Tooth Wear and Its Treatment

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'Tooth wear' is a term used to describe the irreversible loss of tooth tissue by means other than caries and trauma. It is seen as a normal physiological process; however, in certain cases it can be a sign of pathological, accelerated destruction due to different aetiologies. These include the following:

1. Erosion – demineralisation by acids from intrinsic (gastric) or extrinsic (dietary) source. Usually affects palatal surfaces of upper incisors, and occlusal surfaces of molars.
2. Attrition – wear by tooth-to-tooth contact. Usually affects incisal and occlusal surfaces. Often associated with parafunctional habits such as bruxism.
3. Abrasion – wear by tooth-to-object contact. Usually affects cervical margins and presents as round notches. Often associated with rigorous toothbrushing habits.
4. Abfraction – loss of tooth tissue at cervical margins produced by tooth flexion from occlusal loading forces.

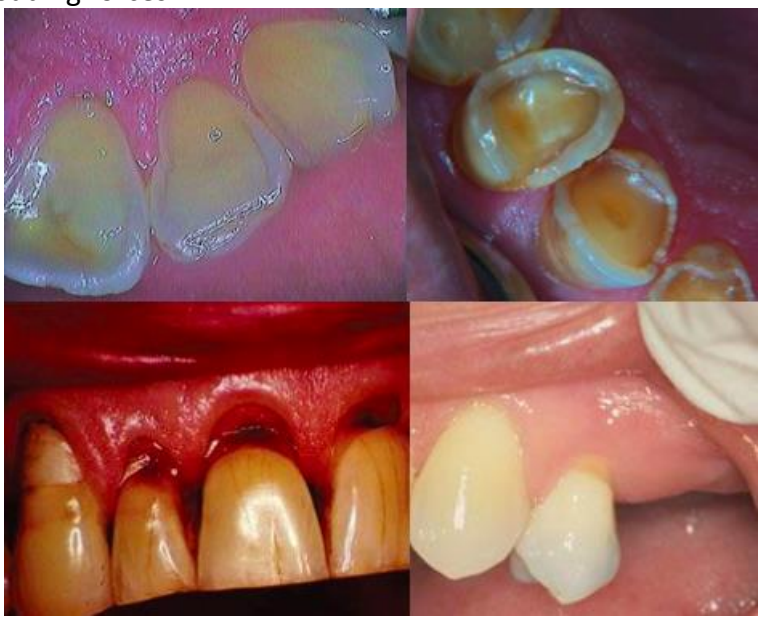

Figure 1. Top left - Erosion, Top right - Attrition, Bottom left – Abrasion, Bottom right – Abfraction [1]

Tooth wear is often subject to multifactorial causes and clinically, it is challenging to isolate a single causative factor. Therefore, a diagnosis such as "generalised/localised tooth wear with a major element of erosion" is made to reflect this complicated nature. Another key point is to establish whether the tooth wear is ongoing.

Tooth wear can be quantified using indices, useful for epidemiological studies and as a screening tool in general practice. The two main ones are the Tooth Wear Index (TWI), and Basic Erosive Wear Examination (BEWE). The BEWE remains the most effective clinically as it is practice focused. It is designed to be similar to the BPE, with numerical scoring system reflecting degree of wear for each sextant.

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Once the causative factors are identified, a preventative measure must be put into place initially before restorative options are considered. For erosive tooth wear, this includes diet advice, for example limiting fizzy drinks and fruit/fruit juices to meal times and diagnosing important conditions such as eating disorders. Also, desensitising toothpastes for symptomatic management of exposed dentine, and splint therapy to prevent grinding exists. [1] After detailed history, examination and initial monitoring of 6-12 months [2], the clinician can plan restorative options if any.

Restorative considerations for a heavily worn dentition [3]

- Decide whether to conform to existing occlusion or reorganised approach. This depends on the severity of wear.
- For proposed restorative work, Intercuspation Position (ICP) and Retruded Contact Position (RCP) must be assessed, and study casts articulated for diagnostic wax ups.
- For localised tooth wear with little space available in ICP & RCP, the Dahl principle can be considered to gain space.
- Reversible, additive techniques used first and avoid tooth reduction where possible.

Scenarios	Treatment
Excessive wear with loss of Occlusal Vertical Dimension (OVD)	Can create a hard acrylic splint to test tolerance to proposed treatment. Diagnostic wax up. Provisional restoration placed first, before definitive treatment
Excessive wear without loss of OVD but with limited space available	Create a hard acrylic splint to the increased OVD in RCP to evaluate tolerance. Following good tolerance, steps can be followed as above.
Excessive wear without loss of OVD but with no space available, due to dentoalveolar compensation - Dentoalveolar compensation occurs when tooth wear is compensated by overerupting lower incisors to maintain a constant OVD	Most difficult case to handle. Consider all options to increase space without increasing OVD, which is the last resort. Methods include crown lengthening, orthodontic intrusion/extrusion, and elective endodontics

Table 1. Common scenarios for generalised tooth wear and how they are addressed [3]

References

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2. Mehta S, Banerji S, Millar B, Suarez-Feito J. Current concepts on the management of tooth wear: part 2. Active restorative care 2: the management of localised tooth wear. BDJ. 2012;212(2):73-82.

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