2022

The Effects of Celiac Disease on Oral Health in Children and Adults

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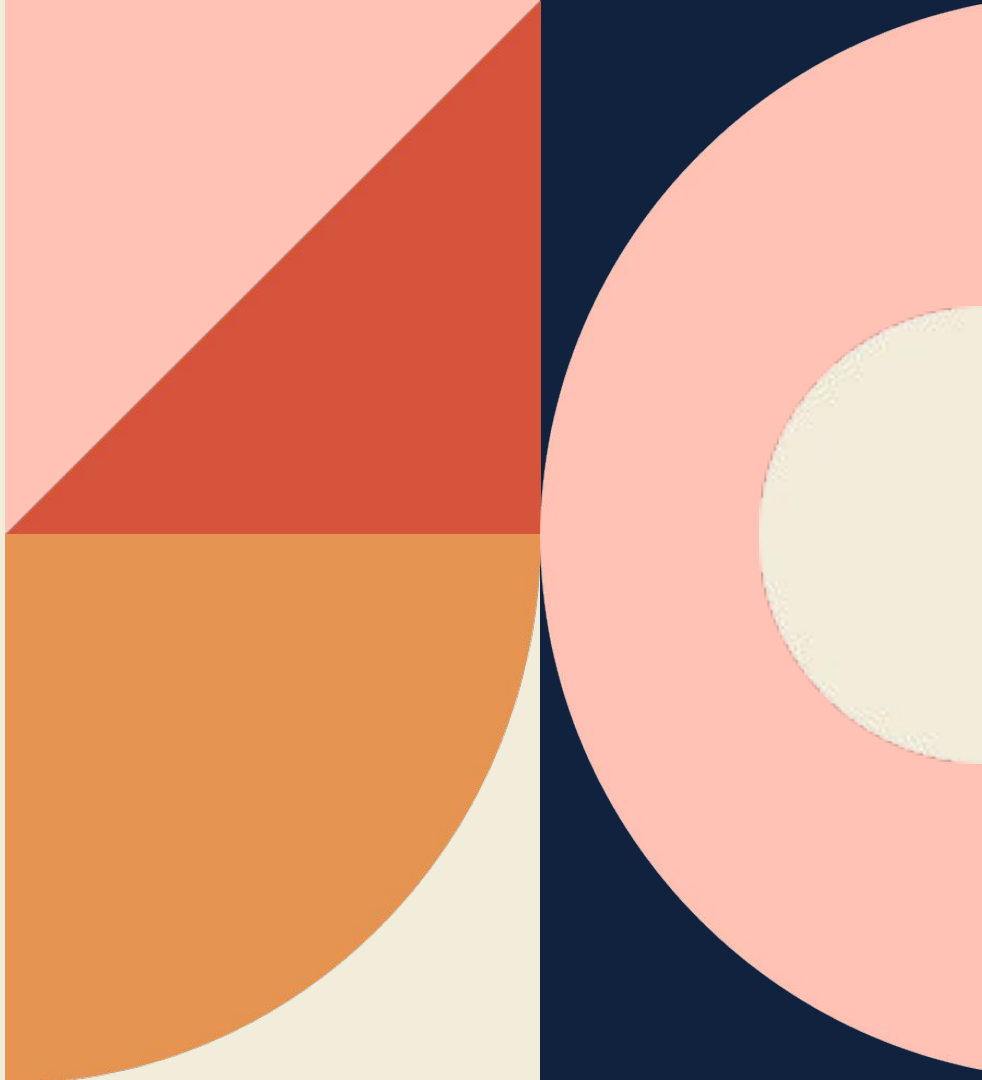
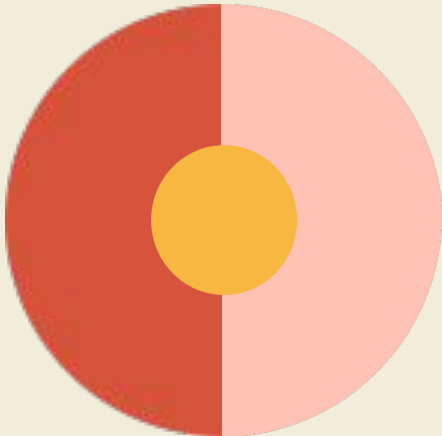


Objectives

1. Determine the oral manifestations associated with celiac disease
2. Compare oral implications between children and adults
3. Why should we care as dental professionals?
4. What are the responsibilities of the dental care provider when treating a patient with celiac disease?

Background

- CD is a multifactorial, autoimmune disorder triggered by ingesting gluten in genetically susceptible people
- The pro-inflammatory immune response causes blunting of the microvilli in the small intestine and leads to nutrient malabsorption
- A diagnosis is confirmed by an endoscopy and intestinal biopsy
- Can develop at any point in a person's lifetime
- Affects 1.4% of people worldwide and has a female predominance
- No cure → controlled with a gluten-free lifestyle
- Symptoms vary person to person



Methods and Materials

Studies Reviewed:

- PubMed
- Primary & secondary sources
- Published after 2017

MesH terms included:

- “celiac disease”
- “coeliac disease”
- “oral manifestations”
- “children”
- “adults”

2021 Case-Control Study Results

- Compared oral manifestations in Saudi Arabian children aged 6-14 years with CD against healthy controls
- Children with CD had a higher level of recurrent aphthous stomatitis (RAS) and dental enamel defects (DED)
- No difference in frequency of malocclusion in children with CD versus the control group

2020 Case-Control Study Results

- The symmetry of enamel defects were evaluated in Portuguese children aged 6-18 years
- 2 types of DED → **Grade I**: defect in enamel color. **Grade II**: structural enamel defect
- Grade I was the most common in children with CD, but can be seen in both groups
- Grade II defects were seen only in children with CD
- Patients with CD are more likely to have symmetrical DEDs in primary and permanent dentition

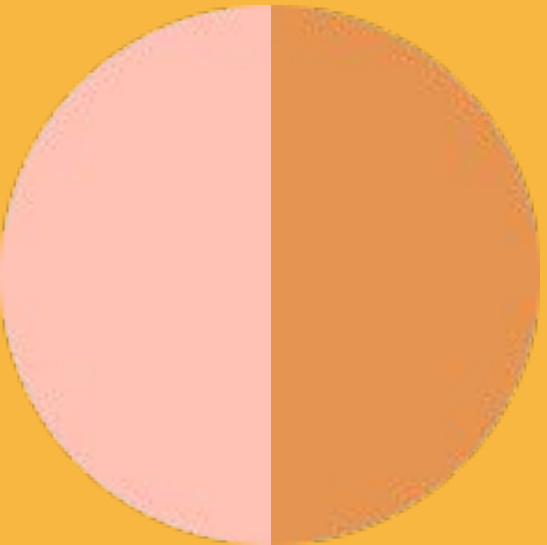
2020 Case-Control Study

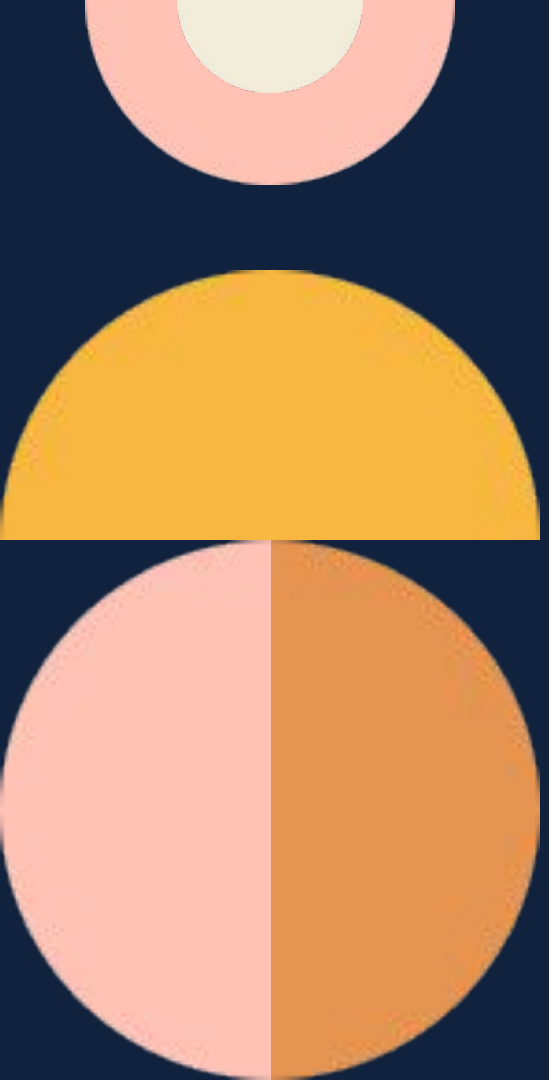
Results

- Assessed the prevalence of dental maturity (DM) in CD patients and tested for possible predictors
- Compared CD children aged 6-14 years with a control group of healthy individuals
- Results indicated that children with CD had a higher prevalence of delayed DM than the controls
- Predictor found for DM: age range between 6-7 years

2020 Observational Study Results

- Identified oral manifestations in adult patients with CD aged 15-56+ years
- Caries prevalence and dentin sensitivity were observed in all CD age groups
- Gingivitis and dentin sensitivity increased as the age of CD patients increased
- Females with CD presented with higher caries prevalence and dentin sensitivity than males with CD
- Age and gender directly affect the severity and prevalence of oral manifestations



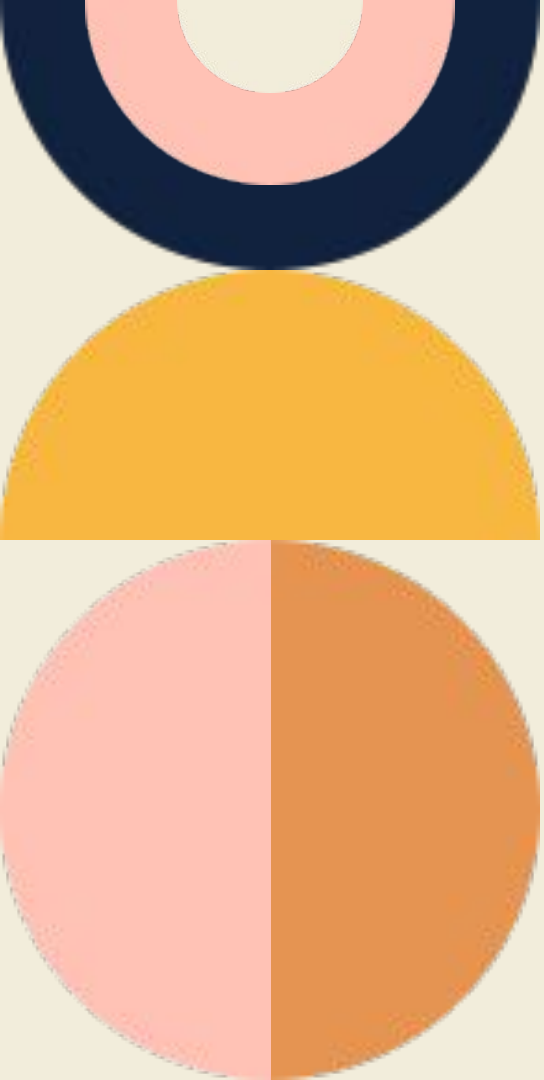


2020 Observational Study Results Cont.

- CD patients with concurrent systemic conditions have an increased likelihood of developing oral implications
- CD & GI distress: gluten-free diet can help prevent oral manifestations
- CD & hematological problems: more likely to experience enamel defects, xerostomia, and dentin sensitivity
- CD & muscular disorders: 2.5 times more likely to have dentin sensitivity

2018 Systematic Review Results

- Studied the effects of a gluten-free diet on oral manifestations in CD patients
- A gluten-free diet alters the oral microbiota, favoring an increase in oral health quality and delay in gingival disease
- No significant difference in the prevalence of periodontal disease was found between CD patients and the control group
- Patients with CD presented with more oral conditions such as:
    - Aphthous ulcers in adults and children
    - Enamel hypoplasia in children
    - Enamel defects in adults and children
    - Delayed tooth eruption in children

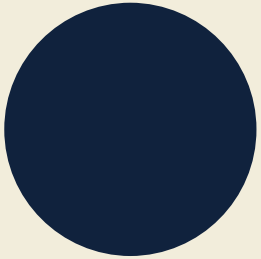


2018 Cross-Sectional Study Results

- Investigated whether celiac disease was associated with periodontitis among a sample of U.S. adults aged 30-80 years
- Patients with CD presented with reduced probing depths compared to healthy individuals
- There was no association determined between CD patients and attachment loss levels or prevalence of periodontal disease
- Results indicated a negative association between CD and periodontal disease

2021 Prospective Case-Control Study Results

- Assessed the dental and oral manifestations in Asian patients with celiac disease aged 20-36 years
- Evaluated patients for DED using Aine's criteria for classification
- Compared to healthy individuals, patients with CD who had been following a gluten-free diet for at least a year presented with a higher rate of:
  - Bilaterally symmetrical DED
  - Dry mouth
  - Recurrent aphthous ulcers



2022 Cross-Sectional Study Results

- Determined whether the salivary glands are associated with sialadenitis, salivary dysfunction, and oral manifestations in people above 18 years with CD
- Compared to healthy controls, CD patients presented with:
  - Inflammatory changes in minor salivary glands
  - A higher prevalence of xerostomia, mucosal lesions, dry/ cracked lips, and focal lymphocytic sialadenitis
  - Higher whole salivary flow rates
  - Normal function of major salivary glands
  - Less gingival inflammation
  - No significant difference in the levels of cariogenic bacteria

Discussion

- Big picture:
  - Both children and adults with CD present with oral manifestations such as RAS, DEDs, and dentin sensitivity.
  - **Children** experience delayed tooth eruption and dental maturity.
  - **Adults** are more likely to develop xerostomia, gingivitis, dry/cracked lips, and sialadenitis.
  - Findings on caries prevalence in people with CD were inconclusive.
  - Patients with CD and concurrent systemic disorders are more likely to develop oral implications.
- Responsibilities of the dental professional:
  - Refer a CD patient to a dietician or therapist when necessary.
  - Provide oral hygiene instructions and appropriate recommendations to combat CD side effects on the oral cavity.

Conclusion

- Oral manifestations associated with CD can occur at any point in the affected person’s lifetime.
- A gluten-free diet is necessary for improving and maintaining the oral health of CD patients.
- The dental professional has a responsibility of familiarizing themself with CD-related oral implications and treating the patient accordingly.

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