ORIGINAL ARTICLE

Immediate and Delayed Tonsillectomy as a part of Treatment of Quinsy

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ABSTRACT

Background: Quinsy is localized of Pus in theperitonsiller tissue. The development of the peritonsillar abscess follows two pathways i) peritonsillar space with acute infection spread ii) the obstruction of the ducts of minor salivary glands (Weber glands), causing stasis in the duct which results in bacterial colonization and resulted cellulitis. peritonsillar abscess develop if cellulitis is not properly treated.
Aim: To compare per and post-operative complications is patients of quinsy undergoing surgical treatment as immediate and delayed tonsillectomies in respect of pain, haemorrhage and hospital stay.
Methods: This is randomized control trail study of sixty patients of quinsy, in thirty patients immediate tonsillectomy was performed while in other thirty patients delayed tonsillectomy was done.
Setting: This study was conducted in ENT-Unit-1 Jinnah Hospital, Lahore.
Results: Program was to study quinsy without mentioning age limitation and specification of any age group range. Ratio between male and female in two groups was compared. In group I (immediate tonsillectomy) was 2.3:1 and in group II (delayed tonsillectomy) 1.3:1 was recorded. Per-operative haemorrhage in group I, mild in (53.3%), moderate in (36.7%) and severe in (10.0%).While in group II, mild haemorrhage in (43.3%), moderate in (40%) and severe in (16.7%). The p value was 0.332. One case in each group suffered from primary haemorrhage. A single case in group II had secondary haemorrhage. The p value was 0.414. Post-operative pain in group I was mild in (66.7%), moderate in (26.7%) and severe in (6.7%). While in group II,it was mild in (26.7%), moderate in (56.7%) and severe in (16.7%). The p value was 0.007. The duration of hospital stay less than one week 76.7% and 13.3% was recorded in group 1& II, respectively.
Conclusion: Immediate tonsillectomy with short hospital stay is recommended as incidence of postoperative haemorrhage and pain is lower as compared with delayed tonsillectomy.
Keywords: Quinsy, peritonsillar abscess, immediate tonsillectomy, delayed tonsillectomy

INTRODUCTION

Quinsy (Peritonsillar abscess) and peritonsillitis are ENT department emergencies[1]. In peritonsillar tissues when there is localized accumulation of pus it is termed as peritonsillar abscess (PTA) it form due to supportive peritonsillitis[1,2,3]. Between the capsule of the palatine tonsil and superior constrictor muscle of the pharynx the nidus of accumulation is located[1,4,5].The anterior and posterior pillars, torus tubarius (Superior), and pyriform sinus (inferior) form the boundaries of potential peritonsillar space[2,6,7].

As it is composed of loose connective tissue, due to severe infection in this area formation of purulent material may occur. It may extend to soft palate, the lateral wall of the pharynx, due to progressive inflammation and suppuration. It may occasionally extend to the base of the tongue. Patients usually require for the Before definitive treatment is rendered the patient should seek hospitalization foradministration of intravenous antibiotics and parenteral fluids[1,2,4]. At the time of presentation, the immediate treatment is evacuation of pus either though needle aspiration and / or incision drainage[8,9].

Bacterial infections occur due to both aerobicand anaerobic bacteria. It is reported that α and β-*hemolytic streptococci staphylococcus aureus, streptococcus pneumonia*, *pepto-streptococcus species and fusobacteriumspecies*are involved[4,8,10].

It is generally accepted now that the development of the peritonsillar abscess follow one of the two pathways it is due to the obstruction of the ducts of minor salivary glands (Weber glands), which lie in the tonsillar fossa[11].

Acute tonsillitis consequently resulted in Quinsy. If inflammatory edema occur it results in difficulty in swallowing. Due to Dehydration as a secondary effect results in painful ingestion of water, juices, solid and semi solid foods. Further inflammation resulted in the infectionof surrounding and adjacent areas i.e., the Head and neck, resulting in airway obstruction[1,8,13]. If there is no proper diagnosis of PTA the number of clinical complications may occur[12.] The severity of the complications depends on Rapidness or progression of the illness and as the

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characteristics of the affected facial spaces[14]. The facial spaces of the neck are interconnected. Once inflammation cross the limits of the peritonsillar space, in next step is the masticator space (with increasing degrees of trismus)submandibular and sublingual spaces within the floor of the mouth (Ludwig angina) are involved[1,11,14].

The highest incidence of peritonsillar abscess was observed in the second and third decade of life. The overall incidence of quinsy/peritonsillar abscess in the adult population in a study was 46 among the paediatric population, it was 3 cases per 350, 000 population per year[6,14,15].

Following an attack of quinsy there is increase in the incidence of tonsillitis. Incidence of quinsy/peritonsillar abscess is less in adults as compared to a age group of 40 years[4,14,16].

The treatment of quinsy is considered as medical therapy and surgical intervention, the surgical treatment involves needle aspiration, incision drainage and tonsillectomy. The procedure of tonsillectomy done in quinsy patient on priority or emergency basis without prior needle aspiration and incision and drainage is mentioned in literature as abscess tonsillectomy, quinsy tonsillectomy and hot tonsillectomy[2,8,18]. On the other hand if the procedure is delayed for 6-8 weeks after the needle aspiration and incision and drainage it is called interval tonsillectomy[12].

One of the definitive treatment, the proponents of quinsy tonsillectomy procedure shortens hospital stay as claims and is no more hazardous than the delayed (interval) tonsillectomy. Abscess tonsillectomy can be recommended as safe procedure to evacuate quinsy[17,20].

Quinsy tonsillectomy is compared with interval tonsillectomy by Romaine and Johson, in 2002. The criteria for these studies were hospital stay and time lost from work. There was no difference between the two when they compared with regard to initial hospitalization rate. However, there was a difference recorded in hospital stay as well as lost time from work when compared with regard to second hospitalization for interval tonsillectomy[14,19,21].

The objective of present study is to compare per and post-operative complications in patients of quinsy undergoing surgical treatment as immediate and delayed tonsillectomies in respect of pain, haemorrhage and hospital stay

MATERIALS AND METHODS

This randomized control trial was carried out in during a period of one year in ENT Department, Unit 1 Jinnah Hospital Lahore on sixty patients (30 in each group). Both male and female patients 7-50 years of age who developed peritonsillar abscess for the first time were included in the study.

Exclusion criteria:

- Patients who had established glandular fever
- Diabetes mellitus
- Immuno-compromized patient
- Bleeding diathesis
- Chronic systemic disease like TB, renal or liver disease

Methodology: In this study I have included sixty patients of peritonsillar abscess with their consent, fulfilling the inclusion criteria. These patients were divided in two groups I and II, with thirty patients in each group. All these patients have been given parental antibacterial therapy, I/V fluid, analgesics along with prior needle aspiration or incision & drainage. In thirty patients of group I immediate tonsillectomy (IT) has been performed after treating acute phase of disease. In other thirty patients (group II) delayed tonsillectomy (DT) has been planned after 6 weeks of acute phase management. Then the results were analyzed in respect of post-operative haemorrhage, pain and total duration of hospital stay.

To select a procedure type for each patient we made sixty envelopes, thirty for immediate tonsillectomy (GROUP I) and thirty for delayed I tonsillectomy (GROUP II) mixing them all. When the patients who was included in the study came for the treatment, each had asked to pick up an envelope and then he/she had undergone the procedure prescribed. This was to ensure a random selection of the patient for a specific procedure.

Procedures:A) Needles aspiration. B) incision and drainage. C) Tonsillectomy which for sake of description based on time interval after quinsy presentation and mentioned as under:

Immediate tonsillectomy. II) Delayed tonsillectomy

Needle aspiration: A 18-gauge needle with a 10-cc syringe was used to aspirate from the point of maximal bulging.

Incision drainage:

Procedure (Incision and drainage) was explained to the patient.The point for incision drainage was marked visually as below:

From base of uvula a imaginary horizontal line was drawn , another one was drawn along the anterior faucial pillar, the point for incision drainage is place where both lines meet. Alternatively if a point is clearly bulging incision drainage may be carried out over it. The patient in instructed not to have oral intake for two hours after incision and drainage.

Tonsillectomy: All the patients included in this study underwent tonsillectomy by cold knife (steel) dissection method. The pre-operative preparation for the patients included their informed consent, lab

investigations (mentioned above), recording of the vitals and NPO for eight hours before surgery.

The patients were given general anesthesia the endotracheal intubation was done. Boyle-Davis mouth gag was introduced and opened and supported by Draffin's bipods. The tonsil was grasped with tonsil holding forceps and pulled medially. Incision was made in the mucosa, a blunt tonsillar dissector was used to dissect the tonsil from the pertitonsillar tissue and separating it from its upper pole to reach the lower pole. Tonsillar snare is used to cut the pedicle of the tonsil to remove it completely from its bed. The haemostasis was secured by pressure pack (gauze sponge) and bipolar diathermy. The immediate post-operative care of the patients is the observation of any bleeding through mouth.

The two procedures of tonsillectomy adopted in my study.

Immediate tonsillectomy [IT]

Delayed tonsillectomy [DT]

Immediate tonsillectomy: In this type of surgical procedure, tonsillectomy is done around 5 days after incision drainage when the acute phase of infection is well settled down by antibacterial therapy and the patient have no mouth opening difficulty when asked but the fibrosis in the tonsillar bed is not yet established.

Delayed tonsillectomy: In this type of procedure, tonsillectomy is done after 8 weeks of incision drainage and parental antibacterial therapy.

Outcome variables:

- Per-operative and post-operative haemorrhage.
- Post-operative pain.
- Total hospital stay.

Statistical analysis: Data was analyzed thourgh computer software SPSS (Version 16). Data master sheet was generated for variables under study.

Test of significance: Chi square test was applied for the comparison of the outcome parameters P value was obtained and the results were labeled as statistically significant when P value is less than 0.05.

RESULT

In the start of study over program was to include any age of patients but during work up we noted that Quinsy and peritonsillitis patient attending ENT department there age ranges almost in between from 10-50/years so age groups were generated age distribution of patients in two groups. The age range in group I was 12 patients (40.0%) in 10-20 years of age, 13 patients (43.3%) in 21-30 years, three patients (10.0%) in 31-40 years, and two patients (6.7%) in 41-50 years.

In group II, 11 patients (36.7%) in 10-20 years, 17 patients (56.7%) in 21-30 years, one patient (3.3%) in 31-40 years, and one patient (3.3%) in 41-50 years. The age range of group I was 13-45 years and in group II it was 13-46 years. The mean+SD of group I was 24.70+7.63 years and in group II, it was 23.97+7.07 years. The p value was > 0.623 (statistically not significant).

Sex distribution of two groups. In group I, the male numbered 21(70%) and female were 9 (30.0%). While in group II, the were 17(56.7%) and female were 13 (43.3%). The male to female ratio in group I was 2.3:1 and in group II it was 1.3:1 respectively. The p was 0.157 (statistically not significant).

Finding of per-operative haemorrhage were in group 1, mild haemorrhage was found in 16 patients (53.3%), moderate haemorrhage in 11 patients (36.7%) while severe haemorrhage occurred in 3 patients (10.0%). In group II, mild haemorrhage was found in 13 patients (43.3%), 12 patients (40%) had moderate haemorrhage and severe haemorrhage occurred in 5 patients (16.7%). The p value was 0.332 (statistically not significant).

Table 1 showed the findings of post-operative haemorrhage. One case (3.3%) of group II had faced secondary haemorrhage. In group I, 29 patients (96.7%) and in group II, 28 patients (93.3%) had no post-op bleeding. The p value was 0.414 (Statistically) not significant).

Table 2 showed the findings of postoperative, in group I , mild post-operative pain was found in 20 patients (66.7%), moderate in 8 patients (26.7%) and severe in 2 patients (6.7%) while in group II, mild post-operative pain was found in 8 patients (26.7%), moderate in 17 patients (56.7%) and severe in 5 patients (16.7%). The p value was 0.007 statistically very significant.

The duration of hospital stay in group I , in 23 patients the hospital stay less was found than one week (76.7%) and in 7 patients more than one week stay wasobserved (23.3%). while in group II, stay less than one week was in 4 patients (13.3%) and 26 patients (56.7%) had more than one week stay. The p value was <0.001 (statistically highly significant).

The follow-up after one week for oral intake is during the 1st week of follow up in group I, 22 patients (73.3%) had normal oral intake and 8 patients (26.7%) had poor oral intake. Where as in group II, the normal oral intake was found in 20 patients (66.7%) and poor oral intake in 10 patients (33.3%). The p value was 0.527 (statistically not significant).

The follow up after one week, for pain. All the patients in the group I were found pain free and only one patient (3.3%) in groups II had pain. The p value was > 0.5 (statistically not signify cant). At two weeks

of follow-up all patients of both groups were pain free with normal oral intake.

Table 1: Post-Operative Haemorrhage

Status	Group I	Group II	P value
No bleeding	29(96.7%)	28(93.3%)	0.532
Primary Haemorrhage	1(3.3%)	1(3.3%)	1.0
Secondary Haemorrhage	0	1(3.3%)	0.571
Total	30(100%)	30(100%)	

P value = 0.414 (statistically not significant).

Table 2: Post-Operative Pain

Status	Group I	Group II	P value
Mild (1-3)	20(66.7%)	8(26.7%)	0.006
Moderate (4-6)	8(26.7%)	17(56.7%)	0.04
Severe(7-10)	2(6.7%)	5(16.7%)	0.043
Total	30(100%)	30(100%)	

P value = 0.007 (statistically highly significant).

Pain assessment was done by using visual analogue scale (VAS) No pain (0), Mild Pain (1-3), Moderate Pain (4-6), Sever Pain (7-10)

DISCUSSION

Most surgical procedure shares the general risks of anesthetic complications, bleeding and infection. The health of the patient determine the anesthetic riskandits associated serious problems. In tonsillectomy primary Haemorrhage occurs at the time of operation and can be controlled by moping, pressure, ligation or electro coagulation. Reactionary Haemorrhage occurs within 24/hours and can be controlled by simple measure such as removal of clot, application of pressure or vasoconstrictor. Secondary Haemorrhage is most commonly encountered in between fifth and tenth post-operative days may be due to premature separation of membrane may be in the form of blood stained sputum or may be profuse and can be controlled by clot removal topical dilute adrenaline or hydrogen peroxide.

It is a practical experience that dissection is difficult during interval tonsillectomy in a patient who had peritonsillar abscess 3-6 months earlier or more. The reason being that dense adhesion are formed between the region of tonsillar capsule and its bed (superior constrictor), while the plane of loose arealar tissue separating tonsil from its bed facilitate easy dissection. In a case of PTA who is undergoing tonsillectomy after 6 weeks of abscess formation this plane is obliterated making dissection very difficult, resulting in increase incidence of difficult dissection, post-operative pain, decrease oral intake and increase incidence of primary and secondary haemorrhages.

The concept of immediate tonsillectomy was conceived at this unit on this basis that tonsillectomy in a case Quinsy should be less traumatic, when undertaken before the full development of fibrosis after I/D is done, (While pus is evacuated either through needle aspiration or I/D) and infection, is managed by appropriate antibiotics. There should be no contraindication in doing tonsillectomy within first week of I/D. So, while no fibrosis has still settled in, tonsillectomy within first week of I/D. So while no fibrosis has still settled in, tonsillectomy within first week of I/D, So while no fibrosis has still settled in tonsillectomy as delayed tonsillectomy. In this manner the two procedures are differentiated from each other.

After reviewing the articles on the comparison of immediate tonsillectomy with delayed tonsillectomy, It is not surprising that I do not found any article on the comparison of IT with DT. The procedure of Immediate tonsillectomy is not adopted as routine operation till now, so this is new procedure which we have adopted and compared it with traditional delayed tonsillectomy as part of management of Quinsy.

There are many researches on quinsy/abscess tonsillectomy and very few studies on their comparison with interval tonsillectomy. In current study the group I indicates immediate tonsillectomy and group II indicates delayed tonsillectomy.

The peritonsillarabcess (PTA) occurs on the 3rd and 4th decades of life. [1]In another study by Herzon and Martin[29] (2006), analyzed that PTA can occur in age group 10-60 years, PTA is most frequent at age of 20-40 years.

In the present study, the mean age (+SD) of group I, was 24.70+7.63 years and in group II, it was 23.97+7.07 years. The p value was > 0.623 (statistically not significant). Page and peltieret[28] in 2007 completed a study on therapeutic management of peritonsillar abscesses (quinsy). The diagnosis was clinical in 98% of cases, 65% of patients had one needle aspiration of the abscess, 35% had incision and drainage (I & D). The patients were completely cured in 10 days. 45% of patients underwent delayed tonsillectomy at a later date.

Age and gender of the patients was mostly ignored in most of comparative studies related to the risks of post-operative Haemorrhage. Presently the bias was eliminated and retrospective study was done. Age and gender were major criteria of elective tonsillectomies. In this study of abscess tonsillectomy the males were 61 and females were 39%. Their mean ages were 30 years with range 2-83 years). The results were not significant differ between two

groups. (p = 0.056).No sex predilection exists for peritonsillar abscess. The male to female ratio in present study was 2.3:1 and 1.3:1 in in group I and group II, respectively. The results were non significant at p was 0.157.

According to Kothari et al[27] (2002) if KTP laser tonsillectomy technique is used there will be significantly less per-operative haemorrhage.But in this type of tonsillectomy postoperative pain , primary and secondary haemorrhages are at higher rate.It is non-significant when compared with conventional dissection method.

In this study, the findings of per-operative haemorrhage in group, I was recorded as a mild in 16 patients (53.3%) and severe in 3 patients (10.0%) when compared to group II. In group II in 13 patients (43.3%) and severe in 5 patients (16.7%) mild haemorrhage was observed. The results were recorded as a non significant , p value was 0.332.

During the surgery it was noted that most of the patients of group I, had mild to moderate bleeding and the tonsils were dissected out easily. On the other hand bleeding during tonsillectomy of the group II patients were moderate to severe a bit higher than group I. One thing was repeatedly noted that in most of the group II patients, the tonsil on the diseased (PTA) side was a bit difficult to dissect out, because of the fibrosis in the tonsillar bed and in some cases scissors was used for removal of the tonsil.

Klug et al[23] (2006) in their study quantify the risk of post-tonsillectomy haemorrhage. They recorded significant correlation between factors post-tonsillectomy haemorrhage (PTH) and high age; greater perioperative blood loss and high perioperative blood pressure. They also reported three folds higher non significantrisk at p 0.26during abscess tonsillectomy when compared to cold tonsillectomy.

Tonsillectomy with cold knife (steel) and dissection with only packs or ties for haemostasis is one of the most frequent surgical precedures, Van der Meulen (2004) noted the occurrence of primary haemorrhage in 0.5% (during hospital stay), 2.9% a secondary haemorrhage (after discharge).

In our study, in group I, 96.7% patients and 93.3% in group II, had no post-op bleeding. one case in group I had also one case in group II had suffered from primary haemorrhage. Only one case in group II had suffered from primary haemorrhage. Only one case (3.3%) of group II had secondary haemorrhage. The p value was 0.414 (statistically not significant).

Relating to the results of the study conducted by Giger[24] mentioned above, the side of post-operative Haemorrhage is of great importance, because we are operating on the patients for tonsillectomy who has unilateral peritonsillar abscess. In this regard it is important to note that whether the bleeding occurs from ipsilateral or contralateral side.

In this study the patients of group I, who underwent immediate tonsillectomy (IT), the single case who had haemorrhage was from contralateral side, while the two cases of post-operative haemorrhage in group II had bleeding from ipsilateral side.

The pain following tonsillectomy is major concern of the patients, associated with much discomfort, causing severe pain which may last for a week or more[3]. In postoperative days that is between 3 – 5 days pain level increases after tonsillectomy. Poor oral intake and dehydration are the consequences of severe postoperative pain.

In group I, moderate post-operative pain during hospital stay was observed in 8 patients (26.7%) and severe pain was found in 2 patients (6.7%) while in group II, moderate pain was in 17 patients (56.7%) and severe pain in 5 patients (16.7%). The p value was 0.007 i.e., statistically highly significant.

In the results reported here the post-operative pain in most of the group I, was minimal as compared to group II, the reason being that the patient had recently experienced a severe painful condition of quinsy which was more intense than the usual post-operative pain following tonsillectomy. Further it were also observed in the group I patients, the pain on the ipsilateral side was less as compared to contralateral side.

Comparison of Quinsy with interval tonsillectomy with reference to hospital stay versus time lost from work, revealed no difference between the two strategies, when stay is initial at hospital. But significant difference is reported in this relation when there is the second hospitalization for interval tonsillectomy[20,21].

Longer the duration of hospital stay subsequently cause burden on patient both financially and psychologically. Earlier studies reported that quinsy tonsillectomy is cost-effective and safer to use as compared to the interval tonsillectomy. In this study, the hospital stay in group I, was upto one week, 23 patients (76.7%) while in group II, 26 patients (56.7%) had more than one week stay (i.e) double stay, when compared to group I. The p value was <0.001 (statistically higly significant).

Most of the patients of group I, who underwent immediate tonsillectomy (IT), required only single hospital admission with total hospital stay upto 1 week. Both the immediate required procedure like (needle aspiration or I/D) as well as definitive treatment in the form of IT were made possible in one setting. In addition it was more cost-effective, than the DT, in patients of group II. The patients of group II

had prolonged hospital stay i.e., more than 1 week, due to second hospital admission for delayed tonsillectomy (DT) as part of their treatment.

When oral intake is poor and cause fever as well it may lead to prolonged hospitalization.[21] In results reported were recorded after proper follow-up of one week. Oral intake was normal in 22 patients (73.3%) and 20 patients (66.7%) respectively in group I and group II. The p value was 0.527 (statistically not significant).

The hot tonsillectomy was compared with the cold dissection. The significant difference in the postoperative pain was calculated on the 1st and the 10thday. On the first postoperative day a significant difference (p = 0.0151)was recorded. However, there was no significant difference in the pain between the two groups on 10th postoperative day[25].

In our study, the follow-up after one week, all the patients in the group I were found pain free and only one patient (3.3%) in group II had pain. The p value was >0.5 (statistically not significant). At two weeks follow-up oral intake was normal in all patients and all the patients of both groups were pain free.

Currently in USA the commonly used tonsillectomy instrument is the electrocautery, the Harmonic Scalpel and the coblator. A new research study, "Comparison of post-tonsillectomy pain using the ultrasonic scalpel, coblator and Electrocautery," conducted by parsons et al[26] in 2006, they observed that none of the three surgical methods resulted in a pain-free recovery. After the surgery, within 10 days 80.3% of the patients were observed to have a normal food intake and in 91.8% of the patients normal activity levels were recorded.

CONCLUSION

Immediate tonsillectomy resulted in lower incidence of postoperative haemorrhage as well as pain,when it is compared with delayed tonsillectomy with an added advantage of single hospital stay.

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