

Treatment of Peritonsillar Abscess : Needle Aspiration versus Incision and Drainage

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Background and Objectives: The Objective of this study was to compare the effectiveness of the needle aspiration method and the I&D method in the treatment of peritonsillar abscess.

Materials and Methods: A prospective clinical study was performed on 83 patients. All the patients were hospitalized after random treatment with either I&D or needle aspiration alone, received the same intravenous antibiotic therapy. Among the 83 patients, 73 patients who could be observed for longer than 6 months and had not undergone a tonsillectomy during the follow-up period, were analyzed for treatment outcomes.

Results: There was no statistically significant difference in the initial failure rate($p=0.572$), the hospitalized days($p=0.956$), the recurrence rate($p=0.531$) for the needle aspiration(35 patients) and I&D groups(38 patients). But, The mean duration of fever were statistically different in the needle aspiration(1.51 hours) and I&D groups(3.05 hours) ($p=0.031$).

Conclusion: Two methods are thought to be similar in effectiveness, except that duration of fever was longer in the I&D group than in the needle aspiration group. However, taking advantages of the needle aspiration method into consideration, the needle aspiration of peritonsillar abscess may be more appropriate than I&D as an initial method for peritonsillar abscess

Key Words : Peritonsillar Abscess, Needle Aspiration, Incision and Drainage

I. Introduction

A peritonsillar abscess is an infection that spreads from the superior pole of the tonsil with pus formation between the tonsillar bed and the tonsillar capsule.¹⁾ It is one of the most common complications in acute tonsillitis, but its optimal treatment remains controversial. The generally accepted therapy for a peritonsillar abscess includes a quinsy tonsillectomy,

incision and drainage, and needle aspiration alone; and the latter two are the most frequently used procedures. There are several studies that demonstrated that needle aspiration method is easier, less invasive, and more cost-effective than an I&D method.¹⁾⁻⁷⁾ there, however, are several studies that demonstrated that I & D method result is better than needle aspiration method.²⁾⁵⁾ The purpose of this study was to compare the effectiveness of these two methods in the treatment of peritonsillar abscess.

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II. Materials and Methods

A prospective study was performed on 83 patients

with diagnoses of peritonsillar abscesses, who were treated at Korea University Medical Center from June 2002 through December 2005. The protocols of this study were reviewed and approved by the Institutional Review Board of the Ansan Hospital of Korea University. All the patients with a suspected peritonsillar abscess underwent a complete needle aspiration at the point of the maximal fluctuant site. All the patients with positive aspirates were placed randomly into one of two treatments groups: I&D group or needle aspiration group. The procedures and the process were explained, and informed consent was obtained from each patient. The following data were recorded for each patient: age, gender, dates of treatment, previous history of tonsillitis or peritonsillar abscess, fever, WBC count, initial treatment failure, and abscess recurrence. Among the 83 patients, 73 patients who could be observed for longer than 6 months and had not undergone a tonsillectomy during the follow-up period, were analyzed.

All 73 patients had unilateral peritonsillar abscesses. The youngest was thirteen and the oldest was 73 years old. There were five cases in the second decade of life, 25 in the third decade, 21 in the fourth decade, 19 in the fifth decade, and one each in the sixth, seventh, and eighth decades. Of the 73 patients, 38 were treated with I&D and 35 with needle aspiration. The mean age was 32.9 years old in the needle aspiration group and 36.7 years old in the I&D group. The male-to-female ratio was 26:9 in the needle aspiration group and 27:11 in the I&D group. The number of male patients was larger than that of the female patients, but the difference between the two groups was not statistically significant.

The white blood cell counts before surgical treatment was 12,655.4/mm³ in the needle aspiration group and 13,809.7/mm³ in the I&D group. The numbers of patients who had more than 3 previous episodes of recurrent

Table 1. Clinical Characteristics of the Needle Aspiration Group and the I&D Group

	Needle Aspiration (n=35)	I&D (n=38)	p value
Mean age (yrs)	32.5	36.7	0.685*
Male / Female	26 / 9	27 / 11	0.798 [†]
Mean WBC count (/mm ³)	12,655.4	13,809.7	0.688 [†]
Previous History of Tonsillitis or Peritonsillar Abscess (No. of cases)	12	15	0.625 [†]

* Student t-test

[†] χ^2 test

tonsillitis or peritonsillar abscess were 12 in the needle aspiration group and 15 in the I&D group (Table 1). The three most common symptoms were sore throat (100%), odynophagia (75.3%), and trismus (57.5%). 37 (50.7%) patients had a fever, and 11 (15.1%) had otalgia.

In the needle aspiration group, the aspiration was performed sequentially in the upper, middle and lower poles of the tonsillar fossa with a 10-mL syringe and an 18-gauge needle after local anesthetic infiltration. In the I&D group, a curvilinear incision was made at the most edematous site after local anesthetic infiltration. A drainage tube was not used. All the patients were treated initially with the same intravenous antibiotic therapy(cephalosporin), and the antibiotics were changed based on the results of the cultures. A patient was discharged when the fever was resolved and the patient was able to eat a normal meal without discomfort.

Student t-tests and χ^2 tests were applied for statistical analyses. P<0.05 was considered statistically significant.

III. Results

The comparisons of the clinical outcomes with respect to the duration of hospitalization were 3.86 days in the needle aspiration group and 3.71 days in the

I&D group, which was not statistically significant ($p=0.956$). The mean durations of the fevers were 1.51 hours in the needle aspiration group and 3.05 hours in the I&D group, which was statistically different ($p=0.031$). Initial failure was defined as repeated needle aspirations or I&Ds. There was no statistically significant difference ($p=0.105$) in the initial failure rate: 20.0% in the needle aspiration group and 21.1% in the I&D group. A recurrence was defined as a recurrent peritonsillar abscess after treatment during the follow-up period of six months. The recurrence rates were 2.9% in the needle aspiration group and 5.3% in the I&D group. There was no statistically significant difference in the recurrence rates ($p=0.531$). (Table 2) One patient in the needle aspiration group had a recurrence at 24 weeks. He was hospitalized and treated same as he was initially. Two patients in the I&D group, who had no initial treatment failures, had recurrences individually at 3 weeks and 4 weeks after the initial treatments. They were hospitalized and treated again with the same methods that they were treated with initially. All of the patients were cured without any complications.

Table 2. Results of the Needle Aspiration Group and the I&D Group

	Needle Aspiration (n=35)	I&D (n=38)	p value
Mean Duration of Fever(hours)	1.51	3.05	0.031*
Maen Duration of Hospitalization (days)	3.86	3.71	0.956*
Initial Failure Rate(%)	7/35(20.0%)	8/38(21.1%)	0.105 [†]
Recurrent Rate(%)	1/35(2.9%)	2/38(5.3%)	0.531 [†]

* Student t-test

† χ^2 test

IV. Discussion

Peritonsillar abscesses commonly occurs in young adults, and there is a male predominance with male-to-female ratio of 2:1.¹⁾⁻³⁾ In our study, the highest

incidence (greater than 90%) was found in the third, fourth, and fifth decades; and the male-to-female ratio was approximately 2:1. The three most common symptoms were sore throat (100%), odynophagia (75.3%), and trismus (57.5%), and 29 (39.7%) patients had a fever.

The management of a peritonsillar abscess involves the use of antibiotics along with a surgical intervention, but the optimal surgical treatment has been a controversial subject in otolaryngology.¹⁾⁻⁶⁾

Needle aspiration has been used as both a diagnostic tool and as a treatment modality since the 1980's. The advantages of the needle aspiration over I&D have been agreed: first, it is less painful to patients; second, it is less likely to injury adjacent structures and the wound healing is rapid; third, it confirms the diagnosis with minimum of trauma; fourth, it is easier to collect a pus specimen for microscopy and culture.¹⁾⁻⁷⁾

There is, however, controversy about the initial failure rates and recurrence rates with the aspiration method.⁷⁾⁸⁾ Several studies reported that the initial failure rates of the needle aspiration method were similar to those of the I&D method.¹⁾³⁾⁶⁾⁹⁾¹⁰⁾

While others reported that the initial failure rates of the needle aspiration method were higher than those of the I&D method. Ophir et al⁵⁾ demonstrated that the initial failure rate of needle aspiration was 48%. Wolf et al²⁾ reported that the initial failure rate of the needle aspiration group was 72.1% and the I&D group was 10.8 %, which was a statistically significant difference. These results questioned the effectiveness of the needle aspiration method. In the present study, the initial failure rate was 20.0% in the needle aspiration group and 21.1% in the I&D group. The initial failure rate of the needle aspiration group was lower than that of the I&D group; therefore, needle aspiration was considered to be as

effective as I&D. In the study of Johnson et al⁸⁾, it was not necessary to place clinical importance on the initial failure rate of needle aspiration to assess its effectiveness, because even if the initial aspiration failed to cure the abscess, additional aspirations were fairly easy to perform and increased the chances for successful treatment.

The recurrence rates of the needle aspiration group in Ophir's series⁵⁾ and Savolainen's series⁴⁾ were 15% and 17.3%, respectively; which is similar to that of I&D. In our study, one patient in the needle aspiration group had a recurrence at 24 weeks after the initial treatment. Two patients in the I&D group had recurrences individually at 3 weeks and 4 weeks after the initial treatment. The recurrence rate was 2.9% in the needle aspiration group, and 5.3% in the I&D group. There was no statistical difference in the recurrence rates (Table 2).

V. Conclusions

Two methods are thought to be similar in effectiveness, except that duration of fever was longer in the I&D group than in the needle aspiration group. However, taking advantages of the needle aspiration method those are described in discussion into consideration, the needle aspiration of peritonsillar abscess may be more appropriate than I&D as an initial method for peritonsillar abscess.

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