

CASE REPORT

Chronic Temporal Abscess as A Result of Mandibular Molar Extraction: Case Report

Adnan Kılınc¹, Nesrin Saruhan¹, Tahsin Tepecik¹, Muhammed Salih Karaavcı¹, Ümit Ertaş¹

¹ Department of Oral and Maxillofacial Surgery, Ataturk University, Faculty of Dentistry, Erzurum/Turkey

Received: 23 January 2016 accepted: 09 April 2016/ published online: 27 April 2016
© Ordu University Institute of Health Sciences, Turkey, 2016

Abstract

Temporal space infections are seen as a swelling of the superficial and/or deep temporal regions. They are sporadically reported and usually develop before or after extraction of infected maxillary molars. A 50-year-old woman had undergone extraction of her mandibular right second molar tooth in a different clinic, and after a month she visited our department because of the temporal and buccal space abscess which had not responded the antibiotic therapy. Painful swelling and trismus were diagnosed on her right temporal and buccal region with a general malaise. A CT scan revealed an inflammatory area into the temporal and buccal space. Treatment with surgical intervention and intramuscular penicillin G did not provide improvement. Antibiotic was switched on to moxifloxacin 400 mg in a day orally for 7 days. After this treatment, both temporal and facial swellings, trismus and her malaise were completely resolved.

Key words: Temporal space abscess, odontogenic infection, antibiotherapy.

Introduction

Temporal space infections are seen as a swelling of the superficial and/or deep temporal regions. Superficial temporal space is lateral to the temporalis muscle and medial to the temporal fascia whereas the deep temporal space is between the temporalis muscle and temporal bone (de Oliveira Neto et al., 2012). When superficial temporal space is inflamed, the distinctive “hourglass” appearance of a face appears clinically as a result of the tight connection of the temporal fascia to the zygomatic arch. Infections of odontogenic origin are one of the causes of temporal space abscess and if left untreated, infection can progress and cause a multitude of complications including cranial osteomyelitis and mediastinitis (Diacono & Wass, 1998; Adams & Bryant, 2008).

Address for correspondence/reprints:
Nesrin Saruhan

E-mail address: dt_nesrin@yahoo.com

Phone: 0090 442 231 18 01

DOI: 10.19127/mbsjohs.38360

Treatment for odontogenic abscess consists of surgical drainage and broad-spectrum antibiotics. Temporal space infections resulting from odontogenic origin are not uncommon but they are relatively rare conditions as compared to the close anatomic spaces like buccal and submandibular spaces. This case report describes a case of abscess formation in the temporal and buccal region after extraction of mandibular second molar, and its treatment with moxifloxacin.

Case

A 50-year-old female patient was referred to the Department of Oral and Maxillofacial Surgery, Ataturk University Faculty of Dentistry, with pain and swelling in the right temporal and buccal region. Tracing back the history, the patient had extracted her mandibular right second molar approximately a month ago in a different clinic. After 2 weeks of extraction, she again visited her dentist, complaining about swelling and tenderness on the right side of her face and she was prescribed combination of amoxicillin 875 mg / clavulanic acid 125 mg and metronidazole 500 mg twice a day, for a week. During antibiotic therapy there were no signs of resolution of the facial infection and no alleviation of the complaints. A month after the first extraction visit, she was referred to our department. Physical examination of her face demonstrated severe trismus, pain, and swelling in both temporal and buccal region with malaise but no fever (Fig. 1). Computerized tomography scan revealed the swollen inflammatory facial spaces (Fig. 2). She was diagnosed to have chronic buccal and temporal abscess, resulting from a dental infection. Treatment was continued for five days consisting of intramuscular procaine penicillin G potassium 800.000/IU twice a day. At the second day of the intramuscular antibiotic therapy, incision and drainage of the abscess was performed but the clinical course of the patient was not fulfilling. After discharge, the patient was consulted to Department of Infectious Disease and antibiotic was switched on to moxifloxacin 400 mg in a day orally for 7 days. After this treatment, temporal and facial swellings, trismus and her malaise were completely resolved (Fig. 3).



Figure 1: Typical hourglass appearance of temporal space abscess is seen. Note that the buccal space was also been affected.



Figure 2: CT scan demonstrated expanded facial space of buccal and temporal area compared to left side of her face.



Figure 3: Resolved signs of odontogenic infection after treatment with moxifloxacin.

Discussion

Dental infections resulting before or after tooth extraction are complications in which the maxillofacial surgeon may have to initiate an earlier management. The severe dental infections resulting before or after this procedure is one of the few life-threatening complications in which the maxillofacial surgeon may have to initiate an earlier management. The temporal space infections are rare and infrequently reported. It has also been observed secondary to maxillary sinusitis, maxillary sinus fracture, temporomandibular arthroscopy, and drug injection, although more commonly associated to molar infections. Temporal space infections usually develop before or after extraction of infected maxillary molars (de Oliveira Neto, et al., 2012). It, however, can also be seen after extractions of mandibular molars as in our case and in several case reports (Kuroda, Kaneko, & Yamasaki, 1994; Morrison & Brady, 2009).

Most odontogenic infections are usually mild and were treated successfully with surgical intervention. Swelling of the maxillofacial region resulting from odontogenic infections requires drainage by intraoral or extraoral incision if dental extraction or endodontic therapy is insufficient to do so. In addition, in the case of rapidly spreading cellulitis and/or impaired host defenses, antibiotic administration should be considered. In our case, prior administration of amoxicillin and clavulanic

acid combination, and metronidazole in a different clinic did not provide relief of the symptoms. This situation can be attributed to lack of surgical intervention. However, incision and drainage during intramuscular penicillin G administration also did not help resolving of swelling and trismus. One possible explanation might be the patient's low socioeconomic status and related possible malnutrition. It has been reported that people living in deprived regions are more susceptible to odontogenic infections than others (Moles, 2008). These might affect the overall host resistance and prognosis unfavorably. Unfortunately, we did not take microbiological sample but another cause might be the possible penicillin resistant microorganism. High penicillin resistance in severe odontogenic infections has been addressed in a study by Flynn et al. and they have pointed out that this situation leads to therapeutic failure (Flynn et al., 2006). Moxifloxacin is a member of the fluoroquinolone group antibiotics, and interferes with bacterial DNA metabolism and is bactericidal. There are studies showing its excellent in vitro activity against odontogenic pathogens obtained from odontogenic abscess compared to the antibiotics usually employed like amoxicillin-clavulanic acid, clindamycin and doxycycline (Sobottka et al., 2002; Warnke et al., 2008). However, most species obtained from odontogenic infections are still susceptible to traditional penicillin, and moxifloxacin should be considered as a second line therapy to penicillin V and clindamycin (Gregoire, 2010; Warnke, et al., 2008). We have chosen to administer moxifloxacin because long-standing and ineffective previous treatment course made the patient somewhat impatient and reluctant to further continue the treatment. After treatment with moxifloxacin, swelling and trismus was resolved and her malaise was rapidly decreased.

Conclusion

Surgical therapy and appropriate antibiotic coverage for the treatment of a severe odontogenic infections generally result in recession of symptoms, but penicillin resistant bacteria interferes with the treatment process and overall success of the healthcare professional. We could not obtain bacterial culture for sensitivity testing but we recommend it if traditional antibiotic regimens fail to achieve the desired effect.

Informed Consent: Patient release form was obtained.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept A.K., Design A.K., Supervision Ü.E., Materials A.K., Data Collection and/or Processing T.T.; Analysis and/or Interpretation N.S.; Literature Review M.S.K.; Writing N.S; Critical Review A.K., Ü.E., NS.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study hasn't received no financial support.

References

- Adams, J. R., & Bryant, D. G. Cranial osteomyelitis: a late complication of a dental infection. *Br J Oral Maxillofac Surg* 2008; 46(8), 673-674. doi: 10.1016/j.bjoms.2008.03.025
- de Oliveira Neto, P. J., de Souza Maliska, M. C., Sawazaki, R., Asprino, L., de Moraes, M., & Moreira, R. W. Temporal abscess after third molar extraction in the mandible. *Oral Maxillofac Surg* 2012; 16(1), 107-110. doi: 10.1007/s10006-011-0262-0
- Diacono, M. S., & Wass, A. R. Infratemporal and temporal fossa abscess complicating dental extraction. *J Accid Emerg Med* 1998; 15(1), 59-61.
- Flynn, T. R., Shanti, R. M., Levi, M. H., Adamo, A. K., Kraut, R. A., & Trieger, N. Severe odontogenic infections, part 1: prospective report. *J Oral Maxillofac Surg* 2006; 64(7), 1093-1103. doi: 10.1016/j.joms.2006.03.015
- Gregoire, C. How are odontogenic infections best managed? *Journal of the Canadian Dental Association*. 2010.
- Kuroda, M., Kaneko, M., & Yamasaki, M. Temporal abscess due to odontogenic infection: Report of a case. *Oral Radiology* 1994; 10(1), 49-53.
- Moles, D. R. Epidemic of dental abscesses?: Dental abscesses have increased most among poorer people. *BMJ*, 2008; 336(7657), 1323. doi: 10.1136/bmj.39605.430243.3A
- Morrison, A., & Brady, J. Temporal space abscess secondary to mandibular dental extraction. *Oral Health* 2009; 99(6), 17.
- Sobottka, I., Cachovan, G., Sturenburg, E., Ahlers, M. O., Laufs, R., Platzer, U., & Mack, D. In vitro activity of moxifloxacin against bacteria isolated from odontogenic abscesses. *Antimicrob Agents Chemother* 2002; 46(12), 4019-4021.
- Warnke, P. H., Becker, S. T., Springer, I. N., Haerle, F., Ullmann, U., Russo, P. A., . . . Schubert, S. Penicillin compared with other advanced broad spectrum antibiotics regarding antibacterial activity against oral pathogens isolated from odontogenic abscesses. *J Craniomaxillofac Surg* 2008; 36(8), 462-467. doi: 10.1016/j.jcms.2008.07.001
-