

## Original Research Article

# Medical Consultations, A Neglected Topic in Periodontology: A Cross-sectional Study

## *Periodontolojide İhmal Edilen Bir Konu Olan Tıbbi Konsültasyonlar: Kesitsel Çalışma*

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### ABSTRACT

**Aim:** To evaluate in detail the consultation forms of patients presenting to the periodontal department of a dental faculty hospital.

**Materials and Method:** The forms were analyzed in two parts: the consultation request and the response. Demographic data and the department for which consultation was requested were evaluated in the request part. In the response section, precautions taken during dental treatment (antibiotic prophylaxis, etc.) were investigated. The readability and repetition of the consultation were also studied.

**Results:** The analysis was performed on 505 forms from 430 patients. Recommendations for antibiotic prophylaxis, preventive medication, or change of medication regimen were made in 50.3% of the forms. Antibiotic prophylaxis was recommended in 68 forms (13.5%). Of the recommended infective endocarditis prophylaxis, 38.9% were by American Heart Association guidelines. In the readability evaluation, 93.7% of the request sections were understood at the first reading, while the readability level of the response was 66.9%. It was seen that 47 forms (9.3%) were insufficient and repeated.

**Conclusion:** Healthy communication between dental and medical disciplines should be promoted through regular education, and clinicians should be aware of the new guidelines. In addition, medical consultations should be integrated into structured forms or digital workflows.

**Keywords:** Consultation; Dentistry; Drugs; Medicine

### ÖZET

**Amaç:** Bu kesitsel çalışmada bir diş hekimliği fakültesi hastanesinin periodontoloji bölümüne başvuran hastaların konsültasyon formlarının detaylı olarak değerlendirilmesi amaçlandı.

**Gereç ve Yöntem:** Formlar, konsültasyon talebi ve cevabı olmak üzere iki bölümde incelendi. Talep kısmında demografik veriler ve hangi bölüme konsültasyon talep edildiği değerlendirildi. Yanıt bölümünde diş tedavisi sırasında alınan önlemler (antibiyotik profilaksisi vb.) incelendi. Çalışma kapsamında konsültasyon formunun okunabilirliği ve tekrarı da incelendi.

**Bulgular:** Analiz, 430 hastadan alınan 505 form üzerinde gerçekleştirildi. Formların %50.3'ünde antibiyotik profilaksisi, tedavi öncesi ilaç uygulaması veya ilaç rejimi değişikliği önerileri yapıldı. Antibiyotik profilaksisi 68 formda (%13.5) önerildi. Enfektif endokardit profilaksi önerilerinin %38.9'unun Amerikan Kalp Birliği kılavuzlarına göre yapıldığı tespit edildi. Okunabilirlik değerlendirmesinde talep bölümlerinin %93.7'si ilk okumada anlaşılırken, yanıtın okunabilirlik düzeyi %66.9 olarak belirlendi. Analiz sonucunda 47 formun (%9.3) yetersiz kaldığı ve tekrarlandığı görüldü.

**Sonuç:** Diş hekimliği ve tıp disiplinleri arasındaki sağlıklı iletişim, düzenli eğitim yoluyla teşvik edilmeli ve klinisyenler yeni kılavuzlardan haberdar olmalıdırlar. Ek olarak, tıbbi konsültasyonlar yapılandırılmış formlara veya dijital iş akışlarına entegre edilmelidir.

**Anahtar kelimeler:** Diş hekimliği; İlaç; Konsültasyon; Tıp

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## INTRODUCTION

Successful diagnosis and treatment of dental diseases are based on identifying and controlling systemic conditions that may influence dental treatment and appropriate treatment adjustment.<sup>1</sup> The assessment of the patient before dental treatment should identify systemic conditions, diseases, medications, risk of infectious diseases, and situations that require a careful approach.<sup>2</sup> However, it is often difficult to expect detailed information about the patient's systemic condition and medications. In this sense, medical consultation may be required for patients with systemic problems. Consultation is the exchange of views between physicians from different specialties on the diagnosis and treatment of a patient and planning the patient's treatment according to these results.<sup>3</sup> For many disease groups such as cardiovascular, endocrine, hematological, and oncological diseases, consultation is requested from the appropriate medical specialist.

Several patients in periodontal practice have medical problems and take medications.<sup>4</sup> Peacock and Carson<sup>5</sup> reported that 52.5% of 590 periodontal patients had a medical problem that could affect dental treatment. In a total of 581 periodontal patients, it was found that 47.1% had a medical problem.<sup>6</sup> Such patients are more difficult to treat and appropriate assessment of their health status is a crucial part of clinical practice.

A consultation is often required to enquire whether the clinician has a recommendation for the patient with a systemic disease before a hemorrhagic dental procedure. It is also sought in those cases where it is suspected that oral changes may be the first signs or symptoms of a systemic condition or disease.<sup>7</sup> The diagnosis of a disease may be possible through consultation based on the oral findings. One of the entities encountered in periodontics is desquamative gingivitis, and consultation is essential for diagnosing the underlying mucocutaneous disease.<sup>8</sup> In addition, systemic diseases such as cardiovascular disease and diabetes may interact with periodontal tissues.<sup>9</sup> The complex interplay between periodontal disease and systemic health highlights the importance of medical consultation.

This cross-sectional study aimed to evaluate in detail the consultation forms of patients presenting to

the periodontology department of a dental faculty hospital in terms of periodontist requests and physician responses.

## MATERIALS AND METHOD

This cross-sectional study included pre-treatment medical consultation forms requested from patients who applied for periodontal treatment to the Department of Periodontology, Faculty of Dentistry, Kutahya Health Sciences University between 2017 and 2020. The study protocol was approved by the Ethics Committee of Kutahya Health Sciences University (Decision Number: 2021/10-08). The protocol was prepared in accordance with the Declaration of Helsinki.<sup>10</sup>

Two periodontists (HH and MME) made the requests for medical consultation. The consultation forms were analyzed by EG in two parts: the request part and the response part of the physician. Demographic data and the department for which consultation was requested were evaluated in the periodontist request section. In the response section, the precautions during dental treatment (antibiotic prophylaxis, etc.), medication regimen change, and other issues to be considered during treatment were assessed. The readability of the form and repetition of the consultation were also examined. In cases where more than one reading was required to understand the writing, it was decided that the form was hard to read.

Antibiotic prophylaxis was assessed concerning the indications and guidelines. The indications for infective endocarditis (IE) prophylaxis were categorized according to the American Heart Association (AHA) guidelines.<sup>11</sup> Various indications for prophylaxis (e.g., prosthetic joint application, immunocompromising diseases, breast augmentation, penile implants) were also explored.

Consultations for patients under 18 years of age, forms from other institutions, and forms not understood even though multiple readings were excluded from the study. In addition, forms without a response were not included in the study.

Statistical analysis was performed using the IBM SPSS Statistics program (Version 26 IBM Corp., Armonk, NY, USA). The results were given as frequency and percentage.

## RESULTS

The inclusion process of the study is summarized in the flow chart (Figure 1). The analysis was carried out on 505 consultation forms from 430 patients. Of the 66 patients who were consulted with more than one department at the same time, 57 (13.3%) had two consultation forms, and the remaining nine (2.1%) had three consultation forms. Of the 430 patients, 65.1% were female (n=280), and 34.9% were male (n=150). The mean age of the included patients was 48.16±13.37 years and ranged from 19 to 85 years.

Only 5.94% (n=30) of the consultation forms were used to inquire about suspected systemic diseases affecting periodontal status or to assess the maxillary sinus before implant surgery (Table 1). The remaining forms were filled to inquire about the effect

of the patient’s systemic status on the hemorrhagic dental procedures under local anesthesia.

The distribution of consultation forms among the medical departments is shown in Table 2. Most of the patients (43.8%) were consulted to the Department of Internal Medicine, with the second most frequent consultation (28.3%) to Cardiology. The distribution of consultations requested from the departments associated with Internal Medicine is presented in Figure 2. While General Internal Medicine (53.4%) was the most frequently referred department of Internal Medicine, Gastroenterology (3.2%) was the least consulted department. General Internal Medicine was followed by Rheumatology (13.1%), Hematology (10.4%), Endocrinology (9%), Medical Oncology (5.9%), and Nephrology (5%), respectively.

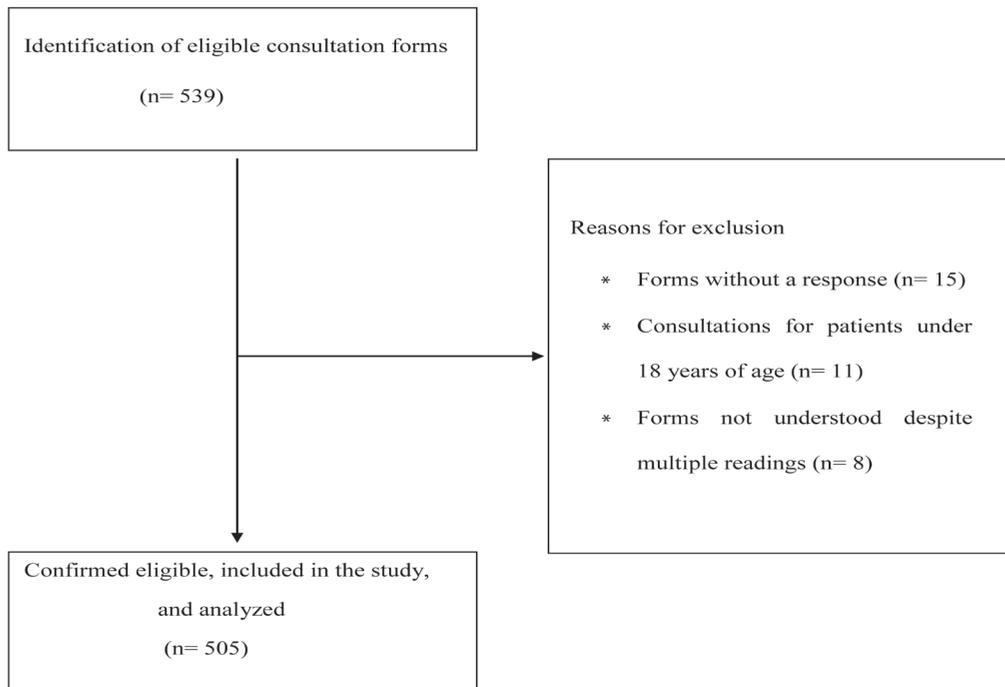
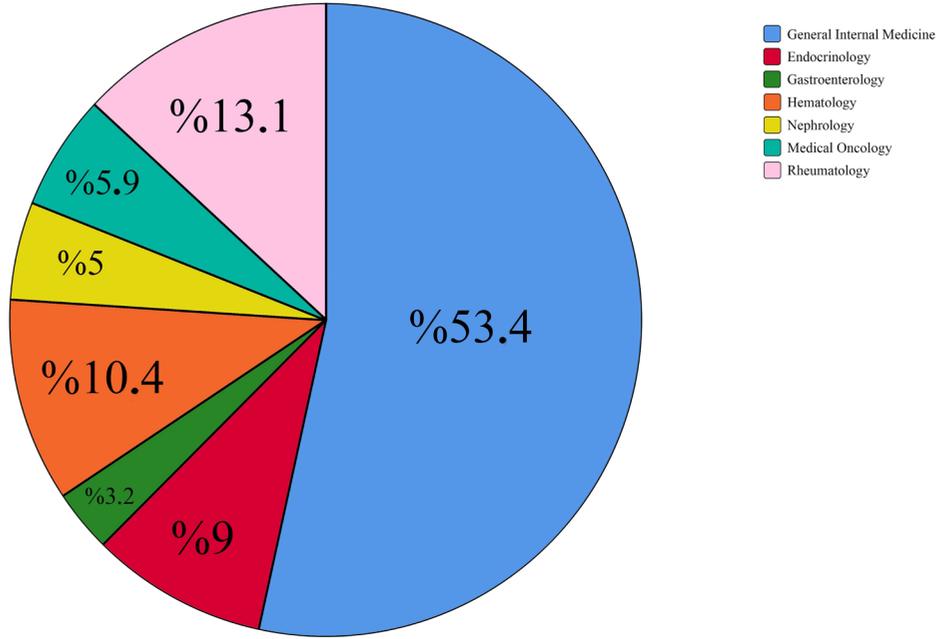


Figure 1. Flow chart depicting the inclusion process

Table 1. The distribution of the suspected systemic conditions affecting the periodontal status or the maxillary sinus

	Frequency	Percent
Mucocutaneous disease	14	46.7
Vitamin deficiency and anemia	6	20.0
Maxillary sinus pathology	5	16.7
Drug-induced gingival hyperplasia	3	10.0
Mouth breathing	2	6.6
Total	30	100.0



**Figure 2.** The distribution of consultations requested from the departments associated with Internal Medicine

**Table 2.** The distribution of consultation forms by the medical departments

	Frequency	Percent
Internal Medicine	221	43.8
Cardiology	143	28.3
Neurology	30	5.9
Orthopedics and Traumatology	20	4.0
Dermatology	13	2.6
Chest Diseases	12	2.4
Neurosurgery	11	2.2
Physical Medicine and Rehabilitation	8	1.6
Urology	8	1.6
Otorhinolaryngology	7	1.4
Infectious Diseases and Clinical Microbiology	5	1.0
Immunology	5	1.0
Cardiovascular and Thoracic Surgery	5	1.0
General Surgery	4	0.8
Obstetrics and Gynecology	4	0.8
Chest Surgery	3	0.6
Radiation Oncology	2	0.4
Family Medicine	1	0.2
Plastic Reconstructive and Aesthetic Surgery	1	0.2
Ophtalmology	1	0.2
Nuclear Medicine	1	0.2
Total	505	100.0

**Table 3.** The frequency of conditions requiring antibiotic prophylaxis

	Frequency	Percent
Infective endocarditis	36	53.0
Immunocompromised situations (Autoimmune diseases [Rheumatoid arthritis, Sjögren syndrome, Multiple sclerosis], chemotherapy, radiotherapy, organ transplantation)	20	29.4
Prosthetic joint application	12	17.6
Total	68	100.0

**Table 4.** The frequency of detection of a new diagnosis

	Frequency	Percent
Mucocutaneous disease	8	38.1
Maxillary sinus pathology	5	23.8
Vitamin deficiency	3	14.2
Anemia	2	9.5
Diabetes	1	4.8
Hypertension	1	4.8
Hyperlipidemia	1	4.8
Total	21	100.0

In 50.3% (n=254) of the consultation forms, recommendations for antibiotic prophylaxis, preventive medication, or drug regimen change were made. Antibiotic prophylaxis was recommended in 68 forms (13.5%). The frequency of conditions requiring antibiotic prophylaxis is presented in Table 3. Only 14 forms were found to have responses that met the guidelines from AHA. Prophylaxis was recommended for 12 of 25 patients consulted for a prosthetic joint application. Prophylaxis for breast augmentation or penile implants was not recommended in any consultation form.

Preventive medication before dental treatment was recommended in 6.5% (n=33) of consultation forms. The drugs for preventive medication were listed as low molecular weight heparin, captopril, glucose-insulin-potassium solution, tranexamic acid, fresh frozen plasma, corticosteroids, anxiolytics and sedatives.

Of the forms, 26.7% (n=135) stated that medications used due to systemic conditions should be regulated before a hemorrhagic dental procedure. In half of these forms (n=67), it was noted that the medication that needed to be regulated before the treatment was an antiplatelet or anticoagulant drug. These were followed by oral antidiabetics or insulin (n=18) and bisphosphonates (n=10).

After the consultation, a new disease was diagnosed in 21 patients (4.9%). Most of these patients (61.9%, n=13) had oral and maxillofacial pathologies such as mucocutaneous lesions and maxillary sinus pathology (Table 4).

When assessing the readability of the consultation request section, 93.7% (n=473) of the forms were understood at the first reading, while the readability of the response section was 66.9% (n=338). In the repetition evaluation, it was seen that 47 forms (9.3%) were insufficient, and thus they were repeated. Since only the medical examination results were included in the response section of the 27 forms, and the authority to decide on issues such as antibiotic prophylaxis, drug regimen change, or preventive medication was left to the periodontist, counseling was insufficient. The remaining 20 forms were not concluded because the recommendation of another department was requested.

## DISCUSSION

The need for periodontal treatment increases with age. The incidence of medical problems as well increases in elderly periodontal patients.<sup>5,9</sup> Considering these problems, consultations that allow communication between physicians and sharing necessary information about the patient become even more important for safe treatment.

This study analyzed consultation forms completed at a periodontology clinic of a faculty hospital. According to the results, consultation forms for Internal Medicine accounted for 43.8% of consultations, followed by cardiological problems (28.3%). This result is consistent with the findings of Hatipoğlu and Demiralp.<sup>12</sup> The authors also identified Internal Medicine as the most frequently consulted department, followed by Cardiology. However, Jankittivong *et al.*<sup>13</sup> evaluated 147 forms and found a

high rate of consultations for cardiovascular diseases (51.5%). In a study with 76 samples, cardiovascular diseases were found to be consulted to a similar extent (50%).<sup>14</sup> This difference could be attributed to the definition of the cardiac problem. This is because, in the present study, problems related to Cardiology and Cardiovascular Surgery were strictly separated. Also, since this study included a sample of 505 forms, the sample size may have affected the result.

The effect of sample size was also observed when comparing the number of consultations recommending antibiotic prophylaxis. This study reported a recommendation rate of 13.5%, while other studies reported a higher value (Kömerik and Çadır<sup>14</sup> [47%], Hatipoğlu and Hatipoğlu<sup>3</sup> [27%]). This difference could also be related to the fact that in the studies with higher prophylaxis recommendations, the cardiac problem was the most common.

Adherence to IE prophylaxis with the AHA guideline was also evaluated in this study, and it was found that 38.9% of recommended IE prophylaxis complied with the guideline. This rate was consistent with the rate (30.2%) in a similar study.<sup>3</sup> However, in the aforementioned study not only the AHA was considered, but also the prophylaxis regimens recommended by the British Society of Antimicrobial Chemotherapy and the European Society of Cardiology.

It should be noted that the last guideline update published in 2021,<sup>15</sup> which excluded clindamycin from administration, was not considered in the current study. This study included consultation forms conducted between 2017 and 2020, and the 2007 guideline was followed. However, the compliance rate was low. In this sense, regular training should be organized to highlight current guidelines, and antibiotic prophylaxis should have a notable place in the dental education framework. Thus, the risk of developing resistant organisms caused by antibiotic misuse and economic burden is reduced.<sup>16,17</sup>

The need for antibiotic prophylaxis in patients with prosthetic joints was questioned, and it was decided to administer antibiotics before dental treatment in

48% of patients with prosthetic joints. According to the 2015 American Dental Association clinical practice guideline,<sup>18</sup> there is no standard scheme and clear evidence to recommend antibiotic prophylaxis for dental procedures. Moreover, the professional judgment of the physician and the needs of the patient should be considered in the prophylaxis decision. However, the basis of prophylaxis recommendation was not evaluated in this study.

Antiplatelet or anticoagulant drugs were regulated in half of the drug regimen changes, followed by oral antidiabetics or insulin. This could be due to the common occurrence of cardiovascular diseases and diabetes in the adult population requiring periodontal treatment,<sup>5</sup> or because the dentist considers it more important to consult on these diseases.<sup>19</sup> While it was recommended to regulate antiplatelet or anticoagulant in 13.3% of all forms, this rate was found to be higher than in other studies (Jainkittivong *et al.*<sup>13</sup> [2.8%], Kömerik and Çadır<sup>14</sup> [4%], Hatipoğlu and Demiralp<sup>12</sup> [5.6%]). The reason for this could be the sample size and the fact that some studies reported only anticoagulant results.<sup>12,14</sup>

In this study, it was concluded that 4.9% of the patients were diagnosed with a new disease as a result of the consultation. Hatipoğlu and Demiralp<sup>12</sup> found that the consultation contributed to the diagnosis at a similar rate (5.6%). In the aforementioned study, mainly hematological diseases were diagnosed, while in the study by Jainkittivong *et al.*<sup>13</sup>, 13 out of 147 patients (8.8%) were diagnosed with a cardiological disease. However, oral and maxillofacial pathologies such as mucocutaneous lesions and maxillary sinus pathologies were mainly diagnosed in this study. Similarly, in the study by Hatipoğlu and Hatipoğlu<sup>3</sup>, in which 159 consultation forms were evaluated, it was found that 6% of the population was diagnosed with a disease based on oral findings. These results may be related to the setting in which the study was conducted and the periodontist's knowledge and interest in medical problems.

While the mucocutaneous disease was diagnosed in more than half of the cases with suspected desquamative gingivitis, maxillary sinus pathology was detected in all five patients consulted before implant treatment. Given the proficiency of dentists in radiographic evaluation of the maxillary sinus,<sup>20</sup> this re-

sult was not accidental. An interesting finding is that anemia or vitamin deficiency was diagnosed in the majority of cases (83.3%) where anemia or vitamin deficiency was suspected due to severe periodontal destruction. Although the relationship between periodontal disease and nutritional disorders and anemia is not clarified, these conditions were found to be associated with periodontal disease progression.<sup>21,22</sup>

The readability of the forms is crucial for ensuring effective communication between physicians. However, according to the results of this study, the response part of 33.1% of the forms was hard to read. Eight forms were excluded from the study because they could not be understood despite multiple readings. Considering that 9.3% of the 505 consultation forms were repeated, there is a need for new applications that allow patients with medical problems to spend less effort and time on consultations and allow physicians to communicate effectively. With the widespread use of standardized consultations in the digital environment, this problem can be eliminated.<sup>23,24</sup> Educational programs emphasizing the relationship between dental and medical disciplines should also be organized.

This study has some limitations. Firstly, it is noteworthy that the number of English-language publications analyzing the consultation forms is low. Therefore, the results of this study were compared with similar studies conducted in the same country. Secondly, although a total of 505 forms were analyzed in this study, no detailed analysis of the disease definition was conducted. Thirdly, in the age of digital technology, making a consultation by handwriting is a limitation, but consulting by structured forms is an alternative, even if not in a digital environment.<sup>25</sup>

## CONCLUSION

Within the limitations of this study, it was concluded that healthy communication between dental and medical disciplines should be promoted through regular education, and clinicians should be aware of the new guidelines. In addition, medical consultations should be integrated into structured forms or digital workflows.

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