

Dental neglect in children

Jenny Harris

Anne Whittington

Abstract

Untreated dental diseases, particularly dental caries, can lead to a range of adverse impacts on children, including pain and infection. Yet caries is preventable if a child's basic oral health needs are met. Dental neglect occurs when there is persistent failure to meet those needs. Dentists and paediatricians should work together with other health and social care professionals to identify children with dental neglect and to intervene to safeguard their oral and general health and development. This article outlines the epidemiology of dental disease and explains how dental neglect can be diagnosed and jointly managed.

Keywords Child abuse; child neglect; child welfare; dental care for children; dental caries; dental decay; prevention

Introduction

Dental caries (or decay) is one of the commonest diseases of childhood both in the UK and worldwide. In the USA, it is five times more common than asthma. Since it is both preventable and treatable and, in the UK, children have free-of-charge access to dental care, good oral health should be attainable for every child. However, the Child Dental Health Survey 2013 reported:

- 31% of 5-year-olds had obvious caries experience in primary teeth
- 46% of 15-year-olds had obvious caries experience in permanent teeth

Furthermore, dental disease was the commonest reason for a child aged 5–9 years to be admitted to hospital in England in 2012/13 and, by the age of 15, 10% of children had had a general anaesthetic for dental treatment. Dental extractions cost the NHS £30 million a year.

Educating parents and children in how to prevent dental disease is an essential part of any course of dental treatment. However, only recently has the dental profession in the UK begun to understand fully the safeguarding implications of untreated dental disease. Rather than simply preventing and treating disease, the importance of promoting children's general health and wellbeing is now increasingly recognised. Identifying children with dental neglect presents an opportunity to intervene

Jenny Harris BDS FDSRCS MSc FDS (Paed Dent) is a Consultant in Community Paediatric Dentistry in Community and Special Care Dentistry and Paediatric Dentistry, Charles Clifford Dental Services, Sheffield Teaching Hospitals NHS Trust and Honorary Senior Clinical Lecturer in Paediatric Dentistry, University of Sheffield, UK. Conflict of interest: none declared.

Anne Whittington MBChB MRCPCH is a speciality trainee (ST3) in Paediatrics and Clinical Fellow in Leadership & Management in Safeguarding, Sheffield Children's Hospital, UK. Conflict of interest: none declared.

What's new?

This update draws on a growing evidence-base and reports increasing professional confidence in diagnosing dental neglect. Further development of communication pathways between doctors, dentists and other healthcare professionals is required to reduce the burden of oral disease in childhood and to ensure children's oral health needs are met.

early to safeguard them, including considering child protection referral to children's social care. At the present time this remains a developing area of dental practice with a small, but growing, supporting literature.

Definition of dental neglect

Dental neglect was defined in 2009 by the British Society of Paediatric Dentistry as "the persistent failure to meet a child's basic oral health needs, likely to result in the serious impairment of a child's oral or general health or development". Drawing on international perspectives, the Cardiff Child Protection Systematic Review Group's alternative definition "refers to the failure of a parent or guardian to meet a child's basic oral health needs, such that the child enjoys adequate function and freedom from pain and infection, where reasonable resources are available to the family or caregiver."

To understand dental neglect requires first an understanding of dental development, dental diseases (particularly dental caries) and dental treatment provision. The aim of this article is to provide a review of current thinking on dental neglect together with sufficient background information on common oral conditions and their treatment to enable paediatricians and other health professionals to work with dental colleagues to jointly plan appropriate interventions and, when necessary, to interpret whether a child is at risk of significant harm. A glossary of common dental terms is provided in [Table 1](#).

Dental development

Normal development

Development of the dentition follows a typical sequence but with some variation in the age at which teeth erupt. The primary (or deciduous) dentition is composed of 20 teeth which usually emerge between the ages of 7 months and 3 years ([Figure 1](#)). Permanent incisors and first molars usually start to erupt at age 6, heralding the start of the mixed dentition. Parents are sometimes surprised that their 6-year old children have permanent molar teeth, which will not be replaced if extracted, present alongside primary molars which will in due course be replaced by permanent successors. The permanent dentition is established once all primary teeth have exfoliated, usually around the age of 12. Third molars, or 'wisdom teeth', erupt in early adulthood.

Developmental anomalies

Teeth can be affected by inherited or acquired anomalies of number, form, structure and eruption. Examples are:

- number: missing teeth (hypodontia) or extra (supernumerary) teeth

Glossary of common dental terms

Development

Eruption	emergence of a new tooth through the gingiva (gum)
Exfoliation	spontaneous loss of a tooth, usually when a primary (baby) tooth is replaced by its permanent (adult) successor
Quadrant	the teeth in one half of a dental arch e.g. the upper right quadrant extends from the midline to the most distal upper right molar
Dental tissues	enamel, dentine, pulp, cementum, gingiva, periodontal ligament

Diagnoses

Dental caries	destruction (decay) of dental hard tissues by acidic by-products from bacterial fermentation of dietary carbohydrates
Dental plaque	bacterial biofilm on the tooth surface, removed by toothbrushing
Gingivitis	inflammation of the gingival margin, usually plaque-related due to poor oral hygiene
Periodontitis	progressive destruction of the supporting tissues of the tooth ('gum disease'); rare before puberty
Calculus	hard deposit of mineralised plaque; gross deposits are uncommon except in children with complex disabilities, especially if non-orally-fed
Pulpitis	painful inflammation of the dental pulp (nerve); acute or chronic; can progress to dental abscess
Dental abscess	abscess in the periapical tissues (at the root apex); acute with severe pain and risk of spreading infection or chronic discharging sinus with intermittent discomfort
Dental trauma	injuries to teeth: (a) fractures – defined by the tissues affected e.g. enamel, dentine, pulp and (b) luxation injuries – defined by the degree of loosening and the direction of movement
Tooth surface loss	toothwear due to erosion (e.g. from acidic drinks or gastric reflux), attrition (e.g. from tooth grinding) or abrasion (e.g. from abrasive foodstuffs), alone or in combination

Treatment

Preventive care	use of fluorides (e.g. as toothpaste or varnish), fissure sealants, oral hygiene instruction and dietary counselling
Fissure sealants	resin coating applied to molar teeth to prevent caries
Scaling	calculus removal by scraping it off with a metal or ultrasonic tipped instrument
Restoration	removal of decayed or damaged tooth tissue and repair with a suitable material (a filling) or custom-made replacement (e.g. crown, inlay, veneer)
Endodontic treatment	treatment for the diseased or injured dental pulp ('root filling')
Extraction	irreversible removal of the tooth

Table 1



Figure 1 Five-year-old boy with a healthy primary dentition.

- form: tooth size (microdont, macrodont) or shape (double teeth, invaginated teeth)
- structure: dental enamel (molar-incisor hypomineralisation, amelogenesis imperfecta), dentine (dentinogenesis imperfecta) or combinations of dental hard tissues (dilatation following dental trauma)
- eruption: ectopic teeth, premature or delayed eruption

Dental anomalies show wide variation in severity. Some of these conditions are readily treatable, others result in tooth loss or require lengthy and complex treatment and lifelong maintenance.

Common oral conditions and treatment

Dental caries

Dental caries is a multifactorial disease of the dental hard tissues resulting from interactions over time between acidogenic bacteria (predominantly *Streptococci mutans*) and a dietary sugar substrate, modified by many host factors including the components of saliva. It usually progresses slowly over months or years from a white spot to a brown spot, then forms a cavity in the tooth surface. If there are overwhelming risk factors, for example the frequent or night-time consumption of juice from a bottle, it may progress more rapidly. This pattern of disease in preschool children is known as severe early childhood caries (S-ECC) and affects smooth tooth surfaces not usually prone to decay (Figures 2 and 3).

Diagnosis of dental caries is by careful visual inspection under good lighting supplemented when necessary by intraoral radiographs. Early disease is asymptomatic and can remain undetected, especially in children who are unable to cooperate fully with dental examination, yet early diagnosis is important because it offers the opportunity to prevent progression or 'arrest' caries (Figure 3). Remineralisation can occur in a favourable environment in the presence of fluoride.

As caries progresses from enamel into dentine, symptoms of pulpitis may cause intermittent sensitivity or mild toothache. These symptoms can be reversed by restoration of the tooth. Left untreated, progression to irreversible pulpitis typically results in severe toothache which keeps children awake at night and is only partly relieved by analgesics. Necrosis of the dental pulp follows and, after a variable interval, a dental abscess may develop with further pain and the risk of spreading infection.

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