Oral manifestations of gastrointestinal diseases in children. Part 1: General introduction

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ABSTRACT

Alterations of the oral cavity are common in children: 22% of children aged less than 4 years and 44% of those aged more than 12 develop dental erosion, 9-95% of children in Europe and in North America develop gingivitis, with adolescents showing a prevalence of more than 60% (Linee guida – Ministero della Salute 2013).
Alterations within the oral cavity can be the first sign of systemic diseases and may thus allow for an early diagnosis and treatment. In particular, being the oral cavity a part of the gastrointestinal system, oral alterations can be an expression of a gastrointestinal disease.
A prompt recognition of systemic diseases through a careful examination of the oral cavity could allow the child to have appropriate investigations and to be managed in a timely fashion.

Keywords *Alterations of the oral cavity; Gastrointestinal diseases; Children.*

Introduction

Children are prone to alterations within the oral cavity, in fact dental erosions, recurrent aphtous stomatitis (RAS), and developmental defects of enamel (DDE), in particular enamel hypoplasia, are commonly encountered in clinical practice [Ministero della Salute 2013; Suckling, 1989].

Dental caries is the most common chronic disease of childhood [US Department of Health and Human Services, 2000]; available prevalence data of early childhood caries in some European countries (England, Sweden, and Finland) range from below 1% to 32% [Douglass, 2001; Davies, 2001]. In the United States, data on pre-school children (2–5 years of age) show a 28% prevalence of dental caries [Berkowitz, 2003]. However, prevalence rises to 56% in some eastern European countries [Szatko, 2004]. In Italy prevalence has been estimated to be 22% and 44% at the age of 4 and 12 years respectively [Strohmenger et al., 2006; Campus et al., 2007] (Fig. 1).

RAS is the most common oral ulcerative disease, affecting one third of school-age children [Flaitz, 2001], with a prevalence varying between 17% and 45% [Regezi, 2008] (Fig. 2).



FIG. 1 Dental caries in deciduos teeth.



FIG. 2 Recurrent aphtous stomatitis localized in non keratinezed mucous of the left cheek.

Aepidemiological data on mucosal lesions in children and adolescents in Italy are very scanty and prevalence of specific oral alterations is still unknown mainly due to the absence of diagnostic standardised protocols [Ministero del lavoro, della Salute e delle Politiche Sociali, 2014].

Prevalance of DDE in the primary dentition ranges between 10% to 49%; Montero et al. [2003] reported an overall prevalence of 49% in 517 children in the USA. Slayton [2015] showed that up to 33% of healthy children in the USA had either one tooth with enamel hypoplasia or enamel opacities. In Australia, Seow et al. [1998] reported a prevalence of DDE of 25% in the primary dentition.

Connection between alterations in the oral cavity and systemic health has been widely proven [Chi, 2010; Majorana, 2010). Oral examination can reveal signs and symptoms of systemic diseases, especially mucocutaneous, immunologic disorders, endocrinopathies, haematologic conditions, systemic infections, and nutritional problems (US Department of Health, 2000). In particular being the oral cavity part of the gastrointestinal (GI) tract, alterations of the former may reveal a GI disease, such as coeliac disease (CD), gastroesophageal reflux disease (GERD) or inflammatory bowel disease. Dental enamel defects, dental caries and aphthous ulcers have been demonstrated to occur in both children and adults with CD and to regress with a gluten-free diet [Pastore, 2008]. Dental erosions can be a consequence of GERD [Tolia, 1997; Bishop, 1994; Schroeder, 1995], and GERD has been diagnosed in 25–83% of patients presenting with caries, many of whom are children [Wilder-Smith, 2015]. Oral manifestations such as geographic tongue, ulcers, stomatitis and periodontal disease, are common in Crohn's disease (CrD) [Bishop, 1972; Stankler, 1977; Van Dyke, 1986] (Fig. 3). Finally, oral alterations may be present in up to one-third of paediatric patients with ulcerative colitis (UC) and are usually nonspecific [Katsanos, 2015].

As the spectrum of oral lesions in children is wide, minimum knowledge about the type of lesions most commonly associated with GI pathologies, their approach and management is required, so that appropriate work-up and treatment are timely undertaken.

Dentists must be able to detect any of the many possible disorders and make the correct differential diagnosis, key to the treatment plan.

In this paper we make a comprehensive review of oral lesions associated with gastrointestinal diseases, thus providing a helpful guide for both paediatricians and dentists in the management, diagnosis and treatment of these sometimes challenging manifestations.

Considering the high frequency of alterations that can arise in the oral cavity of children, the dentist should be able to detect those lesions that need a thorough diagnostic work-up. Oral mucosal lesions, especially in children, are important to diagnose as they can be clues to systemic diseases and may be the primary presenting sign, preceding gastrointestinal symptoms. A typical GI disease diagnosis begins with a detailed medical history. Dentists should enquire about other clinical symptoms, associated disorders and family history of GI diseases to assess the potential aetiological factors associated with oral disease. Clinical, dental and oral cavity examinations are mandatory. Subsequently, the effective care of the patient with suspicious oral alterations requires interdisciplinary cooperation. Communication between gastroenterologists and dentists is imperative for the success of the overall treatment of their patients.



FIG. 3 Geographic tongue.

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