



Case report

ALLOPECIA AREATA AND PERIODONTITIS: A CASE REPORT

Virna-Maria Tsitou¹, Dimitrios Rallis², Mariana Tsekova³, Nikolay Yanev⁴,
1) *Department of Medical Microbiology, Faculty of Medicine, Medical University, Sofia, Bulgaria.*
2) *“El Greco private dental care” -private practise, Sofia, Bulgaria.*
3) *Department of Imaging and Oral Diagnostics, Faculty of Dental Medicine, Medical University, Sofia, Bulgaria.*
4) *Medico - Dental clinic “Yanev Medico Dent” Sofia, Bulgaria.*

ABSTRACT

This case report examines the interrelationship between periodontitis and Alopecia areata (AA), an autoimmune condition, within the broader context of the impact of oral health on systemic diseases. The concept of “oral primary foci,” encompassing various oral pathologies such as periodontitis, dentoalveolar abscesses, and pulpal necrosis, is highlighted as a key factor in systemic diseases and complications. The report details the case of a 50-year-old female patient with AA who exhibited significant improvement in her condition following periodontal treatment. This improvement underscores the potential systemic influence of oral health conditions, particularly periodontitis, which is characterized by a dynamic interplay between bacterial infection and the host’s immune response. The presence of autoantibodies in periodontitis suggests an autoimmune component, potentially linking it to autoimmune diseases like AA. The patient’s case also aligns with the epidemiological data on AA, emphasizing its complex etiology and association with various systemic conditions. The report concludes that effective management of oral health, especially periodontal diseases, is crucial in the systemic health and management of conditions such as AA. It advocates for a holistic approach in healthcare, integrating oral health as a fundamental aspect of managing systemic diseases, and calls for continued research into the mechanisms connecting oral and systemic autoimmune responses. This research is vital for developing comprehensive treatment strategies that address both oral and systemic health, thereby enhancing overall patient outcomes.

Keywords: Periodontitis, Alopecia areata, Oral-Systemic Health, Autoimmune Disease, Oral Primary Foci, Systemic Inflammation,

INTRODUCTION

In the current era, the field of evidence-based medicine has increasingly acknowledged the role of oral health in systemic diseases. The broad category of “oral primary foci” is used to encapsulate a variety of oral pathologies, including periodontitis, dentoalveolar abscesses, pulpal necrosis, cellulitis, and the metastatic dissemination of microbes. These oral conditions are acknowledged as key predisposing factors in various systemic diseases and their ensuing complications. [1,2]. Among these, periodontitis has emerged as a significant oral source of systemic infections.

Periodontitis is a multifaceted infectious disease originating from the dynamic interplay between bacterial infection and the host’s immune response. This interplay is further influenced by genetic susceptibility and various environmental and acquired risk factors. The disease predominantly involves a Gram-negative anaerobic infection, leading to pronounced inflammation and the potential systemic spread of pathogens and their virulent factors. This results in a series of immune responses at the cellular level. Notably, research has identified the presence of autoantibodies, including those against collagen, double-stranded DNA, and aggregated IgG in blood samples, gingival biopsies, and gingival crevicular fluids, indicating a possible autoimmune component in periodontitis [3].

The concept of autoimmunity, playing a role in the etiopathogenesis of periodontitis, was first suggested by Brandtzaeg and Kraus in 1965. This concept has since intrigued researchers, particularly its potential links to other autoimmune diseases [3].

Alopecia areata (AA), a common autoimmune condition, exemplifies the complexity of autoimmune diseases in today’s stressful environment. It typically begins with distinct round or oval bald patches on the scalp and can progress to more severe forms, such as alopecia totalis or alopecia universalis. Despite its non-lethal nature, AA

profoundly impacts patients' emotional well-being and social interactions.

Historically, AA was first termed by Sauvages in 1760, and it has been referred to as "pelade" or "area celsi" in honor of Cornelius Celsus. In the 1800s, theories about its etiology included parasitic infection and nervous disorders. Interestingly, early observations by Jacquet and Decelle linked unhealthy teeth as potential triggers for AA. Subsequent research identified associations with endocrine disorders, hormonal disturbances, toxic agents, and syphilis, which presented with sudden, patchy hair loss resembling AA. [4,5].

Recent epidemiological data show an increase in AA's lifetime incidence from 1.7% in the 1970s to 2.1% in the period from 1990 to 2009, with a global prevalence of approximately 0.1%–0.2%. AA is now known to co-occur with various diseases, including mental health conditions like depression and anxiety and other autoimmune disorders such as lupus, psoriasis, atopic dermatitis, rheumatoid arthritis, and lichen planus. However, its exact etiology remains elusive [6].

The current case report sheds light on the interrelationship between periodontitis and AA. The common thread of autoimmunity and foci of infection between these conditions necessitates a comprehensive understanding of their underlying mechanisms to fully elucidate the correlation between them.

CASE REPORT

A 50-year-old female patient visited our clinic and was referred by a dermatologist for a focal infection diagnostic procedure due to Alopecia areata..

She is a social smoker and social drinker, healthy with no underlying diseases and no familial predilection nor history of such pathologies.

From the general and medical anamnesis, we were informed by the patient that she first noticed a lock of hair on her pillow and serious loss of hair during showering, which she related the hair loss with stress (Fig. 1A). Since the loss of hair continued for a week she visited a dermatologist, but from the prescribed laboratory test results there was no connection established with the alopecia in action.

The dermatologist finally came clinically to the diagnosis of Alopecia areata (AA) and prescribed treatment with Revalid and medicinal shampoo in order to reduce hair loss.

Intraorally, no pathological findings on the oral mucosa were found except moderate gingivitis. Artificial crowns were found on the teeth 12, 22. Bridge on abutment teeth 17-15 and 46-44, which were bleeding on probing, pain-free on palpation and percussion except for teeth 17 and 46. A panoramic radiograph (Fig. 1B) revealed root canal treatment on teeth 17, 15, 12, 25, 27, 44, 46. Periapical lesions were observed on teeth 17, 15, 23, 25, 27, 46.

In order to confirm our suspicions of the periodontal foci, we performed the local reactivity test - Electro skin testing of Gelen.

Due to active skin reaction, functional focuses were suspected in the teeth 17,15 and 46. Teeth 23, 25 and 27 were defined as potential focuses. A pathogalvanism test was performed and gave negative results.

The first step of the management of this case was professional dental clinical oral hygiene of the dentition (cleaning with ultrasound of supra- and subgingival calculus). This was followed by instructions concerning the methods and means for maintaining good personal oral hygiene. Teeth 46 due to severe periodontal pathology and 15 (too carious to be restored) were extracted, and teeth 17, 14 (due to prosthodontic reasons), 23 and 27 (Fig. 2). 2 weeks after the teeth were extracted and re-treated endodontically the patient reported cessation of the hair loss. About 2 months after the treatment, new hair started growing on the bald site.

Fig. 1. a) Signs of hair loss on the back of the head due to Alopecia areata. **b)** Orthopantomography depicting the periodontal infection and periapical lesions in the teeth on the maxilla: 17, 15, 23, 25, 27/ teeth on mandible 46.

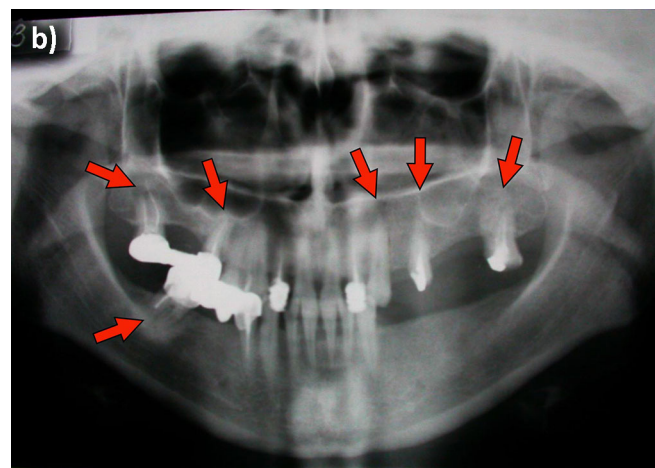
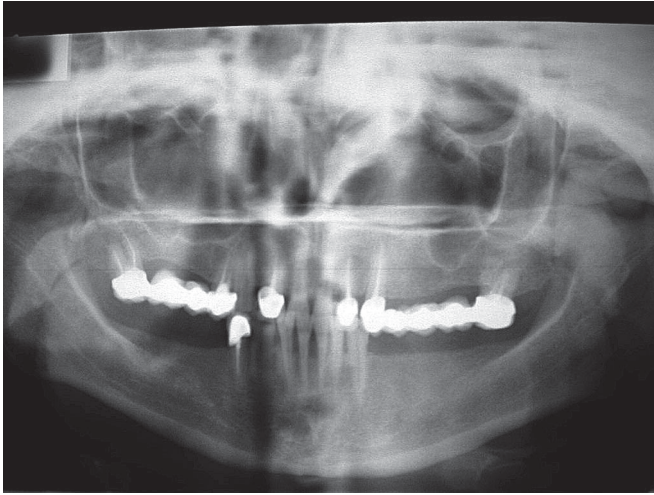


Fig. 2. After the extraction of teeth 46 and 15 (too carious to be restored), endodontic retreatment of teeth 17, 14 (due to prosthodontic reasons), 23, 27 (where they were also restored with a metal-ceramic bridge construction). The lower jaw is planned to be restored with a partial denture to restore occlusion.



DISCUSSION

This case report illuminates the intricate relationship between periodontitis and Alopecia areata (AA), drawing upon the broader context of oral health's impact on systemic diseases as increasingly recognized in evidence-based medicine. The concept of "oral primary foci," which encompasses a range of oral pathologies, including periodontitis, dentoalveolar abscesses, and others, is crucial in understanding this relationship. These oral conditions, notably periodontitis, have been identified as key predisposing factors for various systemic diseases and complications. [1,2]

Periodontitis, a multifaceted infectious disease, arises from a dynamic interplay between bacterial infection and the host's immune response, influenced by genetic and environmental factors. This disease, predominantly caused by Gram-negative anaerobic bacteria, leads to pronounced inflammation and potential systemic spread of pathogens. The presence of autoantibodies in periodontitis suggests an autoimmune component, linking it to other autoimmune diseases [3]. This connection is pivotal in our case report, where the patient with AA showed improvement in her condition following the treatment of periodontal issues.

AA itself, a common autoimmune condition characterized by distinct bald patches on the scalp, mirrors the complexity of autoimmune diseases. Its associations with various systemic conditions, including endocrine disorders and mental health issues, along with its elusive etiology,

further complicate the understanding of its pathogenesis [4-6]. The increase in AA's lifetime incidence over the years underscores the need for deeper exploration into its causes and connections with other diseases.

In the case report, the patient's improvement in AA following dental interventions suggests a direct link between oral health and systemic autoimmune responses. The treatment of periodontitis, which may have been acting as a chronic source of inflammation, could have alleviated the autoimmune response implicated in AA. This observation aligns with the hypothesis that oral health, specifically the management of periodontal diseases, plays a crucial role in the systemic health and management of conditions like AA.

CONCLUSION

This case report crucially highlights the intricate relationship between periodontitis and Alopecia areata (AA), an autoimmune condition, underscoring the significant role of oral health in systemic diseases. The improvement of AA symptoms following periodontal treatment in our patient demonstrates the systemic impact of oral health conditions, particularly aligning with the concept of "oral primary foci" in evidence-based medicine.

Periodontitis, characterized by the interaction of bacterial infection and the host's immune response, was observed to have a possible connection with the patient's autoimmune response manifesting as AA. This finding is in line with current medical literature that recognizes the influence of periodontal health on systemic autoimmune responses. The case reinforces the notion that periodontitis is not merely a localized oral issue but potentially contributes to systemic health challenges.

The patient's case also resonates with the broader epidemiological understanding of AA, emphasizing its complex etiology and its links to various systemic conditions. The noticeable improvement in AA following dental interventions, in this case, supports the hypothesis that managing oral health effectively can have significant implications for systemic autoimmune conditions.

In conclusion, this case serves as a pivotal example of the interconnectedness of oral and systemic health. It advocates for a holistic approach in healthcare, where oral health is integral to managing systemic diseases. Furthermore, it encourages continued research into the mechanisms linking periodontal diseases with systemic conditions like AA. Such research is essential for developing comprehensive treatment strategies that simultaneously address oral and systemic health, thereby enhancing patient outcomes across these interconnected domains.

REFERENCES:

1. Agrawal J, Lal N, Singhal R. Alopecia and Periodontitis: Exploring the connecting dots. *J Indian Soc Periodontol*. 2023 May-Jun;27(3):233-237. [[PubMed](#)]
2. Pizzo G, Guiglia R, Lo Russo L, Campisi G. Dentistry and internal medicine: From the focal infection theory to the periodontal medicine concept. *Eur J Intern Med*. 2010 Dec;21(6):496-502. [[PubMed](#)]
3. Nair S, Faizuddin M, Dharmapalan J. Role of autoimmune responses in periodontal disease. *Autoimmune Dis*. 2014;2014: 596824. [[PubMed](#)]
4. Alkhalifah A, Alsantali A, Wang E, McElwee KJ, Shapiro J. Alopecia areata update: Part I. Clinical picture, histopathology, and pathogenesis. *J Am Acad Dermatol*. 2010 Feb; 62(2):177-88. quiz 189-90. [[PubMed](#)]
5. Nour M, Belkacem CR, Darej M, Touil D, Oualha L, Douki-Tunisia N. [Alopecia areata of dental origin. About a clinical case.] [in French] *Odontostomatol Trop*. 2018 Sep;41: 13-19. [[Internet](#)]
6. Chu SY, Chen YJ, Tseng WC, Lin MW, Chen TJ, Hwang CY, et al. Comorbidity profiles among patients with alopecia areata: The importance of onset age, a nationwide population-based study. *J Am Acad Dermatol*. 2011 Nov;65(5):949-56. [[PubMed](#)]

Please cite this article as: Tsitou VM, Rallis D, Tsekova M, Yanev N. Alopecia areata and periodontitis: a case report. *J of IMAB*. 2024 Jan-Mar;30(1):5425-5428. [Crossref - <https://doi.org/10.5272/jimab.2024301.5425>]

Received: 05/01/2024; Published online: 14/03/2024



Address for correspondence:

Head assistant prof. Dr Virna-Maria Tsitou,
Department of Medical Microbiology, Faculty of Medicine, Medical University of Sofia;
2, Zdrave Str., 1431, Sofia, Bulgaria.
E-mail: maria-tsitou@hotmail.co.uk,