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Perspective

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International dental tourism in a post-COVID era: pre-travel advice

Peter P. Felkai, PhD, MD[1,*], Gerard Flaherty, MD and Thomas Felkai, MD, DMD[3]

[1]Travel Medicine Department, Medical School, Debrecen University, Debrecen 4032, Hungary, [2]School of Medicine, National University of Ireland Galway, Galway H91, Ireland and [3]Department of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, Semmelweis University, Budapest 1082, Hungary

*To whom correspondence should be addressed. H-1039 Szentendrei út 301, Budapest, Hungary. Tel.: +3612400475; Fax: +3614391440; Email: peter.felkai@soshungary.hu

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Despite the Coronaria Virus Disease -19 (COVID-19) pandemic threat, the medical tourism business probably will grow after the COVID-19 era. One of the most popular and lucrative parts of the international medical tourism market is dental tourism, which comprises 32% of medical tourism.[1] The cost of dental interventions in Western countries (e.g. USA, UK, Germany, France and Swiss) is extremely high; therefore, it is reasonable that patients are looking for a faster and cheaper alternative solution involving treatment abroad. Dental tourists in Europe generally travel from western European countries to eastern European countries (Hungary, Greece and Poland). US patients prefer Mexico or Costa Rica, and Australian citizens travel to Asian countries (Malaysia, India and Thailand), where high quality dental services are cheaper than in the patients' home countries.

Dental tourism requires careful preparation both for the treatment and for travel. However, providing pre-travel advice is not exclusively the task of the travel medicine specialists, but it also involves the dentists abroad. Unlike medical tourism, the travel aspects of dental tourism, the oral and dental health have been scarcely reported.[2] Dental tourism is a specialized form of medical tourism. The main features of dental tourism are often complex procedures, sometimes involving staged treatments (e.g. implant surgery), requiring frequent travel and short stays at the destination, with no seasonality. In general, a stay abroad lasts ~15 days, with an average of 8 days for a single intervention. Patients spend an average of 10 h in the office, every other day of treatment.[3] The travel-related risks, not to mention personal risks to the patient, originate from these issues. Moreover, patients involved in dental tourism may not realize that they are also travellers, thus the pre-travel advice may lag behind other aspects of treatment. The patient should therefore be informed of travel-related risks, especially if the patient is elderly. Elderly patients need even more careful pre-travel medical assessment and advice because of the possibility of multiple co-morbidities. The complications during dental procedures are due to neglected pre-existing diseases.[4]

Dental tourism can be divided into two parts: general and specialized dental care. General dental care includes scaling and polishing, simple fillings and tooth whitening. These interventions are not influenced by the health status of the patient, or by the age of the patient. Specialized dental care is conducted by dental specialists, involving complex restorative treatment and surgery. The interventions using hyaluronic acid (e.g. bone repair of dental socket and mouth/lips augmentation) are also considered to be difficult interventions. The majority of patients are over 60 years of age, making them potential multimorbid patients. The longer time of treatment and the more effective anaesthesia requires a healthy patient or a patient with well-controlled chronic disease.

The most frequent dental interventions are implantations, crowns and bridges and root treatments as well as the hyaluron filler interventions in dental practice. The disadvantages of treatment abroad sometimes involve difficult interventions, which are often multi-staged. Thus, the patients must return several times if they stay abroad for only a few days (mainly on weekends). These considerations apply to almost all travel-related medical problems.

Barodontalgia is a well-known medical problem among military aircrews since World War II, when fighters flew at altitudes above 10 000 m for the first time. The frequency of barodontalgia among air passengers is as high as 0.27%.[5] Barodontalgia is defined as pain that occurs in the teeth due to pressure changes. With respect to the compression–decompression situation as well as the characteristics of pain (sharp or dull), classifications of

barodontalgia have been described.[6] From this classification, some approximate diagnoses can be identified.[7] Pressure differences occur in the human body when a gas-filled cavity cannot equilibrate with the exterior (or ambient) air pressure, so the pressure differences cannot be equalized. The sea-level pressure in the cavity is 760 mmHg = 1 bar, which is tensioning the wall of teeth at the pressure of cabin at the cruising altitude (2500 m; 694 mmHg = 0.92 bar) of the aircraft.

During ascent or descent, the dilation or contraction of gas contained in the pulp, the cavity or tissues surrounding the teeth induce dental pain. The pain and other complications during ascent or descent depend on the localization of the air bubble. Clinically, the pressure difference between the gas-filled cavity and the exterior environment can lead to pain, oedema or even vascular gas embolism as a worst case scenario. The teeth, pulp and the periapical region are possible locations where micro-air bubbles can form after dental treatment. The micro-air bubbles could occur during the interventions of implantation, under the crown and during fillings as well as root interventions.

Travelling to any country where the patient receives dental treatment requires shorter or longer flights. Because of an adequate network of commercial flights, as well as the jet age, travelling abroad from western countries to eastern European countries, where the high-level dental services are cheaper, is easier than ever. It is no surprise that a frequent complication of dental tourism involves barodontalgia, because of frequent flying. Overall, the barodontalgia-related problems affect all dental tourists, particularly the frequent flyers and the patients undergoing difficult or multi-staged dental interventions. Regrettably, little is known about this particular issue. Dental-related medical problems are even more important now during COVID-19 where an unwanted situation (such as a sudden lockdown) can interfere with the completion of dental treatments in process.

Because of the danger of barodontalgia, the most important question is the timing of air travel after dental intervention. This type of hazard should be mentioned after every treatment by the dentist. Unfortunately, there are no existing guidelines for this issue; and this topic is missing from past reports. Unfortunately, the authors did not find any evidence-based waiting time after different interventions for safe air travel in the literature or in the aviation regulations. The waiting times in Table 1 are suggested by several dentists in their internet websites and have been agreed by dentists of different hospitals and dental offices. The mandatory 24–48 h. Waiting time of divers before flying (to avoid microembolization) is also recommended after dental interventions.

Dental tourism undoubtedly has certain risks that are associated with travelling abroad.[8] The infection control standards vary depending on the country and the dental offices. The traveller must find a reputable dentist and also has to be aware of the overall hygiene of the office and the dental instruments. The lack of international standards further increases the risk for patients and their local care providers because complications may occur after the medical traveller returns home. The continuity of care is often jeopardized (e.g. travel restrictions because of COVID-19).

Nevertheless, dental tourism is not just about being treated abroad but also involves travel to an unfamiliar environment.

Table 1. Minimum interval time before flight related to different interventions

Intervention	Minimum interval before flight
Filling	After 24 h
Extraction	After 24 h
Implantation, uncomplicated	24–48 h
Implantation with minor complication	48–72 h
Multiple dental implant	2 weeks
Root canal treatment	min. 72, but a week is more safe
Difficult orofacial interventions (e.g. osseointegration)	min. 2 weeks
Hyaluronic filling	min. 24 h

The patient should receive appropriate pre-travel advice and must be informed about the risks of the travel.[9] Assessments of patient risks and pre-existing diseases are indispensable. Suggestions on post-treatment issues (e.g. travel time and safety measurements) provided by travel medicine specialists and dentists are also necessary. In the case of unwanted complications or health issues (like COVID-19), appropriate travel health insurance is advised. Further studies need to be conducted on this specialized aspect of medical tourism.

Supplementary data

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Conflict of interest

None declared.

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