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Epidemiological Analysis and Management of Patients with Facial Space Infections of Odontogenic Origin: A Retrospective Evaluation of Two Years

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ABSTRACT

Objective: Odontogenic infections are one of the most common pathologies in the oral and maxillofacial regions. The spread of odontogenic infections after unsuccessful or late treatment can lead to serious complications. The aim of this study is to examine the epidemiological features and treatment management of patients with odontogenic facial abscesses.

Methods: This retrospective study included 88 patients with odontogenic facial area abscesses treated at Afyonkarahisar health sciences university, faculty of dentistry's maxillofacial surgery clinic between 2019-2021. The socio-demographic, socio-economic characteristics and clinical examination findings of the patients and treatment methods for odontogenic abscess were analyzed comprehensively. Data were evaluated using SPSS-20 and the level of significance was set at $p < .05$.

Results: In the two-year period between 2019 and 2021, 88 patients (44 male and 44 female, mean age was 39.72±16.42) were treated for diffuse facial infections of odontogenic origin. The most commonly involved area was the submandibular area (38.6%), the most affected tooth was mandibular 1st molar and mandibular 3rd molars (18.2%), and the most common cause was dental caries (65.90%). Incision and drainage were performed in half of the patients (36.4% intraoral, 13.6% extraoral). The most commonly used drugs were clindamycin (36.4%), amoxicillin-clavulanate, and ornidazole combination (27.3%).

Conclusion: The results of this study confirm that odontogenic abscesses can heal without complications with timely and effective basic interventions such as incision and drainage. In this study, successful results were obtained with the parenteral clindamycin, and a combination of oral amoxicillin-clavulanate and ornidazole in the treatment of odontogenic abscesses.

Keywords: Epidemiological analysis, facial area abscess, odontogenic infection, treatment management.

1. INTRODUCTION

Odontogenic infections are one of the most prevalent pathologies in the oral and maxillofacial regions. Caries or nonvital teeth, postoperative infections, pericoronitis, and periodontal diseases can cause odontogenic infections (1). Odontogenic infections are usually self-limiting and localized, but can sometimes develop into devastating polymicrobial infections that rapidly spread from the facial cavities or deep planes of the neck into the mediastinum, pleural cavities, and pericardium (2,3). Serious complications following odontogenic infection are uncommon, thanks to modern diagnosis and treatment, and only occur where predisposing factors are present (4). Predisposing factors for odontogenic infections include long-term diabetes mellitus, radiation therapy, chemotherapy, Human Immunodeficiency Virus (HIV) infection, immunosuppression drug use, and chronic alcohol abuse (5,6). The spread of odontogenic infection, as well as the patient's decreased immune competence, may be caused by specific virulence and synergistic effects of aerobic and anaerobic microorganisms (7).

Odontogenic infections can vary in severity from minor localized infections to severe, life-threatening infections (8). A mortality rate ranging from 10% to 40% after an odontogenic infection has been recorded in the pre-antibiotic era. The prognosis of odontogenic infections has greatly improved since the advent of antibiotics. However, with the elimination of the odontogenic focus, surgical incision and drainage remain the basis of treatment (9). Most patients recover completely after adequate surgical treatment with appropriate antibiotics administration and removal of the odontogenic focus (10). The spread of odontogenic infections after unsuccessful or late treatment can lead to serious complications such as necrotizing mediastinitis, necrotizing fasciitis, septic shock, multiorgan failure, and death (11).

The treatment of odontogenic abscesses follows a universally accepted protocol that involves the elimination of the reason, abscess drainage, and antibiotic therapy. The treatment of serious odontogenic infections necessitates early detection and an interdisciplinary approach. According to Flynn (12),

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the basic principles in the management of odontogenic abscesses are: 1) determining the severity of the infection, 2) evaluation of the patient's body defense mechanisms, 3) early determination of whether the patient can be treated by a general dentist or to be referred to an oral and maxillofacial surgeon, 4) eliminating the cause of the infection with endodontic treatment or removing the tooth that caused the infection, 5) abscess or in the case of cellulitis, incision and drainage, if necessary culture and antibiotic sensitivity test, 6) medical support of the patient, 7) appropriate antibiotic prescription and appropriate antibiotic management, and 8) frequent evaluation and follow-up of the patient. Early diagnosis, control of the airway, and rapid surgical treatment are very important in the treatment of an odontogenic abscess (13). The aim of this study is to comprehensively examine the epidemiological characteristics and treatment management of patients with odontogenic facial abscesses.

2. METHODS

This retrospective study was carried out on patients with odontogenic facial abscess of odontogenic origin at the department of oral and maxillofacial surgery, faculty of dentistry, Afyonkarahisar health sciences university, between January 1, 2019, and December 31, 2020. The study was approved by the Afyonkarahisar health sciences university, clinical research ethics committee (2020/13 – 504) and was conducted in accordance with the principles of the Helsinki Declaration.

Eighty-eight patients who were evaluated using diagnosis and follow-up forms prepared for patients with odontogenic abscess were included in the study. Clinical, laboratory, and radiological file records of the patients were examined. Thise form included the patient's socio-demographic data, socio-economic data, the patient's medical history, symptoms, clinical examination findings, radiological findings, drug therapy, surgical treatment processes, and follow-up findings (see form example in appendix 1). Patients with non-odontogenic facial area abscesses and patients with incomplete patient file records were excluded from the study.

Statistical analysis of the data was performed using version 20 of the SPSS statistical program (SPSS Inc, Chicago, IL, USA). Mean and standard deviation values were given in the descriptive statistics of continuous data, and number and percentage values were given in nominal data. The normal distribution of data was evaluated using the Kolmogorov Smirnov test. Continuous data that were found to fit normal distribution were analyzed by student's t-test. When comparing categorical variables, Fisher's exact test was employed. A p-value below 0.05 was considered significant.

3. RESULTS

3.1. Sociodemographic and Socioeconomic Characteristics

Between 2019 and 2020, 88 patients, 44 male, and 44 female, were admitted to the oral and maxillofacial surgery clinic due to odontogenic-induced facial area abscesses. The age range of the patients was between 12 and 67 (mean age was 39.72±16.42). The majority of patients (40.9%) were aged 50-59 years (Figure 1). When the participants were examined in terms of educational status, high school graduates were in the majority (36.4%), followed by secondary and primary school graduates. When the occupations of the participants are examined, the largest group is housewives (31.8%) and workers (27.3%). Most of the participants (77.3%) were married. 72.7 % of the participants lived in cities, and in total, 54.5% of the participants had their own homes. Most of the participants (%63.6) had a monthly income between 2.000 and 4.000 TL. When the participants were examined in terms of the number of children, those with two children (40.9%) constituted the largest group (Table 1).

Table 1. *Socio-demographic and socio-economic characteristics*

	n	%
Gender		
Female	44	50
Male	44	50
Education Status		
İlliterate	4	4.5
Primary school	24	27.5
Secondary school	24	27.5
High school	32	36.4
University	4	4.5
Working status		
Student	12	13.6
Housewife	28	31.8
Farmer	4	4.5
Self employment	8	9.1
Worker	24	27.3
Civil servant	12	13.6
Marital status		
Married	68	77.3
Single	20	22.7
Place of residence		
City	64	72.7
Village	24	27.3
Living place		
Own house	48	54.5
House for rent	16	18.2
Country house	24	27.3
Monthly income		
<2000 TL	24	27.3
2.000-4.000 TL	56	63.6
4000-6.000 TL	8	9.1
Number of children		
No children	20	22.7
One child	8	9.1
Two children	36	40.9
Three children	20	22.7
More than three children	4	4.5
Total	88	100

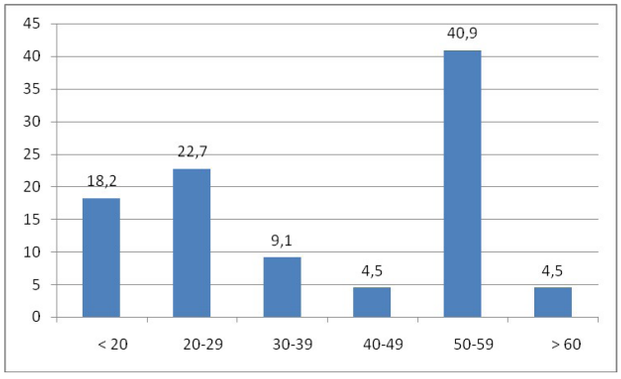

Figure 1. *Distribution of the age ranges of the participants*

Table 2. *Clinical characteristics of the participants*

	n	%
Presence of systemic disease		
Yes	36	40.9
No	52	59.1
Brushing frequency		
< Once / day	28	31.8
Once / day	36	40.9
Twice / day	24	27.3
Smoking		
Yes	36	40.9
No	52	59.1
Duration of symptoms in days		
1 day	4	4,5
2 days	28	31,8
3 days	16	18,2
4 days	4	4,5
5 days	16	18,2
7 days	8	9,1
>10 days	12	13.5
Referral source		
No (Direct application)	12	13.6
Family doctor	12	13.6
Emergency clinic	8	9.1
Dental practitioner	40	45.5
Other clinics	8	9.1
Application to multiple locations	8	9.1
Prognosis		
Acute	64	72.7
Chronic	24	27.3
Underlying dental pathology		
Caries	58	65.9
Post-endodontic	9	10.22
Pericoronitis	16	15.9
Post-extraction	4	4.54
Cysts	2	2.27
Periimplantitis	1	1.13
Total	88	100

3.2. Clinical Signs and Symptoms

The clinical characteristics of the participants were given in Table 2. Forty-point nine percent of the participants had at least one systemic disease in this study. It was observed that the oral hygiene status of the patients was generally poor. Thirty-one point eight percent of the patients did not brush their teeth even once a day and 40.9% of them were smokers. Thirty-one point eight percent of the patients applied on the 2nd day of their symptoms. Only 13.6% of the patients applied directly to the oral and maxillofacial surgery clinic. 72.7% of diffuse facial area abscesses were acute. When the underlying pathology of odontogenic abscesses was examined, dental caries (65.9%), pericoronitis (15.9%), and post-endodontic causes (10.22%) were the top three. The most involved facial spaces were submandibular (38.6%) and fossa canina (22.7%) respectively (Figure 2). When the teeth causing odontogenic abscess were examined, mandibular 1st molar teeth and mandibular 3rd molars were in the first place with a rate of 18.2%, followed by maxillary canine teeth and mandibular 2nd molars with 13.6%. (Figure 3). The most common symptoms in patients with odontogenic abscess were swelling (100%), pain (77.27%), and trismus (63.63%) respectively (Figure 4). In most patients, most of these symptoms occurred together.

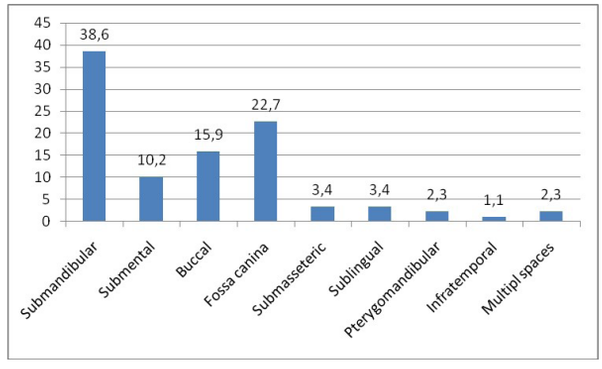

Figure 2. *Percentage of spaces involved in the odontogenic infections*

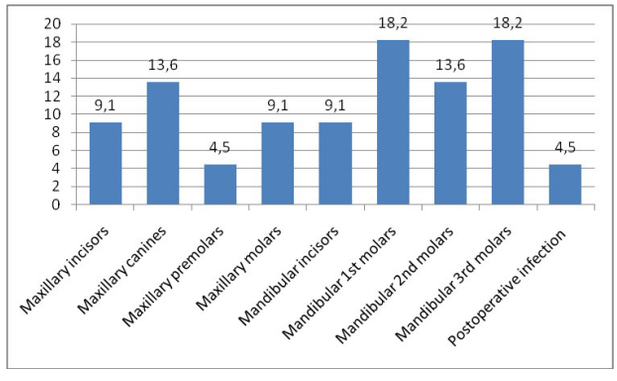

Figure 3. *Percentage of involved teeth in the odontogenic infections*

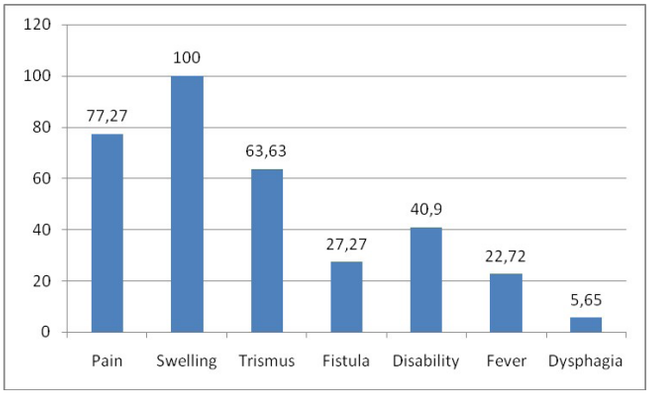

Figure 4. *Percentage distribution of odontogenic abscess signs and symptoms.*

3.3. Treatment Management

Treatment methods applied to patients with odontogenic facial abscesses were given in Table 3. While antibiotic treatment was applied to all patients, surgical treatment consisting of incision and drainage was applied in half. The incisions were performed intraorally in 36.4% of patients, and extra orally in 13.6% of patients. A drain was placed in the majority of patients who underwent drainage by incision, and the drain was removed 48 hours later. In addition to these treatments, the teeth responsible for abscesses were extracted in 63.6% of patients, and root canal treatment was applied to these teeth (especially canine teeth) in 27.3% of patients. After root canal treatment, these teeth were followed for possible apical surgery indication. In 9.1% of the cases, curettage was applied to the alveolar socket.

Patients were treated with broad-spectrum antibiotics, no antibiogram test was performed in any of the patients. Clindamycin was administered parenterally in 36.4% of the patients, while a combination of amoxicillin-clavunate, and ornidazole was administered in 27.3%. In 22.7% of the patients, treatment with clindamycin was started first in the acute period and then continued with a combination of amoxicillin-clavulanate and ornidazole. When analgesic and anti-inflammatory preferences were examined, it was seen that parenterally administered diclofenac was the first choice (40.9%). This was followed by orally administered naproxen sodium (18.2%), dexketoprofen (15.9%), and etodolac (13.6%). Almost all of the patients (96.6%) were treated on an outpatient basis. Infection was more severe in three of the patients, and they were hospitalized to closely monitor the patient's systemic condition. All patients were treated without any problems, and no death or serious complications occurred.

In this study, it was investigated whether there is a relationship between the age and systemic disease status of the patients, the prognosis of odontogenic abscesses, and some clinical findings(fistula and trismus). In the study, it was observed that the age and systemic disease status of the patients were not associated with the prognosis of odontogenic abscess (acute/chronic) (p= .853 and p= .206, respectively). There was no significant relationship between fistula and trismus status and the age of the patients (p= .932 and p= .420, respectively). In addition, no statistically significant relationship was found between fistula and trismus status and systemic disease status in patients (p= .262 and p= .397, respectively).

Table 3. *Treatment methods and drugs used in odontogenic abscesses*

Treatment management	n	%
Medication	88	100
Incision and drainage	44	50
Intraoral incision	32	36.4
Extraoral incision	12	13.6
Other treatments		
Tooth extraction	56	63.6
Endodontic treatment	24	27.3
Curettage	8	9.1
Treatment modality		
Outpatient treatment	85	96.6
Inpatient treatment	3	3.4
Antibiotics and analgesics used in treatment		
Antibiotic drugs		
Amoxicilin-clavulanate	6	6.8
Clindamycin	32	36.4
Sefuroksim	4	4,5
Amoxicilin-clavulanate +ornidazole	24	27.3
Ampcilin-sulbactam	2	2.3
Clindamycin and Amoxicilin-clavulanate +ornidazole	20	22.7
Analgesics and anti-inflammatory drugs		
Deksketoprofen	14	15.9
Diklofenak	36	40.9
Flurbiprofen	8	9.1
Naproksen sodyum	16	18.2
Etodolak	12	13.6
İbuprofen	2	2.3
Total	88	100.0

4. DISCUSSION

Odontogenic abscesses, which are frequently seen in the maxillofacial region, heal without significant complications when treated quickly and correctly. General treatment principles in odontogenic infections include elimination of the cause, drainage of the abscess, and the use of effective antibiotics. When odontogenic infections are not treated in a timely manner, they pose significant health risks for patients and bring serious costs to the health system. In this study, facial area abscesses of odontogenic origin were evaluated retrospectively in terms of general epidemiological features, etiological risk factors, clinical features, and treatment approaches.

Odontogenic abscesses have been observed at mild (14) or significantly (15) higher levels in men than women in previous studies. Sanchez et al. (1) reported that both genders are affected equally. In this study, men and women were equally affected. In the studies of Igoumenakis et al., (16,17) the

mean age of the patients applied for odontogenic infection was found to be 40.8 and 39.1. Similarly, in this study, the average age was found to be 39.72. Poor oral hygiene is linked to an increased risk of odontogenic infections (16). Also, low socioeconomic status is often related to poor oral health (9). The oral hygiene of the patients in this study was poor. More than one-third of the patients stated that they did not brush their teeth, while only about one-third stated that they brushed twice a day. About a third of the patients had an income below the minimum living wage (2.825 TL), while 63.6% had an income just above the minimum wage. The smoking rate was quite high in patients (40.9%). These findings show that patients with odontogenic abscesses have low socio-economic status and poor oral hygiene.

It has been emphasized that systemic diseases, especially diabetes, are predisposing factors for odontogenic infections and may complicate the treatment process (18). Forty point nine percent of the participants had at least one systemic disease in this study. Hypertension, coronary artery disease, diabetes, osteoporosis, and rheumatic joint diseases were among the most common diseases. Four patients were receiving chemotherapy and radiotherapy for malignancy. Two patients reported that they had a penicillin allergy and 3 patients reported using corticosteroid drugs for various reasons. Mathew et al. have shown that diabetes mellitus increased the risk of odontogenic infection (19). A retrospective study conducted in Turkey showed that the presence of the systemic disease may increase the length of hospital stay of patients (20). Consistent with the literature in this study, the duration of treatment in patients with diabetes and those receiving chemotherapy, radiotherapy, and corticosteroids was longer than in other patients.

According to the literature, the most commonly infected region is the submandibular space, followed by the buccal and submental spaces (21). Katoumas et al. (22) reported that 52.82% of cases with odontogenic abscess were seen in the submandibular area, while Sanchez et al. (1) reported it as 30.3%. In this study, the most affected area was the submandibular area (38.6%), while the second most affected area was the fossa canina region (22.7%). This was followed by the buccal and submental area, again similar to the literature. Published reports have shown that mandibular molars are the most commonly included teeth in odontogenic infections (3,23). In another study, lower third molars were the most frequent reason of infection, followed by first and second lower molars (22). Boffano et al. (24) reported that the mandibular posterior teeth were the most commonly included teeth and the submandibular area was the most commonly involved area. Mandibular molars are a well-known dental focus for odontogenic infections. Poor oral hygiene is especially common in this region (1). Periapical infections may spread to the submandibular or neighboring parapharyngeal space since the root tips of the second and third mandibular molars reach the mylohyoid muscle's origin (25). The parapharyngeal space is associated with the neck's major compartments anatomically (26). Inflammation in the submandibular space can spread to the parapharyngeal space, potentially obstructing the airway quickly and severely (27). The most frequently affected teeth, according to Sanchez et al. (1) were those in the lower posterior segments (61.5%), followed by lower molars (26.6 %). The reason for the occurrence of teeth in the posterior segment may be due to the increasing technical difficulty of restorative treatments in this area and less thorough oral hygiene in the posterior regions of the oral cavity. Conversely, other studies have found that lower molars are the most common causal teeth (28,29). In this study, lower 1st molars and 3rd molars were the most frequent causes of infection with a rate of 18.2%, followed by maxillary canine and mandibular 2nd molars with a rate of 13.6%.

The most common cause of odontogenic infections is a necrotic pulp or a deep periodontal pocket (12). Sanchez et al. (1) reported that the most common cause of infection was dental caries (33.8%), followed by post-extraction infectious processes and pericoronitis. Flynn et al. (30) reported decay as the main etiologic factor (65%). Another common cause of orofacial odontogenic infections is pericoronitis. In this study, similar to the study of Flyn et al., dental caries was the main etiological factor with a rate of 65.9%, followed by pericoronitis (15.9%) and post-endodontic problems (10.22%).

Patients with odontogenic infections usually have marked reactive facial swelling; trismus, dyspnea, dysphagia, and are other frequent symptoms (27,30). Sanchez et al. (1) reported that 35.1% of the patients had trismus alone, and 23.2% had trismus due to dysphagia. In this study, the most common symptoms in patients with odontogenic abscesses were swelling (100%), pain (77.27%), and trismus (63.63%). Katoumas et al. (22) reported that only 15.7% of the patients presented within first day, as in the literature, the majority of them presented in the delayed period. In this study, only 4.5% of the patients presented within the first day, while the majority arrived within the second day. While 13.6% of the patients applied directly, the majority were referred by dentists (45.5%) or other medical practitioners. All of the cases were referred to our clinic by another physician or dentist without incision and drainage. Dyspnoea, dysphagia, very high fever (38.3°C and above), and severe trismus for at least four days can be considered basic criteria for hospitalization (8). In this study, almost all of the patients were treated on an outpatient basis, only three patients had feeding problems due to severe trismus, high fever, and dysphagia, so they were treated in the hospital. The patients were closely monitored and all patients recovered smoothly.

Incision and drainage constitute one of the most important major management principles in the management of odontogenic infections. According to the literature, surgical drainage is required in 10-83% of all cases. Sanchez et al. (1) reported that the causative tooth was extracted in 61.8% of the cases, and abscess drainage was performed in 22.9%. Katoumas et al. (22) reported that the incision was made intraorally in 58.9% of the patients, extraoral in 34.3% and combined intraoral and extraoral in 6.8%. They also reported that 85.3% of the responsible teeth were removed without

delay and 3.9% had root canal treatment. In this study, surgical treatment consisting of incision and drainage was applied to half of the patients The incisions were performed intraorally in 36.4% of patients, and extra orally in 13.6% of patients. In addition to these treatments, 63.6% of the patients had the teeth responsible for abscess extracted, while 27.3% received root canal treatment. If endodontic treatment or extraction is not applied and incision and drainage are not applied for the tooth responsible for odontogenic infection, antibiotics cannot prevent the progression of the infection. The penetration of the antibiotic into the infected area is low. Furthermore, evacuating the infection decreases the bacterial burden and changes the anaerobic condition in the affected region created by anaerobic bacteria (8). A commonly adopted but incorrect belief is that extracting a tooth in a acute infection facilitates the dissemination of the infection. Most dentists ignore that antibiotic therapy plays an adjunct role and is not the primary treatment for odontogenic infections (12).

Odontogenic infections are generally polymicrobial and have a mixed bacterial flora in which anaerobes are more than aerobes. Polymicrobial infections are more pathogenic than mono infections due to bacterial synergism (31). Because of the well-known structure of the underlying flora, the first antimicrobial therapy for odontogenic abscesses is empirical (31). Penicillin remains the empirical antibiotic of choice for odontogenic abscesses because of its efficacy, low cost, patient tolerance, and reduced side effects (21,31). It also has broad antimicrobial activity against both aerobic and anaerobic bacteria. Antibiotic resistance, on the other hand, is a major concern in the treatment of orofacial odontogenic infections. Broad-spectrum penicillin regimens containing clavulanate (or other lactamase inhibitors) have broadened the antimicrobial spectrum. Parenteral extended-spectrum cephalosporins, clindamycin and moxifloxacin have also been advised for the treatment of odontogenic abscesses (31). The treatment protocol used in our center includes amoxicillin-clavulanate and ornidazole as the first choice of antibiotic treatment for such diseases. In our clinic, the antibiotic regimen used for odontogenic abscess patients is parenteral clindamycin in cases of cellulitis, while it is a combination of amoxicillin + clavulanate and Ornidazole in the chronic stage. In this study, clindamycin (36.4%) and the combination of amoxicillin + clavulanate and ornidazole (27.3%) were the most preferred antibiotics. A combination of these two was used in 22.7% of the cases. Katoumas et al. (22) reported that 67.5% of patients used sultamicillin (ampicillin + sulbactam) and metronidazole, while 14.3% of them clindamycin. Sanchez et al. (1) reported that clindamycin (33.1%) was the most commonly used antibiotic in odontogenic abscesses, followed by amoxicillin + clavulanate(25.8%) and both combinations (22.5%). Many studies define clindamycin as the treatment of choice among beta-lactam allergic patients or as a second drug option after treatment failure in patients receiving penicillin (32,33).

The use of antibiotics in head and neck infections requires updated protocols based on existing scientific evidence on pathogen profile and resistance. However, the drainage of abscesses is of great importance in achieving rapid success. It is imperative that the relevant teeth be removed immediately; endodontic treatment should be applied in limited periapical lesions. When odontogenic abscesses are treated promptly and adequately, complications are rare. If odontogenic abscesses are not treated in a timely and effective manner, they bring significant costs to the healthcare system. Difficult and complex treatment procedures for severe odontogenic infections prolong the hospital stay of the patient and bring high costs to inpatient units. In a study conducted in Turkey in 2014, the average treatment cost of odontogenic infections in a hospital setting was calculated as 748.35 TL (20). In order to benefit from health services effectively and to reduce unnecessary hospital costs, patients with odontogenic abscesses should be treated in a timely and effective manner. An abscess of odontogenic origin in the maxillofacial region can be easily diagnosed with a routine dental examination. Appropriate antibiotic treatment and referral to an oral and maxillofacial surgeon for drainage in the early period may lead to an early recovery of the patients without complications and decrease the treatment costs by eliminating or reducing the need for hospitalization.

5. CONCLUSION

The results of this study showed that elimination of the cause of infection, drainage of the abscess, and correct antibiotic administration in odontogenic abscesses provide rapid recovery. In this study, it was seen that the empirical use of amoxicillin/clavulanate and clindamycin was effective in odontogenic infections and had no significant side effects. Dentists must have the necessary knowledge and skills to prevent and diagnose odontogenic infections and to refer patients for timely treatment. In addition, continuing education of physicians on the management of odontogenic infections and the development of health programs to raise awareness of patients about odontogenic infections may result in a decrease in serious odontogenic infections requiring hospitalization.

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Acquisition of data for the study: Ö.E.
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Appendix 1: *FOLLOW-UP FORM FOR PATIENTS WITH FACIAL AREA ABSCESS OF ODONTOGENIC ORIGIN*

1. Personal Information

Name Surname: ..... File no: .... Age / Gender: ..... Telephone No: ....

Socio-economic Status of the Family:

1. Monthly/Annual Income: ..... 2. Educational status:..... ..... 3. Profession: .....
4. Place of residence (village, district, city): ..... 5.Does the house belong to him: ....
6.Marital status: ..... 7. Employment status of spouse:..... 8. Number of children: .....

2. Medical CV

Systemic diseases: ....
Drugs used: ....

Oral hygiene status: 0- poor 1-moderate 2-good
Tooth Brushing Status: 0-Cannot Brush 1- Once a day 2- Twice a day 3- 3 times a day
Smoking / Alcohol use: 0- no 1- yes ..... pack/day

3. Clinical / Radiological / laboratory examination

Caused tooth: .....
Cause of abscess: .....
Acute (Cellulitis) or Chronic (Abscess)

The most important complaints: Pain Swelling Difficulty in eating and speaking Fever Other .....
How many days are the complaints? ..... day
Have you applied to another health institution before? Family physician Emergency dep. Dentist Other .....
Did you take any medication? If you took it, who wrote the medicine? .....
Antibiotics used before, if any: ....
Fistula: No yes 1. İntraoral 2. Ekstraoral
Trismus: No yes Max mouth opening :.....mm

Local Findings:
1.Calor
2. Rubor
3.Tumor
4. Dolor
5. Loss of function

Systemic Findings
1. Fever
2. Fast pulse
3. Leukocytosis
4. Sediment.
5.Lymphodenop.
6. Chills /shivering
7. Other .....

Degrre of pain (VAS)

0 1 2 3 4 5 6 7 8 9 10

No Moderate Very severe pain

Odontogenic Abscesses
1. Dentoalveolar abscess
2. Periodontal abscess
3. Submucous abscess
4.Subperiosteal abscess
5. Pericoronal abscess
6.. Palatinal abscess

Facial Area Abscesses

A. primary area	B. secondary area
1. Submandibular abscess	1. Temporal abscess
2. Sublingual abscess	2. Masseteric abscess
3. submental abscess	3. Pterygomandibular abscess
4. Buccal abscess	4. Parapharyngeal abscess
5. Fossa canina abscess	5. Retropharyngeal abscess
6. Infratemporal abscess	6. Peritonsillar abscess

Laboratory Findings: ....
Radiographic Findings: ....
Culture / Antbiogram: .....

4. Treatment

- Antibiotic therapy: 1. Oral ....
  2. Parenteral ....
- Anti-Inflammatory Drugs: ....
- Incision/Drainage: no yes 1. Intraoral drainage 2. Extraoral drainage Drain: yes no
- Other Treatments: 1. Canal drainage 2. Tooth extraction Other: .....
- Hospitalization: yes no

5. Follow up :

Complications
1. Osteomyelitis
2. Septicemia
3. Cavernous sinus thrombosis
4. Vena angularis thrombophlebitis
5. Brain abscess
6. Meningitis
7. Mediastinitis
8. Phlegmonous inf.

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