

Peritonsillar Abscess

Selçuk Kuzu¹, Erhan Bozkurt²¹Emirdağ State Hospital, Otorhinolaryngology Clinic, Afyonkarahisar, Turkey²Emirdağ State Hospital, Internal Medicine Clinic, Afyonkarahisar, Turkey

Case Report

*Corresponding author

Selçuk Kuzu

Article History

Received: 16.12.2017

Accepted: 20.12.2017

Published: 30.12.2017

DOI:

10.21276/sasjm.2017.3.12.6



Abstract: Peritonsillar abscess is the most common deep infection of the head and neck in adults, despite the widespread use of antibiotics for treating tonsillitis and pharyngitis. Although gram-positive bacteria are the most common causative microorganisms in peritonsillar abscess, gram-negative anaerobic bacteria have also been produced in cultures. Severe pain, including odynophagia and trismus, remains a common and troubling clinical symptom. The treatment of peritonsillar abscess requires both the selection of an appropriate antibiotic and an effective procedure to remove the abscess formation. In this review, peritonsillar abscess clinic and treatment options are discussed in the light of current literature.

Keywords: Peritonsillar abscess, etiology, symptoms, treatment

INTRODUCTION

Peritonsillar abscesses (PTA) are collections of purulent material that develop between the tonsillar capsule and parapharyngeal muscle tissue, and are the most frequent complications of acute tonsillitis [1]. Anatomically, tonsilla palatina is located in the fossa tonsillaris, which is formed by glossopalatin and pharyngeal muscles, respectively [2]. Minor salivary glands are present between the tonsil capsule and the muscle tissue of the tonsillar fossa [3]. Peritonsillar abscess is the most common deep infection of the head and neck in young adults, despite the widespread use of antibiotics for treating tonsillitis and pharyngitis. This infection can occur in all age groups, but the highest incidence is in adults 20 to 40 years of age [4,5].

The incidence in the community is about 30,000 in 100,000 [6-8]. It is more common in autumn and spring [9]. Generally after acute tonsillitis or peritonsillar cellulitis, infection begins by pus deposition in the space between the tonsillar capsule and superior constrictor pharyngeal muscle and infection is usually spread through the tonsillar capsule of the upper pole [7-9]. These patients mostly refer to an otorhinolaryngology clinic [7,8,10]. Today, the risk of developing complications related to this disease is significantly reduced. If untreated, large vessels are at risk of serious complications such as thrombosis, mediastinitis, pericarditis, pneumonia, and upper respiratory tract obstruction [8,10,11]. In addition, there are cases of bacteremia, lung abscess, septic shock, endocarditis, meningitis and osteomyelitis usually seen in immunosuppressed patients. In this review, peritonsillar abscess clinic and treatment options are discussed in the light of current literature.

Etiology

The most common bacteria isolated from abscess materials are *Streptococcus pyogenes*, *Peptostreptococci*, *Fusobacterium* spp. and *Prevotella* spp. respectively [12]. Although gram-positive bacteria

are the most common causative microorganisms in peritonsillar abscess, gram-negative anaerobic bacteria have also been produced in cultures [13]. Pathogens that play a role in the development of peritonsillar abscesses show antibiotic resistance at different levels, resulting in unresponsiveness to treatment and causing complications. A recent review implicates Weber's glands as playing a key role in the formation of peritonsillar abscesses [3,14]. This group of 20 to 25 mucous salivary glands are located in the space just superior to the tonsil in the soft palate and are connected to the surface of the tonsil by a duct [3]. The glands clear the tonsillar area of debris and assist with the digestion of food particles trapped in the tonsillar crypts. If Weber's glands become inflamed, local cellulitis can develop. As the infection progresses, the duct to the surface of the tonsil becomes progressively more obstructed from surrounding inflammation. The resulting tissue necrosis and pus formation produce the classic signs and symptoms of peritonsillar abscess [15].

Clinical Presentation and Diagnosis

With the very obvious symptomatology, peritonsillar abscesses can easily be diagnosed [16,17].

Patients with peritonsillar abscess appear ill and present with fever, malaise, sore throat, dysphagia, or otalgia [18]. Despite widespread use of antibiotics and surgical procedures for treating PTAs, severe pain, including odynophagia and trismus, remains a common and troubling clinical symptom [19,20]. Odynophagia is caused by inflammation of the superior constrictor muscle of the pharynx, which forms the lateral wall of the tonsillar fossa. Trismus is mainly due to inflammation and spasm of the medial pterygoid muscle. As a result of the spasm and pain, patients are unable to open their mouths and swallow saliva and drink; thus, dehydration can occur. Additionally, systemic signs such as fever may be present [21]. Inspection of the oropharynx reveals tense swelling and erythema of the anterior tonsillar pillar and the soft palate overlying the infected tonsil. The tonsil is generally displaced inferiorly and medially with contralateral deviation of the uvula [18] (Figure 1).

Needle aspiration is the gold standard for the diagnosis of peritonsillar abscess [4]. Pathologies in the differential diagnosis should be considered and ruled out in case of pus free puncture. Neoplasms such as lymphoma or leukemia, infectious mononucleosis, dental infections, and cervical lymphadenitis, which may create a clinical picture similar to peritonsillar abscess due to symptoms and findings, should be considered in the differential diagnosis. Intraoral ultrasonography has been proposed by many authors in recent years as a non-invasive and efficacious method of detecting peritonsillar abscesses [4,22,23,24]. However, in many cases the presence of trismus can make intraoral ultrasonography difficult to use [22]. Computed Tomography is extremely useful for differential diagnosis in the identification of abscess formation [4,23,24].



Fig-1: Peritonsillar abscess at left side.

Treatment

The treatment of peritonsillar abscess requires both the selection of an appropriate antibiotic and an effective procedure to remove the abscess formation. However, it is also important to focus on and resolve the severe inflammatory and spasmodic components of the disease because the spasm produces severe pain that prevents the mouth from opening fully, and hence the patients are unable to eat or drink [5].

Despite the fact that penicillin is the first choice for peritonsillar abscess treatment, the choice of antibiotics has changed due to the emergence of beta-lactamase producing organisms in recent years [25]. The use of 500 mg clindamicine (two doses daily), second or third generation cephalosporin is recommended instead of penicillin [26]. In another study, Prior and colleagues suggest that if penicillin fails to respond within the first 24 hours, treatment should include adding metranidazole (two doses of 500 mg daily) [27].

Surgical incision and drainage, needle puncture and aspiration from three points, emergency tonsillectomy are used in the treatment. Emergency tonsillectomy is not frequently performed nowadays because of the increased risk of bleeding [26]. Guy de Chauillac first performed drainage with incision in 1362 [9]. Needle aspiration and drainage became popular in the United States in the 1980s [15]. In a large number of studies, peritonsillar abscess treatment, needle aspiration, incision and drainage were compared. In these studies, mean hospital stay was 2.9-4.4 days in the needle aspiration group and 3.6-4.1 days in the incision group [10,28,29]. Abscess drainage is the most important step in the treatment of peritonsillar abscesses. The method used for this is still controversial in the world. Some studies have suggested that needle aspiration is inadequate [30,31]. In contrast, Herzon stated that drainage with needle aspiration was 96% successful and could be used as a single drainage

procedure, while incision drainage could be used as an alternative in case of failure [32].

Corticosteroids are frequently used in a wide range of otolaryngologic conditions to overcome the inflammation process because of their strong antiinflammatory and antiedematous effects [33]. Corticosteroids also have a strong antipyretic effect. Steroids are regularly used to reduce upper aerodigestive tract edema resulting from trauma, surgery, infection, and anaphylaxis. Corticosteroid use as adjunctive therapy for other upper aerodigestive tract infections such as pharyngitis, epiglottitis, and tonsillitis is common. A recent meta-analysis reported that corticosteroids provided symptomatic relief of pain in sore throat, in addition to antibiotic therapy, mainly in participants with severe or exudative sore throat [6]. Although steroids have been used to treat edema and inflammation in other otolaryngologic diseases, their role in the treatment of PTAs has not been extensively studied. A recent study showed that a single intravenous dose of steroids, when used with antibiotics, might have positive effects on the clinical course of PTAs [35].

The overall risk of developing a second peritonsillar abscess is approximately 10 to 15 percent [36]. Up to 30 percent of patients with a peritonsillar abscess meet the criteria for tonsillectomy. This operation may be delayed until the abscess has resolved [32].

CONCLUSION

In conclusion, peritonsillar abscesses, which are the most common deep infections of the head and neck region, have potential hazards; incision and drainage in cases of apparent abscess formation and needle puncture and aspiration in cases where abscess formation is not complete will be sufficient as surgical treatment. Combination use of injectable penicillin group drugs with metronidazole appears to be the most appropriate option. Also, as corticosteroids reduce edema and pain, they are among the treatment options in peritonsillar abscess patients. Patients with dehydration and poor general condition should be hospitalized and given appropriate supportive treatment.

REFERENCES

1. Edinger JT, Hilal EY, Dastur KJ. Bilateral peritonsillar abscesses: a challenging diagnosis, *Ear, Nose and Throat Journal*, 2007, 86(3): 162–163.
2. Hollinshead WH. *Anatomy for surgeons*. 3d ed. Philadelphia: Harper & Row, 1982.
3. Passy V. Pathogenesis of peritonsillar abscess. *Laryngoscope*, 1994; 104: 185-190.
4. Steyer TE. Peritonsillar abscess: diagnosis and treatment [Published correction appears in *Am Fam Physician*. 2002;66(1):30]. *Am Fam Physician*. 2002;65(1):93-96.
5. Khayr W, Taepke J. Management of peritonsillar abscess: needle aspiration versus incision and drainage versus tonsillectomy. *Am J Ther*. 2005;12(4):344-350.
6. Johnson RF, Stewart MG. The contemporary approach to diagnosis and management of peritonsillar abscess. *Curr Opin Otolaryngol Head Neck Surg*. 2005;13(3):157-60.
7. Petruzzelli GJ, Johnson JT. Peritonsillar abscess--why aggressive management is appropriate. *Postgrad Med*. 1990;88(2):99-108.
8. Spires JR, Owens JJ, Woodson GE, Miller RH. Treatment of peritonsillar abscess. A prospective study of aspiration vs incision and drainage. *Arch Otolaryngol Head Neck Surg*. 1987;113(9):984-6.
9. Richardson KA, Birck H. Peritonsillar abscess in the pediatric population. *Otolaryngol Head Neck Surg* 1981;89(6):907-9.
10. Alroud SA, Aljfout MQ, Almomani S, Nahleh ELA, Alnawaiseh ST. Peritonsillar abscess management; needle aspiration versus incision and drainage, comparison of outcomes. *Int J Biol Med Res*. 2012;3(4):2545-7.
11. Khan Q, Hamza A, Haleem G, Wahid F. Comparative study of management of peritonsillar abscess by needle aspiration versus incision and drainage. *Pak J Med Health Sci*. 2011;5(4):699-701.
12. Brook I, Frazier EH, Thompson DH. Aerobic and anaerobic microbiology of peritonsillar abscess. *Laryngoscope*. 1991;101:289-92.
13. Megalamani SB, Suria G, Manickam U, Balasubramanian D, Jothimahalingam S. Changing trends in bacteriology of peritonsillar abscess. *J Laryngol Otol*. 2008; 122(9): 928 30.
14. Herzon FS, Martin AD. Medical and surgical treatment of peritonsillar, retropharyngeal, and parapharyngeal abscesses. *Curr Infect Dis Rep*. 2006;8(3):196-202.
15. Brook I. Microbiology and management of peritonsillar, retropharyngeal, and parapharyngeal abscesses. *J Oral Maxillofac Surg*. 2004; 62(12):1545-1550.
16. Sennaroğlu L, Ayas K. Peritonsillar, parafaringeal ve retrofaringeal apseler. *Katkı Pediatri Dergisi*. 1993; 6:538-543.
17. Zalzal GH, Cotton RT. Adenotonsillar Disease; In *Otolaryngology Head and Neck Surgery*. Vol: 2, Ed; Frederickson JM, Harker LA, Krause CJ, Schuller DE. The C. V. Mosby Company. Toronto. 1996; 1189-1212.
18. Galioto, Nicholas J. Peritonsillar Abscess. *American family physician*. 2008; 95(8): 501-506.
19. Chau JK, Seikaly HR, Harris JR, Villa-Roel C, Brick C, Rowe BH. Corticosteroids in peritonsillar abscess treatment: a blinded placebo-controlled clinical trial. *Laryngoscope*. 2014 Jan;124(1):97-103.

20. Powell EL, Powell J, Samuel JR, Wilson JA. A review of the pathogenesis of adult peritonsillar abscess: time for a re-evaluation. *J Antimicrob Chemother.* 2013 Sep;68(9):1941-50.
21. Shaikh KR. Treatment of peritonsillar abscess and role of steroids. *J Liaquat Univ Med Health Sci.* 2008 Jan-Apr;7(1):31-3.
22. Strong EB, Woodward PJ, Johnson LP Intraoral ultrasound evaluation of peritonsillar abscess. *Laryngoscope.* 1995;105(8 pt 1):779-82.
23. Boesen T, Jensen F. Preoperative ultrasonographic verification of peritonsillar abscesses in patients with severe tonsillitis. *European archives of oto-rhino-laryngology.* 1992 May 1;249(3):131-3.
24. Buckley AR, Moss EH, Blokmanis A. Diagnosis of peritonsillar abscess: value of intraoral sonography. *AJR. American journal of roentgenology.* 1994 Apr;162(4):961-4.
25. Parker CG, Tami TA. The management of peritonsillar abscess in the 90s: an update. *American journal of otolaryngology.* 1992 Sep 1;13(5):284-8.
26. Maharaj D, Rajah V, Hemsley S. Management of peritonsillar abscess. *The Journal of Laryngology & Otology.* 1991 Sep;105(9):743-5.
27. Prior A, Montgomery P, Mitchelmore I, Tabaqchali S. The microbiology and antibiotic treatment of peritonsillar abscesses. *Clinical Otolaryngology.* 1995 Jun 1;20(3):219-23.
28. Kulkarni V, Patel T. Management of Peritonsillar Abscess: comparative prospective study of Needle aspiration and Incision & Drainage in central Indian Population. *Asian Journal of Biomedical and Pharmaceutical Sciences.* 2013;3(18):61-3.
29. Tyagi V, Kaushal A, Garg Deepika, Samistha De, Nagpure P. Treatment of peritonsillar abscess-A prospective study of aspiration versus incision and drainage. *Calicut Medical Journal.* 2011;9(3):e3.
30. Wolf M, Even-Chen I, Kronenberg J. Peritonsillar abscess: repeated needle aspiration versus incision and drainage. *Ann Otol Rhinol Laryngol.* 1994;103(7):554-7.
31. Ophir D, Bawnik J, Poria Y, Porat M, Marshak G. Peritonsillar abscess. A prospective evaluation of outpatient management by needle aspiration. *Arch Otolaryngol Head Neck Surg.* 1988;114(6):661-3.
32. Herzon FS. Peritonsillar abscess: incidence, current management practices, and a proposal for treatment guidelines. *Laryngoscope.* 1995(8);105:1-17.
33. Cope D, Bova R. Steroids in otolaryngology. *Laryngoscope.* 2008 Sep;118(9):1556-60.
34. Hayward G, Thompson M, Heneghan C, Perera R, Del Mar C, Glasziou P. Corticosteroids for pain relief in sore throat: systematic review and meta-analysis. *BMJ.* 2009 Aug;339:b2976.
35. Lee YJ, Jeong YM, Lee HS, Hwang SH. The efficacy of corticosteroids in the treatment of peritonsillar abscess: a meta-analysis. *Clin Exp Otorhinolaryngol.* 2016;9(2):89-97.
36. Johnson RF, Stewart MG, Wright CG. An evidence-based review of the treatment of peritonsillar abscess. *Otolaryngol Head Neck Surg.* 2003;128(3):332-343.