Symposium - Det slidte tandsæt - del 1

Vært
Tandlægeforeningen

Dato
03.11.2023

Forbehold
Alle forbehold for noternes korrekte gengivelse af kursusmaterialet tages af forfatteren.

Top 3 Dental Insights

1. Tandslid var almindeligt i oldtiden

Tandslid var en folkesygdom i oldtiden. Kun meget få havde caries i oldtiden, da man kun spiste søde sager i form af skovens bær, frugter og honning. Man spiste mange frø, korn og kød.

Grauballemandens sidste måltid indeholdt frø og kerner fra fx kornsorter og pileurt samt en skefuld kvartssten, som kommer fra ukrudtet som fandtes iblandt kornsorterne. I et hvert jernaldermåltid er der småsten fra det tærskede korn, som blev sorteret på gulvet.

2. 10 kliniske tegn på hhv. mekanisk og kemisk tandslid

10 clinical signs indicating the influence of mechanical factors
1. Shiny facets
2. Enamel and dentin wear at the same rate (like a slice of cheese from a cheese grater)
3. Matching wear on occluding surfaces / corresponding features at the antagonistic teeth
4. Impression in cheek, tongue and/or lip
5. Usually located at cervical areas of teeth
6. Lesions are more wide than deep
7. Premolars and cuspids are commonly affected
8. Fracture of cusps and/or restorations
9. Crack in enamel
10. Torus mandibularis (can be a sign of mehcanical overloading of the masticatory muscles)

10 clinical signs indicating the influence of chemical factors
1. Occlusal ‘cupping’, incisal ‘grooving’, ‘cratering’.
2. Wear on non-occluding surfaces.
3. ‘Raised’ restorations
4. Broad concavities within smooth surface enamel
5. Increased incisal translucency
6. Clean, non-tarnished appearance of old amalgam fillings
7. Preservation of enamel ‘cuff’ in gingival crevice (often sign of gastric reflux)

8. No plaque, discoloration or tartar
9. Hypersensitivity (especially in young patients)
10. Smooth silky-shining, silky-glazed appearance, dull surface

3. Risikovurdering af tandslid og spytproduktion

Documentation and monitoring of tooth wear
- Indices
- Intraoral photos
- Dental casts/scans
- X-rays (bitewings, panoramic)

Tooth wear is not a linear process. There are active vs inactive periods.
Documentation every 1-2 years is great.

Clinical Oral Dryness Score
1. Mirror sticks to buccal mucosa
2. Mirror sticks to tongue
3. Tongue lobulated/fissured
4. Tongue shows loss of papillae
5. Frothy saliva
6. No saliva pooling in floor of mouth
7. Glassy appearance of other oral mucosa, especially palate
8. Debris on palate (excluding under dentures)
9. Altered/smooth gingival architecture
10. Active or recently restored (last 6 months) cervical caries (more than 2 teeth)

Xerostomia questionnaire
There are 11 questions, but it's sufficient to ask only these 5 most important questions:
1. My mouth feels dry when eating a meal.
2. My mouth feels dry.
3. I have difficulty in eating dry foods.
4. I have difficulties swallowing certain foods.
5. My lips feel dry.

Risk assessment of tooth wear with the "Wearogram" (DC-TWES)
Physical markers:
- Masseter muscle hypertrophy
- Loss of canine guidance
- Impressions in cheek, tongue, lip
- Shortened dental arch
- Wear facets

Medical markers:
- Sleep disorders
- Psychology
- Genetics (men have weaker enamel than women)
- Pain
- Saliva

Social markers:
- Alcohol abuse
- Smoking
- Drugs

- Caffeine
- Erosive diet
- Sports (athletes often have dry mouth and drink acidic sports drinks)

Erosive Wear Risk Assessment (EWAR) questionnaire

1. Consumption of soft drinks
2. Consumption of energy and/or sports drinks
3. Consumption of juices
4. Consumption of alcohol
5. Consumption of fruits
6. Erosive drinks (soft, sport, energy drinks, juices) kept in the mouth for longer period when consumed
7. Erosive drinks (soft, sport, energy drinks, juices) for quenching thirst between meals
8. Reflux
9. Vomiting
10. Do you feel pain or “icing” after eating or drinking something acidic or cold?

Dét var Top 3 Dental Insights.

Få resten af noterne lige herunder.

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Moderatorer: Jan Frydensberg Thomsen og Lene Baad-Hansen

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Hvad fortæller Grauballemandens tandslid om fortiden?

V/ Pauline Asingh, antroprolog på Moesgaard Museum

Grauballemanden blev opdaget ved et tilfælde i en mose i 1952, og lignede en nyligt afdød. Er mere end 2000 år gammel, fra 290 fKr. Det iltløse miljø og antiseptiske plante spaunum og stopper forrådnelsesprocessen. Grauballemanden er ualmindeligt godt velbevaret og har flot hår, hud og negle. Han er så velbevaret og har konsistens som en støvle nu. Hans maveindhold var også velbevaret.

Det var en nyt fænomen at udstille en død mand, da Moesgaard først udstillede ham. Grauballemandens havde 21 tænder, som var løse, og de blev ekstraheret for at undersøge dem, og derefter desværre glemt på Århus Tandlægeskole i 20 år, så de er skrumpet en del. Dorthe Arenholt Bindslev undersøgte Grauballemandens tænder. Grauballemandens tænder er små og meget slidte, og der er ikke emalje tilbage. Alle hans tænder har en tydelig horisontal linje, som

blev dannet i 3-5 års alderen, som sandsynligvis skyldes en underernæring eller livstruende sygdom eller seponering af amning og overgang til jernalderkost.

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Grauballemanden var ca 34 år og flot, stærk og frisk. Han havde ingen tegn på sygdom eller gigt, kun et slag på skinnebenet og fik skåret halsen over. Måske var Grauballemanden et offer for at få lyset tilbage. Grauballemanden blev lagt i den iskolde mose om vinteren, som havde flere udgravningshuller.

Tandslid er en folkesygdom i oldtiden. Kun meget få havde caries i oldtiden, da man kun spiste søde sager i form af skovens bær, frugter og honning. Man spiste mange frø, korn og kød.

Subtypes of tooth wear and determining etiology

V/ Peter Wetselaar, dentist, Amsterdam, chair of orofacial pain at ACTA

A new classification system for tooth wear
Tooth Wear Evaluation System (TWES 2.0)
Diagnostic Criteria for Tooth Wear (DC-TW) (2023)

Tooth wear = the general classification of loss of dental hard tissues from the mouth.
- Attrition: tooth-to-tooth contact
- Abrasion: thirdbody contact wear
- Erosion: chemical loss of surface contour due to mineral acids
- Caries: subsurface loss of hard tissue due to pathologiclal process

Tooth wear is a chemical-mechanical process of cumulative loss of hard tissue, not caused by bacteria. It's a multifactorial condition leading to the loss of hard dental tissues (enamel, dentin, root cementum).

Tooth wear causes
1. Mechanical:
    1. Intrisinc (attrition). Always functional, sometimes bruxism.
    2. Extrinsic (abrasion). Always brushing, often other causes.

2. Chemical:
    1. Intrinsic (erosion). Stomach acid is always very acidic, vomiting, reflux (GERD), alcohol, pregnancy, obesity, eating disorder.
    2. Extrinsic (erosion). Diet is always acidic (can be healthy or unhealthy). Fruits are good, sugar is bad. Swimming, asthma inhalators and medicine can also cause erosion.

We have to establish whether the tooth wear is due to mechanical overload, diet, gastric reflux etc. It's multifactorial.

TWES-Screening = quantification per sextant.
TWES-Status

Source: *Diagnosting tooth wear, a new taxonomy based on the revised version of the Tooth Wear Evaluation System (TWES 2.0), Wetselaar P et al, 2020*.

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In Amsterdam, abfraction is abandonded. It was believed that abfraction is a sign of overloading, but tooth wear is multifactorial. Now they don't use 'abfraction' anymore.

Dry mouth / hyposalivation is a worsened defense mechanism, that make the teeth more susceptible to tooth wear.

Clinical assessment, classification and taxonomy of tooth wear

V/ Peter Wetselaar, dentist, Amsterdam, chair of orofacial pain at ACTA

Quantification of the tooth wear = grading the severity = give a number.

There are many older tooth wear indices.

Tooth Wear Evaluation System (TWES 2.0)

TWES-Screening of occlusal/incisal tooth wear

0 = No wear
1 = Wear within the enamel
2 = Wear with dentin exposure, loss of clinical crown height under 1/3
3 = Wear with dentin exposure, loss of clinical crown height more than 1/3 but under 2/3
4 = Wear with dentin exposure, loss of clinical crown height more than 2/3

TWES-Screening of non-occlusal/incisal tooth wear

0 = No wear
1 = Wear within the enamel
2 = Wear with dentin exposure (under 50% of the area)
3 = Wear with dentin exposure (more than 50% of the area)
4 = Wear with dentin exposure (complete loss of enamel or pulp exposure)

Spreading of tooth wear

Localized tooth wear involves a few teeth (1-2 sextants)
Generalized tooth wear involves most of few teeth (3-6 sextants)

Source: *The tooth wear evaluation system: a modular clinical guideline for the diagnosis and management planning of worn dentitions. Wetselaar P et al*.

TWES-Severity of tooth wear
0 = No
1 = Mild
2 = Moderate
3 = Severe
4 = Extreme

Pathological vs physiological tooth wear
When tooth wear is pathological, and not physiological, we have to start restorative treatment. But when is it pathological?

Physiological tooth wear:
Some degree of tooth wear is expected during a life time. Not all tooth wear needs treatment.
Pain-free function of the dentition throughout life. Function is chewing and aesthetics.
Physiological tooth wear is a part of normal aging.

Increased prevalence of tooth wear: people become older, and people keep their own dentition longer.

Tooth wear is “the third attack on the dentition”, besides caries and periodontitis.

Mechanical AND chemical tooth wear combined will increase the rate of tooth wear and make it pathological.

European Consensus Statement (ECS)

Prevalence of severe tooth wear is increasing with age
3% of 20 year olds
20-45% of adults
17% of 70 years olds

Pathological tooth wear
Atypical tooth wear for the patient’s age, pain or discomfort or sensitivity, functional problems, deterioration of aesthetic appearance, undesirable complications of increasing complexity.

5 signs of pathological tooth wear
1. Fast progress of the tooth wear process after a period of monitoring.
2. Wear is atypical for the age of the patient.
3. Etiological factors not influenceable.
4. Surfaces that are involved in occlusion and articulation, leading to the loss of VDO (vertical dimension of occlusion).
5. The condition of saliva.

Source: Wetselaar P et al. Diagnosing tooth wear, a new taxonomy based on the revised version of the Tooth Wear Evaluation System (TWES-2.0). 2020.

5 symptoms of the patient of pathological tooth wear
1. Sensitivity and/or pain
2. Functional problems (problems chewing and eating)
3. Deterioration of aesthetic appearance
4. Crumbling of dental hard tissue and restorations
5. Phonetic impairment

Source: Wetselaar P et al. Diagnosing tooth wear, a new taxonomy based on the revised version of the Tooth Wear Evaluation System (TWES-2.0). 2020.

Pathological tooth wear that need restorative treatment
Tooth wear with dentin exposure (moderate, severe, extreme) +
Detection of at least 1 of the 10 pathological signs and symptoms +
Origin (mechanical/chemical, instrinsic/extrinsic)

It's important that the patient only get restorative treatment, if the patient and the dentist both share the decision making. It will not be a succes, if the dentist decide for the patient. The patient has to want the restorative treatment.

Tooth wear is multifactorial, and is often has both mechanical AND chemical origin.

A taxonomy can help both trained and untrained dentists in diagnosing tooth wear.

Questionnaires regarding tooth wear attack
- Bruxism
- GERD reflux
- Eating disorders
- Food diaries

Questionnaires regarding tooth wear consequences
- Aesthetics
- Function
- Oral dryness

Documentation and follow-up of tooth wear - risk and progression assessment
V/ Peter Wetselaar, dentist, Amsterdam, chair of orofacial pain at ACTA

Documentation and monitoring of tooth wear
- Indices
- Intraoral photos
- Dental casts/scans
- X-rays (bitewings, panoramic) (however, x-rays are not precise enough for monitoring tooth wear)

Tooth wear monitoring TWES-documentation
Once every year? Once every 5 years?

It's better to monitor tooth wear once a year!
Use an index once every 1-1,5 year.

Intraoral photos once every 2 years.
Dental casts are only necessary when starting the restorative treatment, and every 3.5 years.
Intraoral scans once every 2 years, and once every 0,5-2 years.

Tooth wear is not a linear process. There are active vs inactive periods. Documentation every 1-2 years is great.

Source: Monitoring of erosive tooth wear: what to use and when to use it. 2023.

Source: *A methodology for evaluation system: a modular clinical guideline for the diagnosis and management planning of worn dentitions. Wetselaar P et al, 2020*.

Risk assessment of tooth wear
TMD
Burning mouth syndrome (BMS)
Saliva
Genetics
Etc.

DC-TWES risk assessment with the "Wearogram"
Physical markers:
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Medical markers:
- Sleep disorders
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7. Erosive drinks (soft, sport, energy drinks, juices) for quenching thirst between meals
8. Reflux
9. Vomiting
10. Do you feel pain or "icing" after eating or drinking something acidic or cold?

Source: Margarita V et al. Multicenter study to develop and validate a risk assessment tool as part of composite (?) scoring system for erosive tooth wear. 2021.

Saliva analysis
Saliva is of paramount importance of oral health.
Hyposalivation = objective
Xerostomia = subjective

Prevalence 10-80%

Source: Uena-Puy C. The role of saliva in maintaining oral health and as an aid to diagnosis. 2006.

Oral dryness risk factors
- Medication
- Radiation head/neck
- Diabetes
- Auto-immune diseases (Sjögren)
- Malnutrition
- Stress, depression, fear

Source: Uena-Puy C. The role of saliva in maintaining oral health and as an aid to diagnosis. 2006.

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8. Debris on palate (excluding under dentures)
9. Altered/smooth gingival architecture
10. Active or recently restored (last 6 months) cervical caries (more than 2 teeth)

Scores:
0 = No
1 = Yes
Range 0-10, where 2-3 is normal, and more than 5 is hyposalivation.

Source: Clinical oral dryness source: evaluation of a new screening method for oral dryness. 2018.

Xerostomia questionnaire
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1. My mouth feels dry when eating a meal.
2. My mouth feels dry.
3. I have difficulty in eating dry foods.
4. I have difficulties swallowing certain foods.
5. My lips feel dry.

The 6 other questions:
6. I sip liquids to aid in swallowing food.
7. I get up at night to drink.
8. I suck sweets or cough lollies to relieve dry mouth.
9. The skin of my face feels dry.

10. My eyes feel dry.
11. The inside of my nose feels dry.

Give only 3 answer options for the patient:
1. Never
2. Occasionally
3. Always

Source: The xerostomia inventory: a multi-item approach to measuring dry mouth. 1999.

Saliva testing of 3 things
- Saliva amount
- Saliva buffer capacity
- Saliva acidity

Dét var Dental Insights. Tak fordi du er her. ❤️

Kærlig tandhilsen Anne Mette