

Risks associated with your anaesthetic

Section 4: Damage to teeth, lips and tongue

During a general anaesthetic, it is possible for your teeth to be damaged. This happens in about 1 in 4,500 general anaesthetics. Serious damage to the tongue is rare. Minor damage to the lips or tongue is very common.

This article tells you more about why damage can happen, what makes damage more likely, what you can do to help prevent it and what will happen if damage does occur.

Why does damage happen?

General anaesthesia is a state of controlled unconsciousness. When you are anaesthetised, you become less able to breathe freely through your nose or mouth. Your anaesthetist will choose a way of making sure that you can breathe properly. This is essential for your safety, and usually requires an artificial airway or breathing tube to be placed in your mouth or throat. The devices used are described in more detail in Section 2 in this series. Insertion of these devices can cause damage to the teeth or soft tissues of the mouth or nose.

What type of damage may occur?

Lacerations (minor cuts) or bruising to the lips and tongue are very common, probably occurring in about 1 in 20 general anaesthetics. These injuries heal very quickly and can be treated with simple ointments such as Vaseline.

Teeth or dental work such as crowns, bridges or veneers may be broken, chipped, loosened or completely removed by accident. The most frequently damaged teeth are the upper maxillary incisors (top front teeth).^{1,2} Damage to a tooth requiring subsequent removal or repair occurs in about 1 in 4,500 general anaesthetics.

Rarely, pressure from an airway device causes damage to nerves which control movement and sensation (feeling) in the tongue. This causes numbness and loss of normal movement of the tongue for a period of time. These changes are almost always temporary, with recovery taking a few weeks or months.

How does damage to teeth occur?

The use of artificial airway devices to keep you breathing safely after you are anaesthetised is not always straightforward. Anaesthetists are trained in the use of airway devices, but, even in skilled hands, there may be some difficulty and a certain amount of force is used. This can sometimes lead to damage to teeth, lips or tongue.

For major operations on the chest, abdomen, head, neck or spine, you will need a tracheal tube to be placed through your mouth or nose into your trachea (windpipe). This is usually done after you are anaesthetised. The instruments used to place this tube may cause damage, especially if placement is difficult. Other types of tube may be used for other operations and these carry less risk of damage to teeth.

The surgeon can also damage your teeth, lips or tongue during operations in the mouth or throat, including examinations under anaesthetic of the throat, the lungs or the oesophagus (gullet).

What about false teeth?

You will usually be asked to remove false teeth before a general anaesthetic. This is because they may be dislodged or damaged as your anaesthetist places the artificial airway device as described above. Occasionally your anaesthetist may ask you to leave your false teeth in place. This is most likely to be if you have teeth of your own in amongst the false teeth and your anaesthetist thinks that the false teeth will help protect your own teeth. In this case there is a risk that the false teeth may be damaged.

Who is at increased risk of damage to teeth?

Anyone undergoing a general anaesthetic is at some risk. Wherever possible, your anaesthetist will assess your airway before the anaesthetic starts. He/she may:

- ▶ look in your mouth
- ▶ ask you to move your neck
- ▶ ask you about your teeth and any caps, crowns or loose teeth that you may have.

He/she will then be able to tell you if you have any features that predict difficulty in inserting tubes into the airway. However, difficulties can also arise unexpectedly.

Certain factors are associated with difficulty. These include:

- ▶ reduced mouth opening
- ▶ reduced neck movement
- ▶ prominent upper teeth or small lower jaw
- ▶ certain medical conditions such as rheumatoid arthritis and ankylosing spondylitis

- ▶ pregnant women requiring an emergency general anaesthetic
- ▶ people who are very overweight.

The following have a higher risk of damage to teeth.^{2,3}

- ▶ Anyone with one or more of the above factors.
- ▶ Any person with teeth in poor condition (large amounts of decay or failing dental work). Nearly two thirds of injuries to teeth happen in people with teeth in a poor condition.
- ▶ Anyone having an operation or examination of the mouth, neck, jaw or oesophagus (gullet).
- ▶ Anyone who needs to have a tracheal tube inserted after the operation has started.^{2,3} This is sometimes necessary if the existing airway becomes unsatisfactory during the operation, and insertion of the endotracheal (breathing) tube may be more difficult.

What steps are taken to prevent damage to my teeth?

All anaesthetists are trained to be aware of the potential for damage to teeth. He/she will take care during the insertion of airway devices and excessive force will be avoided as much as possible. If you have any features that predict difficulty with airway devices, your anaesthetist will choose a suitable technique which will allow safe insertion. This should be discussed with you beforehand.

Teeth may be protected with mouth-guards similar to those used in contact sports. A study of the use of mouth-guards found no evidence to support their routine use. However, if you have a high risk of damage to your teeth, your anaesthetist or surgeon may choose to use a mouth-guard, as there is some evidence that this helps protect your teeth in these circumstances.³

Is there anything I can do to prevent damage to my teeth?

If your teeth or gums are in poor condition or any teeth are loose, it is important to visit your dentist before a planned operation for a check-up and dental assessment. Alert the anaesthetist to any loose teeth or dental work before your operation.

If you know there have been difficulties with placing a tube in your airway or you have had damage to your teeth during a previous anaesthetic, it is important to tell your anaesthetist. You should tell someone involved in your care as early as possible, as it may be necessary to find previous anaesthetic records to find out exactly what happened. Your GP, your surgeon or your nurses (on the ward or in the clinic) will be able to help you organise this.

If your anaesthetist tells you that there were difficulties, it is very helpful if you know what the difficulties were. If you are not sure, ask your anaesthetist to write them down so that you can show the letter to anaesthetists in the future.

What happens if my teeth are damaged during an operation?

Your operation should proceed as planned. If a tooth has become completely dislodged it must be secured or removed before you wake up. If there is chipping or cracking of a tooth, the anaesthetist will record the damage and you will be informed when you have recovered.

Immediate treatment will involve pain relief if required and an explanation of what has happened. The tooth may require repair, re-implantation or extraction depending on the nature of the

injury and pre-existing health of the tooth. Damage to veneers, crowns or bridges may require repair.

If you are being treated in an NHS hospital with a dental department, the anaesthetist will make arrangements, if you wish, for you to be seen as soon as possible by a dental surgeon. If there is no hospital dentist, or if you prefer to do so, you can arrange to be treated by your own dental practitioner.

Treatment by an NHS hospital dentist is usually free of charge to you. If you are treated by your own dentist, the hospital may or may not wish to assist with the cost of treatment. You will need to discuss this with the hospital and your anaesthetist. If the damage occurs while you are being treated as a private patient in a private hospital, then you would have to make a claim against the individual anaesthetist.

If you were informed that there was a risk of damage to your teeth and the anaesthetist took a reasonable amount of care, then you may need to accept that this was an unavoidable risk.

How likely is damage to teeth, lips and tongue?

Minor injuries to the lips or tongue are very common and are usually unreported which means accurate figures do not exist. A small study of 404 patients suggested that minor injuries occur in about 1 in 20 patients.⁴

Damage to a tooth which requires subsequent repair or extraction happens in about 1 in 4,500 general anaesthetics. This figure comes from a large study of just under 600,000 patients.⁵

Nerve damage to the tongue due to pressure from airway devices is reported, but accurate figures do not exist. It is likely to be rare or very rare.

Summary

Serious damage to the tongue is rare. Minor injuries to the lips or tongue are very common. The overall risk for serious damage to teeth is around 1 in 4,500 general anaesthetics. If you have an increased risk for damage to teeth, this may be identified before the anaesthetic starts. The majority of damage happens

in people with teeth in previously poor condition. Mouth-guards can reduce but not eliminate the chance of damage in high-risk patients.

A visit to the dentist before a routine operation is advisable if your teeth are not in good condition. If injury does occur, arrangements can be made on your behalf (if you wish) for treatment to be undertaken by the NHS.

Authors

Dr David Euan McIntosh, BMedSci, MRCS
Specialist Registrar in Anaesthetics
Northern School of Anaesthesia

Dr Stuart A Hargrave, FRCA
Consultant Anaesthetist
The Newcastle Upon Tyne Hospitals NHS Trust
Past President, Association of Dental Anaesthetists

Editor

Dr Tom Cripps, FRCA
Consultant Anaesthetist
Melrose General Hospital
President, Association of Dental Anaesthetists

References

- 1 Chadwick RG, Lindsay SM. Dental injuries during general anaesthesia. *Br Dent J* 1996;**180**(7):255–258.
- 2 Owen H, Waddell-Smith I. Dental trauma associated with anaesthesia. *Anaesthesia & Intensive Care* 2000;**28**(2):133–145.
- 3 Skeie A, Schwartz O. Traumatic injuries of the teeth in connection with general anaesthesia and the effect of use of mouthguards. *Endodontics & Dental Traumatology* 1999;**15**(1):33–36.
- 4 Fung BK, Chan MY. Incidence of oral tissue trauma after the administration of general anaesthesia. *Acta Anaesthesiol Sin* 2001;**39**(4):163–167.
- 5 Warner ME et al. Perianesthetic dental injuries: frequency, outcomes, and risk factors. *Anesthesiology* 1999;**90**(5):1302–1305.



The Royal College
of Anaesthetists

The Royal College of Anaesthetists January 2006

The material from this article may be copied for the purpose of producing information materials for patients. Please quote the RCoA as the source of the information. If you wish to use part of the article in another publication, suitable acknowledgement must be given and the RCoA logo must be removed. For more detailed enquiries about the use of this leaflet please contact:

The Royal College of Anaesthetists
website: www.rcoa.ac.uk
email: profstans@rcoa.ac.uk

This leaflet will be reviewed three years from the date of publication.