of the Microbes was shown in Table 3 and 4.

Table 3: The Microbes encountered in the core of the adenoid tissue

Total number of patients	Normal flora	α-haemolytic Strept.	Haemophilus influenzae	Staph. aureus	Pseudomonas aeruginosa	Candida albicans
22 %100	15 68.18%	2 9.09%	2 9.09%	1 4.54	1 4.54%	1 14.54%

Table 4: Direct Microscopical Examination of the surface of the adenoid tissue

Type of the bacteria	NISSERIA	DIPHTHROIDS	CANDIDA	G+COCCI	G-BACILLI	OTHERS
Number of the patients	10	11	1	16	6	3

The result of antibiotic sensitivity test was as follows most of the isolate were highly sensitive to Augmantin, Amikacin and Ticacilin with Clavulanic Acid with moderate response to Ampicilline, Gentamicin , Tetracycline and

Pipracillin ; and a mild response was noticed toward Penicillin G and Cephalothin.

No response was noticed toward the drugs like Erythromycin, Cefazol and Cephalothin as listed in the Table 5.

Table 5: The Antibiotic Sensitivity among the pathogens isolated from the core of the adenoid tissue

ANTIBIOTICES	S	R
penicillin G	+	
erythromycin		+
tetracycline	++	
ampicillin	++	+
gentamycin	++	
augmantin	+++	+
amikacin	+++	
pipracillin	++	+
cefazol		+
cefoxitin	+	
ticarcilin&clavulanic acid	++++	
cefazol		+
cephalothin		+

Discussion:

The palatine tonsils and pharyngeal adenoids are part of walderyers tonsillar ring .As such, it is generally accepted that the microbial flora of these structures are identical, but little evidence exists to support this ⁽⁵⁾.

In this study, most of the isolates were non- pathogenic like *Neisseria* species, α – *Streptococcus* species, *Diphtheroids* and *Staph.albus*, these organisms have been identified as predominant organisms in the tonsils and adenoid tissues as a commensal flora as described in the other studies ⁽⁶⁾.

Potential pathogenic bacteria including *haemophilus influenzae* and *Staph.auerus* were also detected ^(7, 8, 9, and 10).

The prevalence of *haemophilus influenzae* encountered in our patients as well as some cases is reported in literature ^(11-13, and 14).

Many reveal that these organisms could be the etiology of recurrent tonsillar disease in resistant patients. It is also well known that chronically inflamed tonsils and adenoids contain more scar tissue after each infection ,causing an impaired penetration of the antibiotics to the core of the adenoid, with subsequent hypertrophy and surgery is indicative ⁽¹⁵⁾.

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