Peritonsillar abscess: A comparison of outpatient IM clindamycin and inpatient IV ampicillin/sulbactam following needle aspiration

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Abstract
In an attempt to assess the effect of antibiotic choice on the treatment of peritonsillar abscess, we compared the clinical efficacy of empiric intramuscular clindamycin and intravenous ampicillin/sulbactam (following needle aspiration of the abscess) in a prospective, randomized study of 58 patients. Patients in the clindamycin group were treated on an outpatient basis, whereas those in the ampicillin/sulbactam group were hospitalized for the duration of their treatment (minimum: 7 days). Comparison of clinical outcomes with respect to the posttherapeutic duration of fever and throat pain and the time to resumption of eating revealed no statistically significant difference between the two groups. These results suggest that intramuscular clindamycin is an excellent choice and can be safely prescribed on an outpatient basis following needle aspiration, thereby reducing both antibiotic and hospital costs.

Introduction
Peritonsillar abscess (PTA) is the most common deep infection of the head and neck among adults between 20 and 40 years of age; young immunocompetent children are seldom affected. Although its etiology is not completely known, PTA is believed to typically arise via the spread of infection from the tonsil or the tubular mucous glands of the tongue (Weber’s glands), which are located in the superior tonsillar pole. PTAs form in the area between the palatine tonsil and its capsule.

The treatment of PTA requires that the surgeon select the most appropriate antibiotic and the best procedure to remove the abscessed material. Individualized treatment results in more successful outcomes. Different procedures are preferred in different hospitals; some centers use incision and drainage, others needle aspiration, and still others immediate (quinsy) tonsillectomy. Patients who undergo needle aspiration can be treated on either an outpatient or inpatient basis; for obvious reasons, most patients prefer the former. Another important consideration in the selection of treatment is its cost.

To the best of our knowledge, no investigator has previously reported a comparison between the clinical efficacy of an intramuscularly delivered drug in an outpatient setting and an intravenously administered agent in a hospital setting for the treatment of PTA following needle aspiration of the abscess. In this article, we describe our comparison of intramuscular clindamycin and intravenous ampicillin/sulbactam in such a circumstance.

Patients and methods
Our prospective study included 58 patients—33 males and 25 females aged 16 to 65 years (mean: 28.9)—who had been diagnosed with PTA. Children were excluded from our study because in our department, their treatment protocol is different from that of adults. Only patients with purulent material were included. The degree of severity of the presenting PTA symptoms was similar in the two groups.

All 58 patients underwent needle aspiration. To aspirate abscesses, we anesthetized the area with lidocaine spray and used an 18-gauge spinal needle attached to a 10-ml syringe. Patients were then randomly assigned to one of two groups—30 patients (mean age: 27.8 yr) received empiric intramuscular clindamycin at 600 mg twice a day on an outpatient basis, and the remaining 28 patients (mean age: 30.1 yr) received empiric intravenous ampicillin/sulbactam at 1 g four times daily while hospitalized. All patients received drug therapy for at least 7 days; those whose clinical
signs and symptoms had not resolved by then continued to receive antibiotic therapy until their signs and symptoms had resolved for 2 days. Repeat needle aspirations were performed as necessary. Following the end of treatment with their respective study drug, patients were switched to oral amoxicillin/clavulanate for 7 more days. The hospitalized patients were scheduled to be discharged 2 days following the resolution of all signs and symptoms.

Each day during treatment, all patients were assessed for the duration of fever (axillary temperature) and throat pain and for their ability to tolerate eating (>750 ml) during the preceding 8 hours. Statistical comparisons and analyses were performed according to the Mann-Whitney U test. The significance level was \( p = 0.05 \).

Results
A switch of medication was instituted for 4 patients who failed to respond to their initial agent, and their data were excluded from the final analysis. Two patients in the clindamycin group required a change of drug. One was switched to intramuscular ceftriaxone at 1 g twice a day. The other patient’s general health worsened during treatment, and he required hospitalization and a switch to ceftriaxone plus metronidazole. Two patients in the ampicillin/sulbactam group did not respond to their study medication alone, and metronidazole was added to their regimen.

For the remaining 54 patients, comparison of the data revealed that posttherapeutic outcomes were similar in the two groups (figure).

Fever. No statistically significant difference was observed in the mean period during which axillary temperature remained higher than 37°C—2.1 days in the clindamycin group and 2.0 days in the ampicillin/sulbactam group (\( z = 0.36; p = 0.35 \)).

Throat pain. The mean duration of posttherapeutic throat pain was 3.8 days in the clindamycin group and 3.5 days in the ampicillin/sulbactam group—again, not a significant difference (\( z = 0.73; p = 0.23 \)).

Oral intake. No statistically significant difference was observed in the mean length of time until patients were able to resume eating—4.5 and 4.7 days, respectively (\( z = -0.4; p = 0.32 \)).

Microbiologic growth was seen in 22 (37.9%) of the cultures. The two most common isolates were alpha-hemolytic streptococci and \textit{Streptococcus pyogenes} in that order. No change in antibiotic therapy was made on the basis of culture results. No patient in either group experienced a near-term recurrence (i.e., recollection of the abscess), a deep neck space infection, or \textit{Clostridium difficile} colitis.

Discussion
In patients with a throat infection, PTA can develop despite the administration of broad-spectrum oral antibiotics.\(^5\) Even when a patient has been taking oral penicillin for some time, antibiotic levels are frequently low in abscessed tonsils because fibrosis in the affected tonsillar or adjacent tissues has impared the blood supply to the tonsils. In such cases, a course of intramuscular or intravenous penicillin often brings about a rapid clinical improvement.\(^6\)

When measures to prevent PTA fail, the infection represents an otorhinolaryngologic emergency, and treatment must be started immediately. Many researchers and textbook authors have detailed the ideal management of PTA, and most have advocated hospitalization and intravenous antibiotics.\(^3,7\) However, hospitalization is undesirable from both a cost and convenience standpoint.

The three main surgical procedures available for the treatment of PTA are incision and drainage, needle aspiration, and quinsy tonsillectomy. Quinsy tonsillectomy was once the preferred procedure because of the widespread belief that it was associated with the quickest recovery,
but subsequent studies\textsuperscript{2,8,9} suggested that antibiotic therapy with either incision and drainage or needle aspiration was just as effective as quinsy tonsillectomy plus antibiotic therapy. In fact, the results of these studies indicated that no further surgical management for PTA was required following initial needle aspiration.\textsuperscript{9} In two separate articles published in 1991, Snow et al reported that the combination of needle aspiration and parenteral antibiotics is an effective treatment for peritonsillar sepsis, noting that it spares patients the painful experience of an incision and drainage procedure.\textsuperscript{9,10} We undertook our study to investigate if PTA can be effectively treated by needle aspiration and intramuscular antibiotic therapy on an outpatient basis.

\textbf{Antibiotic treatment.} Penicillin was once the choice of antibiotic for the treatment of PTA, but in recent years, the emergence of beta-lactamase-producing organisms has limited its use in this regard.\textsuperscript{3,11} In 1991, Brook et al published a study of 25 PTA specimens and reported that 13 (52\%) grew beta-lactamase-producing organisms.\textsuperscript{12} Group A beta-hemolytic streptococci have been classically associated with PTA, and they are universally penicillin-sensitive. However, penicillin-resistant aerobes and anaerobes as well as gram-negative organisms have also been detected in PTA cultures. Owing to improvements in our ability to obtain and preserve anaerobic cultures, an increasing number of anaerobic bacteria have been isolated from PTA cultures, including \textit{Bacteroides fragilis} and \textit{Bacteroides melaninogenicus}, a common oral anaerobe.\textsuperscript{13} Therefore, Brook et al believed that antibiotic therapy for PTA should be both penicillinase-stable and effective against anaerobes.\textsuperscript{12} In 1992, Parker and Tami reached a similar conclusion, and they indicated that cultures play no role in the management of PTA.\textsuperscript{11}

In view of the mixed flora that cause PTA and the increasing number of beta-lactamase-producing microorganisms, the use of antibiotics active against beta-lactamases has become more popular in clinical practice. Despite the expense of broad-spectrum antibiotics, they remain popular because of the many reports of the emergence of resistant strains of pathogens typically found in PTA (and as a result of subsequent marketing efforts). However, Kieff et al reported in 1999 that they found no significant difference in outcomes between patients who took penicillin and broad-spectrum antibiotics.\textsuperscript{7}

\textbf{Cost.} Ampicillin/sulbactam must be given four times a day when used intramuscularly or intravenously, but intramuscular clindamycin can be administered only twice a day. In Turkey, it is estimated that the daily cost of clindamycin is nearly $6 (U.S. currency), whereas ampicillin/sulbactam costs $30. Because treatment must be administered for at least 7 days, the minimum total costs are $42 and $210, respectively. Our data suggest that hospitalization for PTA is not associated with a better outcome; it only increases costs unnecessarily.

Most patients in our study responded to primary empiric antibiotic therapy, and very few required a change in antibiotics. For those who did require a change, the choice of the new antibiotic was not based on specific culture results; instead, the coverage was broadened empirically, suggesting that clinical cure is more significant than microbiologic cure and supporting the notion that routine culture of the aspirate is of relatively limited value.\textsuperscript{11,14} Therefore, we conclude that patients with PTA can be safely and effectively treated on an outpatient basis with needle aspiration and intramuscular clindamycin.

\textbf{References}