The role of amoxicillin in preventing post-tonsillectomy complications

Received: 26/6/2011 Accepted: 16/4/2012

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Abstract

Background and objective: Tonsillectomy is defined as the surgical excision of the palatine tonsils. This single blind prospective study of (200) patients underwent tonsillectomy in Al- Rizgary Teaching Hospital-Erbil- Iraq from February 2006 through June 2006.The main aim of this study is to evaluate the effect of post-tonsillectomy amoxicillin in preventing infection and secondary haemorrhage.

Methods: Our patient's ages ranged from 2.5 years-55 years and were randomly divided postoperatively into two equal groups. The first group received amoxicillin antibiotic with analgesic paracetamol up to one week postoperatively. The second group received only paracetamol for one week. All tonsillectomy surgeries were done by cold knife dissection method.

Results: In the first group no one developed complications neither postoperative infection nor secondary hemorrhage , whereas in the second group who received only paracetamol, 4 patients (4%) had features of infections post operatively with another 2 patients (2%) developed secondary hemorrhage controlled conservatively.

Conclusion: The above results showed no significant effect of post-tonsillectomy antibiotic to prevent infection or delayed bleeding.

Keywords: Tonsillectomy, post tonsillectomy bleeding, complications of tonsillectomy, antibiotics in tonsillectomy

Introduction

The palatine tonsils are dense compact bodies of lymphoid tissue that are located in the lateral wall of the oropharynx, created by the palatoglossus muscle anteriorly and the palatopharyngeus and superior constrictor muscles posteriorly and laterally [1]. Tonsillectomy is defined as a surgical procedure performed with or without adenoidectomy that completely removes the tonsil, including its capsule, by dissecting the peritonsillar space between the tonsil capsule and the muscular wall [2].Tonsillectomy is still an extremely common operation in otolaryngology especially in children. There has been controversy over the removal of tonsils for many decades especially regarding indication for surgery and details of surgical technique, with strong opposition and equally strong protagonism [3,4,5,6]. Recurrent attacks of real acute tonsillitis (five or more episodes per year) is the main indication of tonsillectomy [7, 8]. Tonsillectomy is also mainly indicated in hypertrophied tonsils to a level causing snoring & air way obstruction [2, 4, 7, 8, 9].The other indications of tonsillectomy are in chronic tonsillitis (when the infection becomes more frequent) [10] and in quinsy (peritonsillar abscess) especially recurrent one [11, 12]. In addition unilateral tonsillectomy is undertaken in suspected malignancy [4]. Unlike most operative procedures, which are closed primarily, tonsillectomy produces an open wound that heals by

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secondary intention. The main postoperative complications are postoperative bleeding & infection [13]. Postoperative haemorrhage is a potentially life-hreatening occurrence and is classified as primary (<24 hr postoperatively) or secondary (>24 hr). Primary bleeding may be caused by techniqual problems like slip ligatures, however in the vast majority of patients is of unknown causes, it represent bleeding from an artery or a vein which had been controlled during surgery. Secondary bleeding is possibly due to secondary infection of the tonsillar fossa resulting in disruption of vessels and bleeding[14]. Antibiotics are frequently prescribed in an effort to minimize the risk of infection & delayed haemorrhage. A number of studies imply to assess the benefit of prophylactic antibiotics in minimizing postoperative morbidity, however the current evidence does not support their routine use[15,16].

Methods

From February 2006 to June 2006, two hundred patients were prepared for tonsillectomy at Rizgary Teaching Hospital in Erbil, They were fully evaluated regarding the history & full Otolaryngological examination to detect the indications of tonsillectomy, any other associated illnesses like adenoids or otitis media with effusion were recorded. All procedures were performed with general anesthesia and oral intubations. The tonsils were removed by dissection technique, and a hemostasis was achieved by suture ligation; cautery was not used. All patients were observed closely in the hospital for one day to detect any possible postoperative hemorrhage or any possible complications. We encouraged our patients to start few sips & liquidized diet two hours following surgery & return to normal diet as soon as possible within few days. All the patients were randomly divided into two equal groups, First group received oral amoxicillin(syrup or capsules) and paracetamol (syrup or tablet) for seven days postoperatively. The dose of amoxicillin for children was 50 mg /kg/ day in divided doses every 8 hours or 500mg capsule three times a day for adults. Erythromycin used in allergic patient to penicillin in oral doses (syrup or capsules), the dose of erythromycin in children was 50 mg/kg/day divided every 6 hours or using capsules in adult in a dose of 500mg every 6 hours. The paracetamol dose was10 mg /kg body weight single dose in children can be repeated every 6 hours. In adults the paracetamol was given at 500mg tablet repeated every 6 hours. Second group received only paracetamol for seven days in the same dose as the first group. The patients were re-examined 5-7 days postoperatively and were followed for the next two weeks postoperatively to detect any post-operative complications such as secondary haemorrhage and features of postoperative infection like increasing sore throat, with oral halitosis, referred otalgia and fever. The signs of postoperative infection are erythema & swelling of the tonsillar bed & tonsillar pillars .

Results

All 200 patients underwent tonsillectomy, their ages ranged from 2.5-55 years. The maximum age distribution was a range from 6-10 years (27%). The youngest patient was 2.5 years while the oldest was 54 years, Table 1. The female patients were 106 (53%), 94 patients (47%) were males, Figure1. The main indications of tonsillectomy were frequent attacks of acute tonsillitis in 168 patients(84%), enlarged tonsils with sleep disturbances in 8 patients (4%) & peritonsillar abscess (quinsy) in 2 patients (1%), Table 2. In our study 40 patients (20%) had additional adenoid enlargement which needed adenoidec tomy. In 8 patients (4%) they were features of otitis media with effusion which reqiured myringotomy, Table 3. Post tonsillectomy bleeding were either primary haemorrhage ; within the first 24 hours or secondary ; after the first 24hours were recorded in this study. Only two patients (1%) of 200 patients developed primary

hemorrhage during the first 8 hours which was controlled by ligation under general anesthesia. In the first group where the patients instructed to receive postoperative antibiotic, they did not show complications after the first 24 hours. group two, did not received postoperative antibiotic; 4 patients (4%) developed features of infection at tonsillar fossa on the 7th postoperative day with increasing throat pain, fever, oral halitosis & severe otalgia with severely congested tosillar bed. In addition 2 patients (2%) developed secondary hemorrhage (in the third & fifth post operative day, 12 year old & 36 year old male respectively) which was treated by administration of broad spectrum intravenous antibiotic after admitting the patients. The 12 years old male received additional blood transfusion to replace the lost blood. There were not any other post operative complications after the first week. The Table 4 & Table 5 show insignificant effect (By Chi -square test) of using antibiotic to prevent post tonsillectomy infection or secondary hemorrhage.

Table 1: Age distribution among patients prepared for tonsillectomy.

Age range (years)	No. of patients	%
1-5	40	20
6-10	54	27
11-15	38	19
16-20	28	14
21-25	18	9
26-30	12	6
31-35	6	3
36-40	2	1
51-55	2	1
Total	200	100

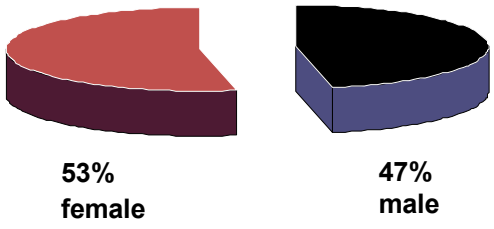

Figure 1: Sex distribution among patients prepared for tonsillectomy

Table 2: Clinical indications of patients prepared for tonsillectomy.

Indications		No. of patients	%	
Recurrent acute tonsillitis	Recurrent tonsillitis	98	49	**84**
	Recurrent tonsillitis with snoring	56	28	
	Recurrent tonsillitis with febrile seizure	14	7	
Chronic tonsillitis		22	11	
Snoring with sleep disturbance (Kissing tonsil)		8	4	
Quinsy		2	1	
Total		200	100%	

Table 3: Additional finding

Additional finding	No. of Patients	%
Adenoid hypertrophy needs adenoidectomy	40	20
Otitis media with effusion needs myringotomy	8	4
Dry tympanic membrane perforation	4	2

Table 4: Frequency of postoperative infection.

Group	Number of patients	Postoperative infection Number (percentage)	P value
Group with antibiotic cover	100	0	0.12
Group without antibiotic cover	100	4(4%)	

Table 5: Frequency of secondary haemorrhage.

Group	Number of patients	Secondary haemorrhage Number (percentage)	P value
Group with antibiotic cover	100	0	0.46
Group without antibiotic cover	100	2 (2%)	

Discussion

Tonsillectomy is one of the most commonly performed elective surgeries in Rizgary Teaching Hospital (790 tonsillectomy in 2006) by Otolaryngologists. Our study revealed that most of the patients who had been appointed for tonsillectomy were 6-10 years old (27%), Only 20% of our patients were between 1-5 years old . Studies in the United States reported that tonsillectomy is the most common major surgical procedure performed on children [17,18]. Moreover Maw (1986) reported the tonsillectomy surgery account for 25% of all surgical admissions in children under 5 years of age[19] . the two most common indications for tonsillectomy in the literatures are recurrent sore throat infection & sleep disordered breathing [7,20]**.** In our study the main indication for tonsillectomy was history of recurrent tonsillitis (84**%**). Moreover, Paradise (1984) found that (91%) of the patients had history of recurrent tonsillitis from the total of 187 patients who underwent tonsillectomy [3]. In our study only 1% of cases developed primary hemorrhage in the first 8 hours postoperatively. Lower percentages of primary hemorrhage (0.49%) were reported [21] Bennett et al (2005) in a major reviewing study of the primary haemorrhage following tonsillectomy found that the overall risk to be around 1.4%, most of them occur in the first 8 hours postoperatively, only one of 14 complications were reported between 8-24 hours postoperatively. He concluded that there will be slight benefit from overnight admission from the point of view of reducing the risk of primary haemorrhage. Hence, tonsillectomy can be carried out as a day-case tonsillectomy and the 24-h admission period will be illogical [22]. Four out of 100 patients in our study who did not receive antibiotics developed infection of tonsillar fossae(4%), this is supported by other studies who reported that there is no justification for routine use of antibiotics post tonsillectomy for preventing secondary hemorrhage and post-operative infection [16,23]. In contrast Colrveay (1999) found that there was a considerable less morbidity in those children who received post-operative antibiotics especially amoxicillin with clavulanic acid compared to non treated group [24]. moreover Iqbal Husain (2004) who studied 400 tonsillectomy patients for 4 year, detected a better outcome and lesser post-operative morbidity in patients who received prophylactic antibiotics postoperatively [25]. Regarding secondary hemorrhage, there were insignificant results in our study as only two patients (2%) in group two (no antibiotic cover) developed this complication; secondary haemorrhage reported between 1% to 4% by others [26,27,28]. Many studies reported that the use of antibiotic post-tonsillectomy has not been shown to prevent secondary hemorrhage[14,16,29]. In contrast a study done by Steven et al(1986) found the use of post -tonsillectomy ampicillin or amoxicillin to have a significant impact on reducing post-operative infections and secondary hemorrhage [30]. In our study 2 patients who developed secondary hemorrhage (in the third & fifth post operative day, 12 year old & 36 year old male respectively) had tonsillectomy following recurrent tonsillitis. This result is concordant with other studies who reported higher age to be a risk factor for developing secondary haemorrhage with the majority of them occurring between the fourth and seventh post-operative day. In older age group usually the indication for tonsillectomy is recurrent sore throat with possible fibrosed tonsils whereas tonsillectomy in early childhood could be because of lesser attacks of Infection with the enlargement of the tonsils[16,31,32].

Conclusion

The use of antibiotics post tonsillectomy will not prevent the postoperative infections and secondary haemorrhage.

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