Manifestations of gastrointestinal diseases in the oral cavity

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Types of mouth affections in conjunction with GIT diseases I.

- **Glossitis:**
  - Crohn’s disease
  - Coeliac disease
  - Kwashiorkhor
  - Malabsorption syndromes
  - Gastro-duodenal ulcers

- **Teeth disorders:**
  - Coeliac disease
  - Gardner syndrome

- **Ulcers, erosions:**
  - Crohn’s disease
  - Ulcerative colitis
  - Coeliac disease
  - Malabsorption syndromes

- **Candidiasis:**
  - Steroid treatment

- **Lip affections:**
  - Crohn’s disease
Types of mouth affections in conjunction with GIT diseases II.

- **Gingivitis:**
  - Crohn’s disease
  - Coeliac disease

- **Tingling sensations of the mouth:**
  - Coeliac disease
  - Malabsorption syndromes

- **Cheilitis:**
  - Crohn’s disease
  - Coeliac disease
  - Malabsorption syndromes

- **Pigmentations:**
  - Peutz-Jeghers syndrome
Coeliac disease I.

- Malabsorption syndrome
- Permanent gluten (gliadin) intolerance
- Gliadin is mainly in oats, rye, wheat and barley
- Etiology is unclear. A coincidence of genetic predisposition and autoimmune mechanisms is suspected
- Heavily underdiagnosed. Estimates are that 1% of North American population is affected. 90% of patients are still undiagnosed!

Increased risk of developing coeliac disease in patients with:
- Diabetes Mellitus type 1
- Autoimmune thyroiditis
- Down’s syndrome
Coeliac disease II.

- Clinical manifestations:
  - Typical:
    - Abdominal pain
    - Diarrhea
    - Weight loss, failure to thrive, growth delay
  - Other:
    - Anemia
    - Significant weakness
    - Osteoporosis
    - Menstrual cycle disorders/infertility
    - Delayed puberty
    - Dermatitis herpetiformis Dühring
Coeliac disease III.

- Clinical manifestation in the oral cavity:
  - Enamel defects
  - Delayed teeth eruptions
  - Recurring mouth ulcers
  - Cheilosis
  - Oral lichen ruber planus
  - Atrophic glossitis
Coeliac disease IV.

- **Laboratory diagnosis:**
  - Whole IgA levels (selective IgA deficiency incidence = 1:600!)
  - Anti tissue transglutaminase antibodies
  - Anti endomysial antibodies
- **Endoscopic enterobiopsy**
- **Treatment:**
  - Life long, strict, gluten-free diet
Gastro esophageal reflux I.

- Dental enamel destruction caused by gastric acids in patients with chronic gastro esophageal reflux in:
  - Gastro esophageal reflux disease
  - Hiatal hernia
  - Bulimia nervosa
- Loss of dental enamel in the surfaces exposed to gastric acids, so called erosions
- The maximum teeth damage in bulimic patients is in the oral surfaces of the upper frontal teeth
- Eroded dental enamel is smooth, shiny and hard
- In cases of long term damage the tooth dentin can be seen as a brown-greenish streaming. Teeth are sensitive to thermal stimuli
Jaundice I.

- Excessive bilirubin accumulates in tissues including the oral mucosa thus leading to their yellowish discoloration.
- The degree of the yellowish discoloration depends on the bilirubin levels and on the duration of hyperbilirubinemia.
- Bilirubin has affinity to elastin » increased accumulation in the tongue frenulum and the soft palate.
- Cave! Similar discolorations can be seen in patients with excessive vitamin A intake!
- In childhood, biliverdin forms teeth depositions » yellowish to greenish discoloration of the teeth, for instance in children with biliary atresia.
Peutz-Jeghers syndrome I.

- Mutation in the LKB1 gene
- Autosomal dominant pattern of inheritance or sporadic mutations
- Associated with hamartomas affecting mainly the thin intestine and perioral and oral pigmentation
- Flat, painless, brown spots in the oral cavity, mainly on the buccal mucosa, tongue and lips
- Microscopically, acanthosis with increased melanocytes and near-by keratinocytes pigmentation is present
- Treatment is not necessary, only for social or cosmetic reasons
- Zaheri et al. have proven good results of ablation with potassium-titanyl-phosphate laser
Gardner syndrome I.

- Autosomal dominant pattern of inheritance, rarely, spontaneous mutation in a gene on the 5th chromosome.

- Clinical manifestations include:
  - Intestinal polyposis with high risk of malignant transformation.
  - Skin manifestations:
    - Epidermoid cysts
    - Fibromas
    - Sebaceous cysts
  - Bone manifestations:
    - Osteomas of the skull
  - Tumors of the thyroid gland.
Gardner syndrome II.

- Affections of the head and neck usually appear during childhood or adolescence:
  - Multiple enostoses of the jaws, usually affection the teeth alveoli, asymptomatic
  - Supernumerary and/or missing teeth:
    - Usually affecting the canine teeth and sparing molars
    - Supernumerary teeth usually wedge-shaped
  - Increased risk of odontomas, in the same distribution like in supernumerary teeth
  - Osteomas of the jaws and paranasal cavitis
  - Epidermoid cysts of the head and the neck
Gardner syndrome III.

- A dentist can alert the gastroenterologist in regards to the possibility of Gardner syndrome via oral manifestations
- According to Ide et al.:
  - Patients with 3 – 6 jaw osteomas are suspicious of Gardner syndrome
  - Patients with more than 6 osteomas are regarded as diagnosed with Gardner syndrome until proven different
Inflammatory Bowel Disease

**Crohn’s Disease**
- Transmural inflammation of the GIT wall
- Can affect any part of the GIT, traditionally the ileocecal region
- Histological findings of granulomas

**Ulcerative colitis**
- Inflammation affecting only the GIT mucosa
- Affecting only the thick intestines, always starting at the rectum and spreading orally
- Histological findings of crypts and crypt abscesses

It is impossible to differentiate these two units solely based on oral findings
Oral manifestations of Crohn’s disease I.

- According to Dupuy et al. only in 0.5% of patients with Crohn’s disease
- Patients with oral manifestations are more likely to have affections of the esophagus and the anus
- Male predominance, usually manifests in early age
- Rarely, oral manifestations can be the first presentation of Crohn’s disease
- Usually multifocal, linear, nodular, polypoid or diffuse affections of the oral mucosa
- Predilection of affecting the labial and buccal mucosa
- Usually hard, pink and painless
- Painful on touch or due to ingestion of acidic, spicy or hot food only when ulcers are present
- Ulcers can be persistent, linear and deep » diff. dg. blisters
Oral manifestations of Crohn’s disease II.

- Microscopically:
  - Subepithelial, non-caseating granulomas. Characteristic epitheloid histiocytosis, large-cell and lymphocytic infiltrate
  - The changes are identical to those seen in the intestines
- Oral manifestations are typically persistent, remitting and relapsing
- Response to systemic treatment is individual, variable and unpredictable
- Oral manifestations don’t always correspond with the degree of GIT inflammation activity
- Some oral ulcers respond to topical or infiltrative administration of steroids
Oral manifestations of ulcerative colitis I.

- Affections of the oral cavity are called pyostomatitis vegetans
- Very rare, much rarer than oral manifestations in Crohn’s disease
- Male predominance
- Oral manifestations can develop at any age
- They can precede GIT manifestations but usually they appear at a similar time
- They are pustules on a red basis, affecting any part of the oral cavity with the exception of the dorsum of the tongue
- Long lasting lesions can granulate or appear as polypoid shape or rippled
- Some patients have ulcers of the oral cavity
- 10% of patients with oral manifestations also have arthritis of the temporomandibular joint
Oral manifestations of ulcerative colitis II.

- Microscopically:
  - Crypt abscesses with lack of granulomas
  - Similar to changes of the thick intestine
  - Inflammatory infiltration with neutrophile, eosinophile and lymphocyte predominance is usually present

- Oral manifestations usually respond well to systemic steroid treatment

- Oral manifestations usually correspond with the degree of thick intestine inflammatory activity