

Oral medicine in children

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In brief

Discusses the orofacial soft tissue conditions in children..

Compares the presentation and management differences between children and adults with oral mucosal diseases.

Discusses non-dental orofacial infections in children..

Children have oral mucosal conditions and other head and neck medical problems which have both similarities and differences to those found in adults. This article highlights the common areas of oral medicine seen in children and notes where management of the condition in children may differ from that in adults. This is either due to different aetiological factors or due to the child's age or cooperation influencing treatment decisions and outcomes.

Introduction

Children experience a variety of oral medicine and oral surgical problems, some of which last into adulthood and some resolve with or without intervention by the dentist or doctor. Even where the same pathology is found in both adults and children the approach to disease management and delivering dental care may be very different. This can be due to differences in the aetiology of the condition or the ability of the child to accept standard treatments.

History and examination

The examination of the child starts as soon as the dentist and the child meet. Observations about a child's weight, height or development for his or her age, the attachment to the parent or siblings and even the clothing worn by the child can be important. When at all possible the child should be the source of the information – usually supported by the views of a parent – but it is important to have the child

as the focus for information gathering initially. Be careful not to interpret the language used too literally – not every 'ulcer' turns out to be such – and always ask '*what do you mean by ...?*' if the child or the parent uses a word with a particular meaning to the dentist. Always ask the child for permission before starting an extra-oral or intraoral examination of the soft tissues and explain what is to be done. Ask if there are any sore areas in the mouth before touching the mucosa and use play, such as asking the child to touch the chin or the tip of its nose with the tongue as a way of enhancing the soft tissue examination. Always check under the upper and lower lips and palpate the firmness of the lips – especially necessary when considering oro-facial granulomatosis as a possible diagnosis. Soft tissues lesions can result from pathological conditions but also from accidents and abuse and all lesions should be noted, recorded and when appropriate, photographed. Remember to include a sizer, such as a ruler in the photograph with the lesion.

Nutritional deficiencies

Good nutrition is essential for a healthy mucosa as well as normal growth and development. Regularly assessing a child's height and weight change when attending for dental care is an excellent way to identify latent disease compromising the child's nutrition. Both inflammatory bowel disease and coeliac disease, as well as the

early changes of renal failure and other chronic conditions may be identified in this way, with the dentist having noticed the child's growth to be crossing rather than following centiles on a standard paediatric growth chart.

During the growth spurt towards the end of the first decade of life and again in the teenage years, the rapid utilisation of nutrients such as iron can lead to an exacerbation of aphthous ulcers in a susceptible individual. With the assistance of the GP the child's iron (ferritin), folic acid and vitamin B₁₂ levels can be measured. In some children, simply increasing the iron content of the diet by choosing food high in iron content such as meat or green leafy vegetables may be enough to improve the symptoms. Where the 'high sprout diet' does not seem palatable to the child, iron as tablets or liquid on prescription from the GP given over a period of three months can be effective in reversing these growth-related changes. Most 'multivitamins with iron' have too low an iron content to be able to improve the iron stores.

Combined deficiencies of iron and folic acid should make the dentist consider small bowel malabsorption as the cause and referral to a specialist is essential where this is suspected. Similarly, vitamin B₁₂ deficiency needs urgent investigation as this vitamin is essential for health and maturation of nerves. Haematinic deficiencies can be associated with and exacerbate aphthous ulceration, oral candidal infection, angular cheilitis and glossitis.

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Orofacial soft tissue conditions

Some mucosal diseases are less common in children than in adults, particularly lichen planus and vesiculobullous diseases, whereas the acute herpetic primary infections are seen almost exclusively in children. Other conditions present at any age, including common conditions such as a geographic tongue (Fig. 1) and recurrent aphthous stomatitis.

Oral ulceration

Oral ulceration is a common complaint, especially in growing children. Traumatic ulceration of the tongue, lips, and cheek may occur in children, especially after local anaesthesia has been administered. Minor aphthous stomatitis is a multifactorial condition with genetic and health components. The history must differentiate a single episode of ulceration from recurrent ulceration and also collect information about the site, duration and size of the ulcer together with the ulcer free period. The last item is particularly important as the impact on daily living is much more profound when ulcers are present continuously than if a single ulcer presents every 4–6 months.

Traumatic ulceration

Traumatic ulcers may be surrounded by a white keratotic area when the trauma has occurred gradually. They are most commonly seen on non-keratinised mucosal surfaces. More rapid onset ulcers are usually bordered by normal or mildly inflamed mucosa and have a red erythematous base of exposed connective tissue. Traumatic ulcers are frequently seen in the child in areas accessible to the teeth and biting, such as the cheek or lower lip in the area of the canine teeth or sharp lower incisor mamelons. For a sharp tooth or restoration edge, orthodontic wires and appliances may be the cause, but deliberate and accidental biting can frequently be seen. Traumatic ulcers will heal or significantly reduce within two weeks if the cause is removed and any ulcer not doing so needs closer attention. If self harm is suspected the dentist must not be afraid to raise this with the child and parents. These



Fig. 1 Geographic tongue changing in a child

'factitious' ulcers may be due to underlying psychological stress in the child and where appropriate the dentist should liaise with the GP to consider assessment by child and adolescent mental health teams.

Recurrent aphthous stomatitis

Recurrent aphthous oral ulceration is multifactorial and the genetic predisposition is a significant factor in a child developing lesions. This chance is then modified above the 'ulcer threshold' by other factors such as growth, allergies, trauma or nutritional deficiencies. The role of each will vary from child to child. If they have always had ulcers it is likely that the problem is predominantly genetic. However, if there has been a clear recent change in the ulcer pattern then it is more likely that there is a specific nutritional deficiency. Common correctable factors influencing the development of oral ulcers are given in Box 1.

Minor aphthous ulcers

In the young child the symptoms of aphthous ulcers may be mistaken for toothache. The majority of aphthous ulcers in children are of the minor variety (less than 10 mm in diameter) and usually heal within 10–14 days. Multiple ulcers can be present at the same time and the ulcers are always found on non-keratinised mucosa. Some children will develop ulcers after exposure to dietary triggers such as chocolate or tomato but in others trauma to the mucosa from toothbrushing or from an orthodontic appliance edge may initiate an ulcer in the damaged tissue. Symptomatic treatment with over-the-counter remedies may suffice for the occasional ulcer, but topical steroids may be

prescribed in more severe cases. These are only of benefit if started during the ulcer prodrome and offer little benefit once the ulcer has actually appeared. Younger children often first notice the ulcers when food irritates the established lesion, being unable to identify the tingling sensation heralding the ulcer and making episodic topical steroids of little help. For this reason the use of a prophylactic daily steroid rinse is sometimes more helpful than targeted steroid inhalers when the child is significantly troubled by aphthae, as the rinse covers all parts of the mucosa likely to develop an ulcer every day. It is very important that the use of a rinse with steroids is restricted to children who can demonstrate a clear ability to 'rinse and spit' – usually not below the age of six.

Major aphthous ulcers

Major aphthae are much less common in children than minor aphthae but can become established during the teenage years. These ulcers are generally bigger than 10 mm in diameter and can last for 8–12 weeks. They will sometimes heal with scarring and can affect any part of the oral mucosa including keratinised tissue. People with major aphthous ulcers may also get smaller, shorter duration ulcers more typical of minor aphthae and therefore it is important not to discount a diagnosis of major aphthae just because not all ulcers follow the major aphthae pattern – classify the ulcer type on the most likely diagnosis. Major aphthae respond poorly to topical steroids, but high strength and high potency corticosteroid inhalers can be helpful if the ulcer is accessible. Referral to an oral medicine specialist is preferred. A pulse of systemic steroids or intralesional steroids may be needed to settle some persisting ulcers. As with minor aphthae, identification of nutritional deficiency or dietary allergen should be part of the management.

Herpetiform aphthous ulcers

When small (5 mm or less) aphthous ulcers are present in great numbers (often up to

Box 1 Common triggers for aphthous ulcers in children

- Minor mucosal trauma in a individual
- Haematinic deficiency – low serum ferritin, folic acid and/or vitamin B12
- Sodium lauryl sulphate (SLS)-containing toothpastes
- Benzoate, cinnamon, chocolate and sorbate preservative containing foods

100 at a time) and are present throughout the mouth on both keratinised and non-keratinised mucosa, these are termed herpetiform aphthae – they resemble the mouth in primary herpetic gingiva-stomatitis. However, the two conditions are easily distinguishable as the viral infection is invariably accompanied by a fever and herpetiform aphthous ulceration is a recurring condition. Investigations for a patient with herpetiform aphthae are the same as for minor aphthous ulcers. Oral steroid rinsing can be used as a prophylactic therapy but steroid inhalers are of little use due to the widespread ulceration of the oral mucosa.

Use of steroid medicine in children

Use of steroid medicines for conditions such as aphthous ulcers can cause some anxiety for dentists aware of the many possible side effects of these medicines. Local issues such as oral candidosis or systemic absorption which could lead to growth suppression are often of concern. However, for short courses of a few days, repeated monthly or more infrequently, steroid medicines even systemically, are safe and effective in settling inflammatory or immune conditions. The use of continuous rinsing or frequent application of a topical steroid or use of a systemic steroid should always be initiated by an oral medicine specialist.

Off-licence medicines use

Steroids being used for oral mucosal conditions in children are often prescribed 'off-licence' – the medicine is not being used for any condition that the drug was licenced to treat. If an off-licence medicine is to be prescribed by the dentist it is essential that it is made clear to the child and parent what 'off-licence' use of a medicine means and the implications of this use. Clear, written information must be given concerning the use of the medicine in the child's particular clinical situation. The drug information supplied by the manufacturer will cover the 'licenced' use and should not be relied upon to properly advise on the method of drug use and delivery required by the dentist. Where a medicine is to be used 'off-licence' a patient information leaflet with correct instructions for use in the oral condition should be given to the patient at each prescription.

Orofacial granulomatosis

Orofacial granulomatosis is a rare condition characterised by recurrent or persistent swelling of the lips, perioral and facial tissues.

Dusky erythema of the affected facial skin is frequently seen as are intraoral changes including multiple mucosal tags and cobblestoning of the buccal mucosa. Oral ulceration, typically linear fissures at the depth of the upper or lower buccal segments, are occasionally seen as is 'staghorning' – swelling of the submandibular papillae – and linear erythema affecting the entire width of the attached gingivae. It is caused by lymphatic obstruction caused by non-caseating giant cell granulomas deep in the tissues. This results in tissue oedema and swelling in the affected area. Biopsy of the lip or buccal mucosa swelling is generally not recommended in the child as the depth and size of the biopsy can lead to disproportionate damage to the tissues and a traumatic experience for the child. As the biopsy frequently does not give information that will change the clinical management, it is preferred to work with a presumptive diagnosis in most cases. In the linear ulcers, however, the granulomas are much more superficial and a biopsy is both helpful and less traumatic. Although the pathology is clear in OFG the aetiology is largely unknown and likely varies from child to child.

Management of the OFG child is initially with a 12 week benzoate/cinnamon/chocolate exclusion diet. This trial is more reliable than immediate or delayed hypersensitivity skin testing in identifying children for whom diet modification should form part of the treatment. If there is a good response to an absolute exclusion trial at 12 weeks, the omitted foodstuffs can be individually re-introduced allowing food triggers to be identified. There may only be a small number of these, but it allows the child and the family to be in control of the symptoms – some days having chocolate or a pizza may be worth the consequent lip swelling, and on others it may not.

For children where proper dietary exclusion has not proved helpful, their appearance can be a significant issue leading to bullying, confidence issues and social isolation. These are not minor problems, especially in the teenage years or when starting a new school and in these circumstances it is warranted to consider treatment based on immunosuppressants topically and, if needed, systemically, to reduce the lip swelling by reducing the granuloma formation. Management of OFG in a child is through a specialist clinic. The use of a tacrolimus ointment on the lips and perioral skin can reduce the swelling and erythema in many mild cases where diet modification has

been unhelpful or only partially successful. Intralesional steroid injections into the lip tissue have been used for the same purpose and can have a more dramatic effect. However it can be more traumatic for the patient and usually makes the lip swelling worse before it offers any improvement. Local anaesthesia should always be used when giving this form of treatment or a dental phobia will rapidly develop. The use of systemic immunomodulators is a big step to take in an OFG child. Steroids in small doses combined with azathioprine can be useful but more recent use of TNF- α modulators in Crohn's patients has shown these can also have a good effect on the lip swelling.

The other oral features of OFG can be managed as they present. As with all angular cheilitis or lip fissures it is important to take an individual swab of each involved area for culture and sensitivity to identify the correct antimicrobial if an infection is present. Usually a combined antimicrobial and steroid cream is the most appropriate initial therapy continuing for at least a week after the area heals. After that, simple petroleum jelly without preservatives can be a good way of keeping the areas free from the irritation of saliva egress that may follow from the changed lip contours. Intraorally the tags and cobblestoning rarely cause trouble although surgical reduction may be necessary if swellings start interfering with the occlusion. The gingival erythema does not respond to oral hygiene measures but these should still be encouraged. The most frequent source of intraoral discomfort though is from the linear sulcus ulcers. As these are a direct result of local granuloma formation, intralesional steroid injections under local anaesthesia are the most effective symptomatic treatment.

Swellings of the mucosa

The majority of non-dental solid swellings of the oral mucosa in children are fibro-epithelial polyps or pyogenic granulomas and arise as a result of recurrent minor trauma to the mucosa. Normally, these should be excised and examined histologically, but in younger children this may require a general anaesthetic and the dentist must make a judgement as to whether an asymptomatic lesion is of sufficient concern to justify this risk. Often simple lesions can be reviewed periodically and removed if necessary when the child can accept local anaesthesia with or without sedation techniques.

Table 1 Orofacial conditions in children from viruses

Clinical conditions in children	Virus Name		Virus type
Primary herpetic gingivostomatitis Recurrent 'cold sores'	Herpes simplex 1	HHV1	Herpes α
	Herpes simplex 2	HHV2	Herpes α
Chicken pox, shingles in immunocompromised	Herpes zoster	HHV3	Herpes α
Glandular fever	Epstein Barr virus	HHV4	Herpes γ
Oral ulceration (immunocompromised)	Cytomegalovirus	HHV5	Herpes β
Roseola	Roseola virus	HHV6b	Herpes β
		HHV7	Herpes β
Kaposi sarcoma (immunocompromised)	KSHV	HHV8	Herpes γ
Mumps	Mumps virus		Paramyxovirus
Measles	Measles virus		Paramyxovirus
Hand foot and mouth	Coxsackie A16		Picorona virus
	Enterovirus EV71		
Herpangina	Herpangina virus (Coxsackie A or B)		Picorona virus

Fibroepithelial polyp

This is a fairly common symptomless lesion that presents as a firm pink lump. It normally affects the buccal mucosa at the occlusal level. These lesions are caused by trauma such as from malpositioned teeth, sharp tooth edges or from recurrent lip or cheek biting habits. If noticed at an early stage, the use of an Essix style retainer on the upper or lower teeth can be enough to break the habit and allow the lesion to resolve spontaneously in a child old enough to wear an appliance.

Pyogenic granuloma and giant cell lesions

These dark-red swellings commonly occur on the gingiva but are possible on any area of mucosal trauma. They are a reaction to chronic irritation, especially from inflammation around retained deciduous roots. As a consequence they have a tendency to recur after removal unless the source of irritation is cleared. Pyogenic granulomas can have giant cells as the characteristic type in the lesion and are then termed 'peripheral giant cell granulomas'. Giant cell containing lesions can also arise from biochemical abnormalities rather than local irritation, especially from a high parathyroid hormone level. These central giant cell granulomas arise in the bone and spread out into the mouth and a radiograph of the affected area is an essential part of the assessment. If there is considerable bone loss in the vicinity of the lesion a giant cell cause is more likely. Where a giant cell lesion is confirmed it is important to check the child's

parathyroid hormone level, renal function and bone biochemistry.

Congenital epulis

This is a rare lesion that occurs in neonates. It normally presents in the anterior maxilla. It consists of granular cells covered by epithelium and is thought to be reactive in nature. This is a benign lesion and simple excision is curative but requires a general anaesthetic which is not without its risks in the neonate. If it is not interfering with feeding then a more conservative approach can be taken.

Human papilloma virus associated mucosal swellings

Squamous cell papillomas are benign and lead to small pedunculated cauliflower-like growths. These are caused by the human papillomavirus types 6 and 11 and vary in colour from pink to white. They are usually solitary lesions and treatment is by surgical excision.

Oral warts (*Verruca vulgaris*) may present as solitary or multiple intra-oral lesions. These may be associated with skin warts and transferred from finger to mouth. They are caused by the human papillomavirus types 2 and 4 in over 90% of cases. Most childhood warts eventually resolve spontaneously, but as this may take some time freezing the wart can speed the process.

Neurofibromas

Neurofibromas are discrete swellings along the length of peripheral nerves and may present as solitary or multiple lesions of the skin and oral mucosa, particularly the tongue

and gingivae. Oral neuromas are a feature of neurofibromatosis (NF) types 1. Type 1 NF presents in childhood and is due to a mutation on chromosome 17 and is characterised by multiple 'café-au-lait' spots on the skin which may precede the neurofibromas. The genetic abnormality in NF type 2 is on chromosome 22 and this results in neuroma formation within the CNS, typically bilateral acoustic nerve lesions that can lead to facial sensory or motor changes by impinging upon the facial or trigeminal nerves. Most patients do not present until the teenage years.

Non-dental infections

Viruses, bacteria and fungi may cause infections of the oral mucosa, perioral skin and salivary glands.

Many previously common viral infections such as mumps and measles are now prevented through vaccination. The dentist should consider the child's immunisation record as part of the medical history process – the uptake or otherwise of the offered vaccines can give insight into other medical issues or attitudes to healthcare in the child's family. A low vaccination uptake should be noted as this may be a marker for neglect in some cases – in others it is a positive parental choice.

Viral infections

Viral infections are very common in children as the immune system adapts to the large range of pathogens the child encounters in daily life. Most are acquired and dispatched without anything more than mild pyrexia or a 'runny nose'. Many viral encounters result in future immunity against that virus strain, but some, particularly herpes group viruses, can become persistent leading to recurrent emergence of the virus over the years.

Herpetic infections

Human herpes virus (HHV) infections are almost ubiquitous in the population. When examining the oral mucosa of a child, ulceration of the attached mucosa should always make the dentist consider a viral cause, especially if a fever is present (Table 1).

Primary herpes simplex infection (HHV1 and 2)

This condition usually occurs in children between the ages of six months and five years. Circulating maternal antibodies protect young babies. During the acute seroconversion illness with HHV the widespread development of

intraoral viral vesicles bursting to form ulcers are seen on all parts of the oral mucosa – keratinised and non-keratinised. Each strain of the virus can cause its own primary infection. Most children encounter HHV1 and 2 without any memorable problems – a subclinical acquisition of the virus.

Management during the acute phase is usually supportive, ensuring that the child's temperature is controlled with simple antipyretic analgesics and maintaining fluid intake. The primary infection will pass within a week without any ill effect in the healthy child and no antiviral therapy is indicated. However, in the immune compromised child, aciclovir at an age appropriate dose should be started immediately as the risks of complications such as herpetic encephalitis are higher.

Recurrent herpes simplex infection (HHV1 and 2)

Sometimes referred to as 'reactivation', this consequence of herpes simplex usually occurs at the labial mucocutaneous junction and presents as a vesicular lesion that ruptures and produces crusting. Intra-oral recurrences of herpes simplex are increasingly recognised presenting as either small vesicles or a cluster of 'ulcers' which recur on the same part of the oral mucosa each time (Fig. 2). Triggers for reactivation include sunlight, other causes of ill health and 'stress'. Use of a sunblock with a high protection factor (for example, SPF 50) every day on the affected area – even when not sunny – can also reduce the incidence of lip and facial lesions in many children.

Treatment is rarely needed for recurrent lesions but the psychological impact of large or persisting herpetic facial lesions can be considerable and prophylaxis with low dose systemic aciclovir can be an effective way of preventing disfiguring lesions.

Herpes varicella-zoster (HHV3)

The HHV3 virus causes chicken pox, which is the primary seroconversion illness and is highly contagious. A vaccine is available to prevent this infection but it is not part of the childhood immunisation programme in many countries including the UK. Chicken pox gives a systemic illness and pyrexia with mucocutaneous vesicles which rupture to give painful ulcers. As with herpes simplex virus, healthy children do not need anything other than supportive treatment, with aciclovir reserved for those with other health issues and the immune compromised. Pregnant women should also

be prevented from contact with children with chicken pox so a patient with this condition can be a hazard for the dental team. A higher dose of aciclovir is needed to control HHV3 than for HHV1 or HHV2.

Recurrent herpes varicella zoster (HHV3)

Recurrent HHV3 is colloquially known as 'shingles'. The vesicular lesion develops within the peripheral distribution of a branch of the trigeminal nerve when the orofacial tissues are involved. Pain in the area may also be present. Shingles is not common in children but is more frequent in the late teens, or if there is another systemic illness or debilitating condition in the child. Episodes of shingles should be treated aggressively with high dose aciclovir, even if only mildly symptomatic.

Epstein Barr virus (HHV4)

This virus is the cause of infectious mononucleosis (glandular fever), sometimes referred to as 'kissing disease' due to its propensity to spread by saliva in the mid to late teenage years. The seroconversion illness can resemble primary herpetic gingivostomatitis, but it has more pronounced systemic features including lymphadenopathy, fever and fatigue. The fatigue can persist for many months in some cases.

Mumps

Mumps produces a painful enlargement of the major salivary glands, most notably the parotid glands. It is usually bilateral but can start with a unilateral swelling that points the clinician to a local glandular cause. Within a few days, however, the bilateral nature becomes apparent. The causative agent is a paramyxovirus and vaccination has significantly reduced the frequency with which this condition is seen in childhood.

Measles

The intra-oral manifestation of measles are infrequently seen now due to the MMR vaccination. The lesions appear as white speckling of the buccal mucosa surrounded by a red margin and are known as Koplick's spots. The skin rash of measles normally appears as a red maculopapular lesion. Fever is present and the disease is contagious.

Herpangina

This is usually a Coxsackie virus A infection. It can be differentiated from primary herpetic infection by the different location of the vesicles, which are found in the tonsillar, soft palate or pharyngeal region and not widespread



Fig. 2 Recurrent intraoral herpes simplex of the palate

throughout the mouth. Herpangina lesions do not coalesce to form large areas of ulceration. The condition is short-lived.

Hand, foot and mouth disease

This Coxsackie virus A infection produces a maculopapular rash on the hands and feet. The intra-oral vesicles rupture to produce painful ulceration. It lasts for 10–14 days and is very contagious – outbreaks frequently occurring in primary school children (and their parents!).

Bacterial infections

Staphylococcal infections

Staphylococci and streptococci may cause impetigo. This can affect the angles of the mouth and the lips. It presents as crusting vesiculobullous lesions. The vesicles coalesce to produce ulceration over a wide area. Pigmentation may occur during healing. The condition is self-limiting, although antibiotics may be prescribed in some cases. A swab of the area should always be sent for culture and sensitivity before prescribing an antibiotic and consideration given to using an antiseptic such as chlorhexidine instead. Staphylococcal organisms can also cause osteomyelitis of the jaws in children. Although the introduction of aggressive antibiotic therapy has reduced the serious consequences of osteomyelitis in children, surgical intervention is usually required to remove bony sequestra.

Fungal infections

Candida is present in the mouths of about 40% of the population and this commensal carriage seems to begin early in childhood. For this reason, a simple mouth swab demonstrating candida only confirms the presence of the candida and does not imply that it is pathogenic and causing any symptoms or signs. A



Fig. 3 Lower lip mucocele in a child

quantitative culture is needed to demonstrate candidal levels above those normally found to suggest that an infection is present.

Pseudomembranous candida

Neonatal acute pseudomembranous candidosis (thrush) is not uncommon. Young children may develop the condition when their resistance is lowered due to another illness, nutritional deficiency or after antibiotic therapy. Use of steroid metered dose inhalers (MDI) in childhood asthma can direct a proportion of the drug to the roof of the mouth and soft palate leading to local immune suppression in the area and allowing pseudomembranous candidosis to develop. The child should be instructed to rinse the mouth after each inhaler use to remove powder deposited on the mucosa and either to use a spacer device with a MDI or to change to a breath activated inhaler type, such as a turbobhaler.

The dentist must not only recognise the acute candidiasis but also be satisfied that a good explanation as to why the condition has arisen has been obtained. Topical treatments are usually adequate when the precipitating cause is corrected. Systemic fluconazole can be used with caution in children and is most appropriate where there is an underlying medically compromising condition with the cooperation of the patient's physician.

Chronic mucocutaneous candidosis

Chronic mucocutaneous candidosis (CMC) is a rare, usually autosomal dominant inherited condition which results in chronic infection of the skin, nails and mucous membranes with candida. Clinical features are often noted by the age of three. Patients with this condition are important to identify as they are susceptible to a variety of endocrine and autoimmune problems, including a condition termed autoimmune polyendocrinopathy-candidosis-ectodermal dystrophy (APECED). A patient diagnosed with CMC must be referred to an endocrinologist for assessment.

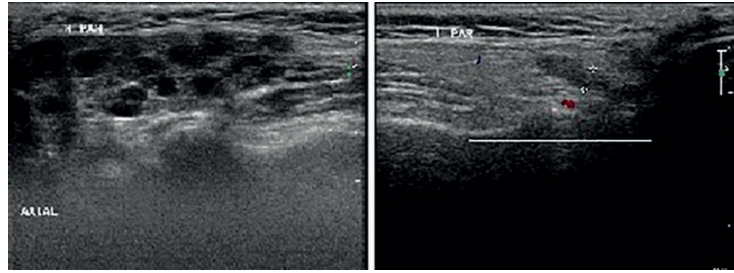


Fig. 4 Ultrasound of parotid gland in recurrent parotitis of childhood, left side showing hypoechoic areas, right side normal

Salivary gland conditions

Most salivary lesions in children are simple mucoceles (Fig. 3). Infective salivary gland issues in children are related to either viral infection – predominantly mumps – or to ascending bacterial infection from the mouth when salivary flow has been compromised. This can be as a result of salivary stones or mucus plugs, but both are relatively rare in children.

Ranula

A ranula is a mucocele arising in the floor of the mouth beneath the tongue and can arise from the minor salivary glands or the ducts of the sublingual or submandibular glands. It appears as a bluish swelling of the floor of the mouth and can become quite large. Before surgery is considered, investigation with ultrasound or MRI is needed as some lesions extend through the floor of the mouth into the submental or submandibular space. These 'plunging ranulas' require a different surgical approach for successful removal and should be attempted only by a surgeon with the appropriate experience. Occasionally, what seems to be a ranula will be found on imaging to be a lymphangioma or part of another developmental lesion such as a dermoid or lymphoepithelial cyst. Lymphangiomas are benign tumours of the lymphatics, with the vast majority found in children.

Recurrent parotitis of childhood

This is a rare condition often starting in the first five years of life. It is characterised by swelling and pain of one of the parotid glands and as such may be confused in the early stages with mumps (Fig. 4). The child will often be pyrexical, in pain and pus is usually seen exuding from the duct of the affected gland. This responds to antibiotics appropriate for a 'dental' infection and it is likely that it is a bacterial infection ascending from the mouth. The problem recurs once or twice a year in most cases and seems to

remain in the one gland. This low level damage over many years causes increasing cumulative and permanent damage to the acini and duct structures resulting in lower gland flow rates, incomplete emptying of the ductal system and, consequently, increasingly frequent infections. In the third decade the patient usually has to have a surgical procedure to disconnect the gland from the mouth, such as a superficial parotidectomy or ligation of the parotid duct.

Little is known about the aetiology of this as serial sialography was not practical in the younger children afflicted by this condition. Hopefully, the increasing use of ultrasound in salivary imaging will allow some insight into the early changes in the glands leading to infection as it is tolerated even in younger children. Management is through systemic antibiotics such as amoxicillin, targeting bacteria from the oral flora and should be given as early in the infective cycle as possible. The child, parents and the child's doctor should all be aware of the need for this and this may involve having an appropriate antibiotic at home rather than having to arrange a medical appointment at very short notice.

Facial pain

TMD pain

Non-dental and non-infective facial pain is not common in children. However, it is masked in the younger child by their difficulty in understanding what and where the problem lies. Most often non-specific pain in a young child is attributed to teething or earache where caries cannot be blamed for the discomfort. However, TMD pain is not unusual to see in a paediatric oral medicine clinic and also in the community. This is diagnosed in much the same way as in an adult, with an awareness of the possibility of TMD and looking at the big picture of the child's life and the pattern of their pain. Chronic relapsing and remitting 'toothache' in the absence of a dental or otological cause



Fig. 5 Tongue edge crenation from parafunctional clenching

must raise suspicion and evidence for parafunctional clenching (Fig. 5), and limitation of mouth opening or meniscal symptoms makes TMD highly probable. The aetiology is similar to that in adults, with anxiety being the key factor in most children. Occasionally, the occlusal disruption from orthodontic treatment or an orthodontic appliance can exacerbate previously mild symptoms. Anxiety in the younger child may be from problems

at school or home, or sometimes illness in a pet or a family member. It is important not only to make the diagnosis, but also identify the underlying worry both to reassure the child and to engage the rest of the family as support.

Management with reassurance, advice regarding use of a soft diet and avoiding habits such as nail biting together with splint therapy is usually enough. Occasionally, psychological intervention or anxiolytic medication may be used, but this should only be initiated by an appropriately experienced clinician.

Conclusions

Oral medicine conditions in children have a variety of presentations. These may be similar to the equivalent problem in the adult, but the approach to management can be very different. The dentist and oral medicine specialist must be aware of the full range of conditions, presentations and management options to fully serve the needs of the child with these issues.

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