THE EFFECT OF ANTIBIOTIC THERAPY AFTER TONSILLECTOMY

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A.Ç. Batman, M.D. / A. Tutkun, M.D.** / B. Mamıkoğlu, M.D.*****
H. Korkmaz, M.D.* / C. Üneri, M.D.***

* *Associate Professor, Department of Otorhinolaryngology, Faculty of Medicine, Marmara University, Istanbul, Türkiye.*
** *Assistant Professor, Department of Otorhinolarygnology, Faculty of Medicine, Marmara University, Istanbul, Türkiye.*
*** *Research Assistant, Department of Otorhinolaryngology, Faculty of Medicine, Marmara University, Istanbul, Türkiye.*

SUMMARY

A prospective, randomised study was performed in order to find the effect of oral amoxicillin in minimising the postoperative morbidities in the convalescence period following tonsillectomy. The first group of patients were administered oral amoxicillin and paracetamol postoperatively; whereas the second group of patients were administered only paracetamol as the control group. Patients were evaluated for the postoperative fever, halitosis, oral intake, daily activities and throat pain by the parents. We obtained intraoperative tonsillar and postoperative third and seventh days' operative field swab cultures. According to the results, we concluded that the postoperative oral amoxicillin administration had no advantage on postoperative morbidities.

Key Words: Tonsillectomy, Antibiotic Therapy

INTRODUCTION

Tonsillectomy is one of the most common operations performed during childhood. The major problem during convalescence period after tonsillectomy is throat pain. Odynophagia leads to poor oral intake and dehydration. These prolong the devastating effects of general anesthesia and operative trauma in the convalescence period. Despite that analgesics are commonly prescribed to alleviate those symptoms, there does not exist any well accepted treatment protocol with this respect. Antibiotics are said to be efficacious in relieving posttonsillectomy pain (1). We performed a study to evaluate the effect of oral amoxicillin therapy in minimising posttonsillectomy morbidities.

MATERIALS AND METHODS

This prospective and randomised study included 30 patients who had tonsillectomy with or without adenoidectomy between December 1992 and February 1993 in Marmara University Faculty of Medicine whose ages ranged from 3 to 16. They were operated for hypertrophic and obstructive symptoms or recurrent tonsillitis with or without adenoid vegetation and they were otherwise healthy.

At first evaluation every patient's age and sex were recorded. The sizes of the tonsils were enumerated ranging from 1+ to 4+ according to physical examination. Also each tonsil was noted either it has any cryptic debris or not.

Thirty patients were randomly divided into 2 groups each containing 15 patients. The first group was given 40 mg/kg amoxicillin divided into 3 doses a day. The second group was used as the control. No antibiotics were prescribed for the control group. Both groups took paracetamol 10 mg/kg for analgesic and antipyretic effects. The first dose was applied 6 hours after the operation, when the patient was able to take oral medicine. This medication was continued for 1 week.

All operations were done under general anesthesia with endotracheal intubation. Tonsillar swab culture was taken just before the operation, immediately after the patient was entubated. adenoidectomy was performed when indicated, then followed by tonsillectomy. The tonsillectomy was performed by incision-dissection and snaring technique. Each tonsil was sent to the laboratory of microbiology for intratonsillar core culture immediately. Tonsillar surface swab cultures and core cultures were done in chocolate and sheep blood agars. The patients were discharged 8 hours after the operation. The patients or their parents were asked to fill the chart concerning postoperative morbidities mentioned below:

1. Throat pain: Parents recorded the duration of the throat pain.
2. Fever: They recorded the fever of the patient taken orally twice a day. We grouped these values into 3: below 37 C; between 37 and 38 C; above 38 C, so as we noted the days of subfebrile or high fever if present.
3. Oral feeding: The day of toleration of the usual diet without complaints was noted.
4. Halitosis: Parents observed the duration of the fetid odor following tonsillectomy.
5. Daily activity: Parents assessed the duration of restriction on activities following tonsillectomy.
6. The epithelisation of tonsillar fossae: At the controls we examined the epithelisation of the tonsillar fossae.

On the postoperative third and seventh days, we took swab cultures from the operative field. Each swab was cultured in the sheep blood agar and chocolate agar plates.

The results obtained from two groups were compared by Student's t test.

RESULTS

None of the patients had postoperative complications related to general anesthesia and surgical procedure. Of the 30 patients, 15 were in the antibiotic group and 15 were in the control group. The younger and the older patients in the amoxicillin group were 3.5 to 16. The younger and the older patients in the control group were 3 to 14. The average ages were 7.5 in the amoxicillin group vs 8.1 in the control group. This difference was insignificant statistically. (p:0.77). Each group consisted of 7 girls and 8 boys. At the preoperative evaluation, 7 patients in the amoxicillin group and 5 patients in the control group were recorded to have cryptic debrises. (p:1). The tonsil sizes were also similar. (p:1) (Table I).

Results of postoperative morbidities were as follows (Table II):

1. Throat pain: The amoxicillin group had throat pain with an average of 5.6 days, while the control group had throat pain with an average of 7 days. This difference was insignificant (p:0.49).
2. Fever: 3 patients in the antibiotic group and 2 patients in the control group experienced fever above 38 C at least once during the first week. Seven (46.6%) patients in the antibiotic group and 5 (33 %) patients in the control group had fever more than 37 C at least once during the first week. No concernable difference was found between two groups (p:1).
3. Oral intake: It affects the duration and severity of the convalescence period after tonsillectomy. Amoxicillin group patients had gained the ability to take their usual diet on an average of 4.87 days and control group on an average of 4.75 days. This difference was not statistically significant (p:0.95).
4. Halitosis: Average duration of fetid odor were 5.2 days in the antibiotic group vs 4.6 days in the control group. This difference between two groups was not statistically significant (p:0.81).
5. Daily activity: The activity of the antibiotic group patients had been restricted on an average of 2.3 days; and activity of the control group patients had been restricted on an average of 3.6 days. This difference was not at statistically significant level (p:0.55).
6. Epithelisation: Most patients completed tonsillar fossa epithelisation towards the end of first week. Mean values were 6 and 6.5 for the amoxicillin and control groups respectively. Amoxicillin administration did not have significant effect on the epithelisation of the tonsillar fossa (p:0.93).

According to culture results, every preoperative tonsil swab culture yielded normal oropharynx flora. Additionally in the antibiotic and control groups 8 patients had beta hemolytic streptococcus (3 and 5) and 6 patients pneumococcus overgrowth (5 and 1) respectively (Table III). Additionally one patient in each group exhibited Branhamella catarrhalis overgrowth. In the amoxicillin group 12 core cultures did not have bacterial growth and 3 patients had beta hemolytic streptococcus. In the control group 6 of the patients had beta hemolytic streptococcus, 2 of the patients had staphylococcus aureus, and 2 of the patients had group C streptococcus growth in the core cultures. Remaining 5 patients exhibited no growth (Table IV). In the postoperative third day cultures, all patients had normal oropharynx flora in the amoxicillin group. However 2 patients in the antibiotic group had beta hemolytic streptococcus and B. catarrhalis overgrowth in addition to the normal throat flora in the postoperative 3rd day cultures (Table V). All of the control group postoperative third day cultures yielded normal flora. On the seventh day tonsillar fossa swab cultures yielded normal flora in both groups.

Table I: Preoperative evaluation of the patients

		Amoxicillin Group	Control Group	p value
Age (average)		7.5	8.1	0.77
Sex	Male	8	8	1
	Female	7	7	
Tonsil Size	1 +	2	1	1
	2 +	7	7	
	3 +	5	6	
	4 +	1	1	
Tonsillar Debris	+	7	5	1
	–	8	10	

Table II: Postoperative evaluation

		Amoxicillin Group	Control Group	p value
Fever	<37 C	8	10	1
	37 - 38 C	4	3	
	>38 C	3	2	
Halitosis (average)		5.2	4.6	0.81
Oral intake (average)		4.8	4.7	0.95
Daily activity (averaga)		2.3	3.6	0.55
Sore Throat (average)		5.6	7	0.49
Loss of Membranes (average)		6	6.5	0.93

Table III: Preoperative Bacterial Flora of the Tonsillar Area

Flora	Amoxicillin Group	Control Group
Normal Respiratory Flora Only	5	5
Group A beta H. Streptococcus	3	5
Streptococcus Pneumonia	5	1
Branhamella Catarrhalis	1	1
Group C Streptococcus	0	2
Staphylococcus Aureus	0	1
E. Coli	1	0

Table IV: Tonsillar Core Culture Results

Flora	Amoxicillin Group	Control Group
Gr. A Beta H. Streptococcus	3	6
Group C Streptococcus	0	2
Staphylococcus Aureus	0	2
No Growth	12	5

Table V: Postoperative Third Day Profile

Flora	Amoxicillin Group	Control Group
Normal Flora Only	13	15
Gr. A Beta H. Streptococcus	1	0
Branhamella Catarrhalis	1	0

DISCUSSION

Tonsillectomy leaves a large denuded fossa that is attempted to heal with granulation tissue. This fossa is contaminated by oropharyngeal secretions. Microorganisms and a fibrous pyogenic exudate cover this fossa. Irritation of the sensory nerve endings and inflammation over the surface makes the postoperative first week very distressing. Also spasm of the pharyngeal muscles increases the posttonsillectomy pain. Inflammation causes foul odor from oral cavity during convalescence period. Also, these reactions impair oral intake; this may cause high fever and may restrict daily activities. To overcome this cycle, inhibition of the inflammation on the tonsillar fossa by the use of antibiotics seems to be logical. This antibiotic should be efficacious on the normal oropharynx flora, anaerobic microorganisms, it should be easy to take, and its side effects should be less. For that purpose we selected amoxicillin. We prescribed oral amoxicillin to the study group. Also we administered oral paracetamol for analgesic and antipyretic effects to both groups.

Many studies were performed to overcome posttonsillectomy morbidities. In 1951, Somers administered intravenous procaine and observed its analgesic effect (2). In 1953, Allen (3) and Campbell (4) reported the analgesic effect of Efocaine injection into the tonsiller fossa. In 1956 Orzac observed a lower incidence of postoperative bleeding and of all types of infections in patients treated with preoperative oral antibiotics and with intramuscular injection at the time of surgery (5). In 1980's Telian et al performed a study with 100 patients and demonstrated that ampicilin / amoxicillin regimen exhibited less postoperative morbidities than a comparable control group (1).

We could not find a statistically significant difference between the two groups in terms of patients' complaints after tonsillectomy when we administered the postoperative oral amoxicillin. Culture profiles of the two groups were similar. We did not use anaerobic cultures. Using anaerobic cultures can be beneficial. Overall, if we add the economic aspect and side effects of the antibiotics, oral amoxicillin administration after tonsillectomy is not cost-effective. As conclusion in this prospective, randomised study we intended to find the effect of amoxicillin therapy after tonsillectomy. Postoperative oral amoxicillin administration did not effect postoperative morbidities at a significant level. Using anaerobic cultures may be more beneficial.

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