MANAGEMENT OF TOOTH WEAR: A HOLISTIC, DENTAL, MEDICAL, AND MENTAL HEALTHCARE APPROACH

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ABSTRACT

Tooth wear is a condition that affects a substantial cohort of dental patients. It has a measurable impact on patients' satisfaction, and overall quality of life. Recently, with growing evidence, our understanding of the aetiology, progression, and management of tooth wear has evolved. The paper argues that pathological tooth wear should not be solely considered as a dental condition, but rather a dental manifestation of other mental and medical disorders. As such, successful management of tooth wear, and its underlying aetiology, requires a holistic, multidisciplinary management approach, involving dental, medical, and mental healthcare providers.

There has been growing interest in tooth wear, or tooth surface loss, within primary and secondary dental care. With its complex aetiology, a multiphasic progression rate of dormancy and activity, and limited evidence supporting varying management modalities, the condition remains a hotly debated topic. Nonetheless, we do know that it indiscriminately affects a substantial cohort of the population, involving children, adolescents, and adults.[1,2] We also know that tooth wear can have a substantial impact on patients' daily lives and their overall satisfaction.[3] With mounting evidence, our understanding of tooth wear, and its importance to the overall quality of life of patients, has experienced a paradigm shift. Subsequently, our approach to diagnosis, monitoring, and management of tooth wear has also developed exponentially.

Identifying the underlying aetiology

Recently, the preference for restorative management of tooth wear is no longer exclusively reliant on invasive and complex prosthodontic interventions, which are supported by limited evidence, but rather on an evidence-based, conservative and minimally-invasive management approach delivered through direct restorations.[4,5] Moreover, our perception of what constitutes as tooth wear aetiology has also evolved, and so has our assessment and diagnosis of tooth wear. Attrition, erosion, and abrasion are not considered the cause of tooth wear, but rather the mechanism through which the underlying aetiology

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is manifested. The aetiology can be physiological, as part of the normal ageing process, or due to unsatisfactory diet and oral hygiene practices.[6] In contrast, the underlying tooth wear aetiology can also be pathological, triggered by medical and/or mental disorders, such as gastroesophageal reflux disorder, hiatus hernia, stress, anxiety, depression, neuroticism, body dysmorphic disorders, eating disorders associated with self-induced purging, drug and/or alcohol dependencies, or obsessive-compulsive oral hygiene practices.[7,8] Furthermore, studies have demonstrated that, for the majority of tooth wear patients, the main reason for concern was aesthetics.[9,10] However, dental patients pre-operatively presenting with mental disorders are significantly less satisfied with the outcome of their post-operative aesthetic dental treatment when compared to patients without a diagnosed mental disorder.[9] Accordingly, management of tooth wear hinges on diagnosis of the underlying aetiology, whether physiological or pathological. In the case of pathological tooth wear, the condition should not be deemed solely a dental one, but potentially a reflection of a more serious inherent mental and/or medical condition.[11]

Expanding the scope of practice

The identification of the tooth wear aetiology, and its multidisciplinary management-needs, places a substantial burden on dental care professionals (DCPs), especially when the responsibility of assessing and managing tooth wear falls firmly within the remit of primary dental care.[12] In many ways, this proposed multidisciplinary approach to management presents an expansion to the scope of practice of DCPs to involve high-risk patient screening, and possibly diagnosing, of mental and medical health disorders. Yet, there are a number of obstacles hindering such an approach. DCPs' perception of patient acceptance of screening, DCPs' perception of the extent of their dental practice, the existing limited awareness of the comorbidity of mental and oral health among mental and dental healthcare professionals, as well as the added load and responsibility of screening patients for mental and medical disorders, are all understandable reasons for the reluctance of some DCPs to engage in such screening.[13,14]

A survey involving 300 general dental practitioners (GDPs) demonstrated that GDPs do not have a positive attitude to providing alcohol-related advice (ARA), presenting low self-confidence in their ability to deliver such advice, and believing that providing ARA was difficult.[15] On the other hand, it can be argued that the scope of our practice has already been expanded, and with successful reported outcomes. Smoking cessation services in general dental practice have been demonstrated to be effective and cost-efficient, outperforming the NHS Stop Smoking Services.[16] There are also attempts by DCPs to offer pre-diabetes, type II diabetes and HIV screening services to high-risk patients, whether through gingival crevicular blood or finger-stick blood in diabetes[17,18] or Oral Rapid HIV testing, which is ideal for dental settings.[13,19,20] Moreover, when it came to the perception of patients and primary care physicians towards chairside dental screening of medical conditions such as cardiovascular disease, hypertension, diabetes mellitus, and HIV infection, both patients and physicians considered the dental screening services as valuable and worthwhile.[21,22]

Multidisciplinary management of tooth wear

DCPs can have an active role in improving the mental and medical health of tooth wear patients, consequently leading to an improvement of their overall quality of life. This can be achieved through the identification and monitoring of the tooth wear aeteiology manifested through grinding, clenching, dental

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erosion, or compulsive teeth brushing, and associated symptoms such as sensitivity and pain. As such, early engagement of mental and/or medical healthcare providers in the treatment planning and management process becomes cardinal.

The proposed role of DCPs is a three-fold one. Firstly, we can assist in early identification of underlying mental/medical health disorders, with appropriate referral to medical and/or mental health care providers. Secondly, DCPs can assist in monitoring patient-compliance to medical and mental management/treatment, and finally, observe patient-response to management, all through monitoring the progression rate of tooth wear. Identification and monitoring of tooth wear progression can be performed through a number of methods, such as the use of indices,[23] follow-up comparisons with patient dental casts made at baseline,[24] and more recently, through the use of computer-assisted design and manufacture (CAD/CAM) 3D scanning, with the increasing access to such technology in primary care[25] Moreover, with regards to early identification of mental health disorders, there are simple and validated mental health screening tools that can be feasibly used within the general dental practice setting.

The Patient Health Questionnaire-2 (PHQ-2) consists of two simple, scored patient questions directed by the DCP, initially and at follow-up, enquiring whether the patient, over the past two weeks, had little interest or pleasure in doing things (0-3) and whether they felt down, depressed or hopeless (0-3).[26] A PHQ-2 score ≥3 had a sensitivity of 83% and a specificity of 92% for major depression, when compared to the more extensive 20-item General Health Survey. The case for screening common mental health disorders in tooth wear patients becomes even more pertinent when, according the 2015 'Measuring National Well-being programme', more than 18% of the UK's population presented evidence of anxiety and depression.[27] Reported anxiety and depression was also found to be gender and age-dependent, being higher among females (22%) and those aged 16 to 54 (21%).

The aim for management of tooth wear patients needs to progress, from merely addressing dental manifestations to tackling the actual underlying mental/medical aetiology, if present, through an actively integrated multidisciplinary team-based approach. Collaboration between dental, medical, and mental healthcare sectors offers exciting and valuable opportunities to further improve our patients' quality of life through a holistic approach to patient management and treatment.