



Stephen A Fayle
Specialist Registrar in Paediatric Dentistry
Leeds Dental Institute



Susan Kindelan
Consultant in Paediatric Dentistry
Leeds Dental Institute



For children with liver disease, the basic principles of maintaining a healthy mouth are very much the same as for all children. However, there are a few specific mouth problems associated with liver disease and there are a few special considerations dentists need to take into account when treating children with liver problems.

Keeping a healthy mouth

Dental plaque, which is made of millions of bacteria (everyone has these in their mouth), grows on the teeth every day. Plaque is involved in the two most common oral health problems — tooth decay and gum disease.

Tooth decay

Tooth decay is unfortunately a very common disease, especially in young children, and can lead to pain, infection, difficulty eating and disturbed sleep. Long-standing jaundice, especially when it occurs in very young children, can sometimes lead to thinness or weakness of the tooth enamel (Figure 1), which can make the teeth even more susceptible to decay. For children with lowered immunity, such as might occur after a liver transplant,

Dental Care for Children with Liver Disease



Fig. 1
Thinning and discolouration of adult teeth in a child who had liver disease as an infant.

dental infections (e.g. abscesses) can be a serious threat to health.

Tooth decay occurs when sugary or starchy foods and drinks are consumed. The sugar in these foods/drinks is changed into acid by bacteria in plaque, and this acid then slowly dissolves minerals out of the enamel, softening it and causing it to break down, eventually leading to cavities. Fortunately, our saliva has natural built-in repair mechanisms which can repair early damage, but the more frequently we consume food and drink containing sugars the more damage we do and the less chance there is of effective natural repair. One of the best ways to reduce the risk of decay is to reduce how often we eat or drink sugar containing foods. Dentists often recommend that young children should eat/drink sugar containing foods on no more than 5 occasions per day and should only have very sugary food/drink occasionally. This can be quite difficult, as most foods and drinks contain some sugar.

This can be especially difficult for children with chronic illness, such as liver disease, because they often have reduced appetite, but need to have a high calorie intake. They often end up having to feed frequently, hence increasing the risk of tooth decay. To make matters worse, some of the high calorie drinks which are

essential for some of these children are especially decay producing.

For many children with liver disease, their doctor, dietician or liaison nurse will prescribe a high calorie diet, with food and drink being offered frequently. This often cannot and should not be changed without your doctor's/dietician's specific agreement. However, fortunately there are a few things you can do to reduce the bad dental side-effects of such diets:

- 1) Try to encourage your child to eat/drink on specific occasions, taking food/drink away between these times, to give the mouth a rest and allow the natural repair mechanisms to work.
- 2) Do not leave young children to slowly drink sugary or fruit based drinks over a long period of time. Drinking anything other than water from a bottle for long periods of the day, or during the night (when bottles are often used as comforters) is especially dangerous for teeth (Fig. 2). Even milk (which is a relatively safe drink from the dental point of view) can cause decay if slowly drunk from a bottle during the night. If your child likes to drink from a bottle last thing at night, make sure you take it away before your child falls asleep. Water is completely safe for teeth. Try to offer water if your child is thirsty between meals.



Fig. 2
Drinking sugary drinks regularly from a bottle during the night can cause serious tooth decay.

3) Brush the teeth at least twice each day with a fluoride containing toothpaste. Young children (below age 6) should use toothpaste containing around about 1,000ppm fluoride (all toothpaste sold in the UK states the strength in parts-per-million [ppm] on the back — it is sometimes printed quite small, so you have to look hard!). Some of the major manufacturers and supermarkets make this strength children's toothpaste (Fig. 3). Children over 6 years old should use an adult toothpaste with between 1,000 and 1,500ppm toothpaste. All children should use no more than a small pea-sized blob or smear of toothpaste on their brush, and should spit out well, but avoid rinsing, after brushing. Children under 7 must be supervised to make sure they do not swallow large amounts of toothpaste.



Fig. 3

Several manufacturers now make high-fluoride toothpastes with child-friendly flavours. Both these toothpastes contain 1,100 ppm fluoride.

Gum disease

The main type of gum disease seen in children is called gingivitis, which is caused directly by plaque build-up around the teeth. Gingivitis can be prevented by regular, effective tooth brushing. Good tooth brushing is an essential “life skill” and most people need help and instruction from a dentist or dental health professional (such as a hygienist or oral health educator) to learn how to do it well. As a child gets into their teens, gingivitis can advance into periodontitis, which can lead to gum recession, loosening and eventual loss of the teeth.

Children on certain drugs, such as cyclosporine and nifedipine, can also get enlargement of the gums (hyperplasia). This affects some people more than others, but in most can be slowed down (and in some case even stopped

altogether) by really careful, effective tooth brushing. Unfortunately, in some children, the gums become so overgrown that the teeth become very difficult to clean. Not only may this look unsightly, but can lead to gum infection. An operation to shave the gums down (gingivectomy) may then be necessary.

Special dental problems in children with liver disease

In addition to the thinning of enamel and gum hyperplasia already mentioned, children with liver disease may have other special problems which may affect their teeth, or which mean that special precautions might be necessary before dental treatment. Jaundice in young children can lead to tooth discolouration. This happens because the bile pigments in the blood can be taken up by the teeth as they develop. Adult and/or milk teeth can be affected. If this happens the teeth may have a greenish, yellowish or brownish hue. The colour of affected teeth can be improved by putting a layer of special plastic resin onto the front surface of the tooth.

If your child has liver disease, it is important to tell your dentist, as special precautions may be necessary prior to any treatment. Liver disease may affect blood clotting and if your child's immunity is lowered, antibiotics may need to be given before some types of dental treatment. The dosages of some of the drugs given by dentists, including local anaesthetics, may need to be adjusted. Extra steroid may be required for those taking regular steroids.

Ensuring you child has regular check-ups is one of the most important ways of maintaining good dental health.

Dentists can provide preventive treatments and advice which help to ensure your child's teeth remain healthy. As well as giving help and advice about oral hygiene and diet, they can also provide protective plastic coating (fissure sealants) for molar (chewing) teeth and treat teeth with fluoride, both of which make the teeth more resistant to decay.

Dentists can also identify and treat dental diseases, such as decay and gum disease. Visiting regularly means that such problems should be picked up quickly and at an early stage, when treatment is often more straightforward. Obviously, sometimes a complicated medical condition such as liver disease can mean that your own dentist may need to refer your child for more specialised dental care. Fortunately, some primary care trusts have local Specialists in Children's (Paediatric) Dentistry who can often provide treatment for children who cannot be treated by their own dentist. A few centres in Yorkshire (Leeds, Hull and York) also have Consultant children's dentistry services which work alongside paediatricians in order to treat those children who need to come into hospital for dental treatment or need a general anaesthetic.

If you have any concerns about your child's dental care your child's Consultant Paediatrician should be able to write to your dentist or refer him/her to a Paediatric Dentistry colleague for advice.

Summary

Keeping a Healthy Mouth in Children with Liver Disease

- Try to reduce food and drink intakes to 5 a day.
- Don't allow your child to drink fruit or sugary juices from a bottle for long periods at a time (especially during the night).
- Encourage your child to drink water between meal or snack times.
- Brush with a fluoride containing toothpaste (at least 1,000ppm) and supervise your child's brushing up to 7 years of age.
- Attend your dentist regularly.
- Tell your dentist about your child's condition and give the dentist contact details for your child's paediatrician.