

Control of Pain

We can help control pain in dentistry by:

Analgesics Local anaesthesia Conscious sedation General anaesthesia

Local anaesthesia

In local anaesthesia we stop the transmission of sensory signals from the nerve endings to the brain. We do this by using anaesthetic chemicals either at the nerve endings or along the path of the nerves. The action of these chemicals to stop the signals only lasts a short time then all sensation returns to normal.

Topical anaesthesia



Topical anaesthetics may come as gels, creams or spray and contain lidocaine or benzocaine.

They are applied to the gingivae/gum before injections and will reduce the sensation on the outer surface before injections. It takes about 2 minutes to work and lasts for about 10 minutes.

They can sometimes be used before incising/cutting an abscess and before taking upper impressions if the patient is liable to gag.

Anaesthetic cartridges:

The anaesthetic agent/solution comes in glass cartridges with a movable rubber bung. They come in two sizes 1.8ml or 2.2ml to fit different syringe types.

The anaesthetic agent is usually **Lidocaine**, **Prilocaine** or **Articaine**.

As well as the anaesthetic agent/solution there is water with salt, and preservative.

In most cartridges there is also a vaso constrictor. This chemical makes the small blood vessels close down and so the anaesthetic is not washed away from the tissue so quickly and will last longer. It also means there will be less bleeding from that area.



The vaso constrictor normally used is Adrenaline / Epinephrine and in the Citanest anaesthetic Octapressin (felypressin) is used. Octapressin is not advised for pregnant women.

Anaesthetics with adrenaline / epinephrine can cause the heart to go faster if accidentally injected into a blood vessel and so an aspirating syringe should be used if there is a risk of injecting into a blood vessel. Aspirating means the rubber bung is pulled back to check if the end of the needle is in a blood vessel – red blood will be seen in the cartridge.

Some cartridges have a bung with a soft centre to spring back.

Local anaesthetics with adrenaline should be used with extreme care in patients severe heart problems.



Some cartridges have a bung with a soft centre to spring back.

Some syringes have a sharp end that screws into the rubber bung

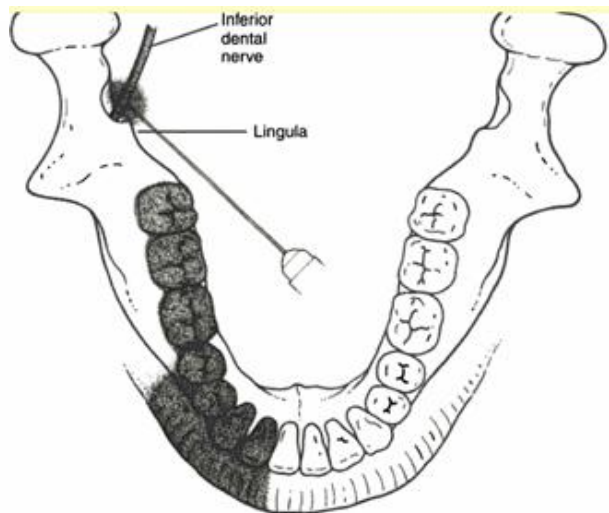
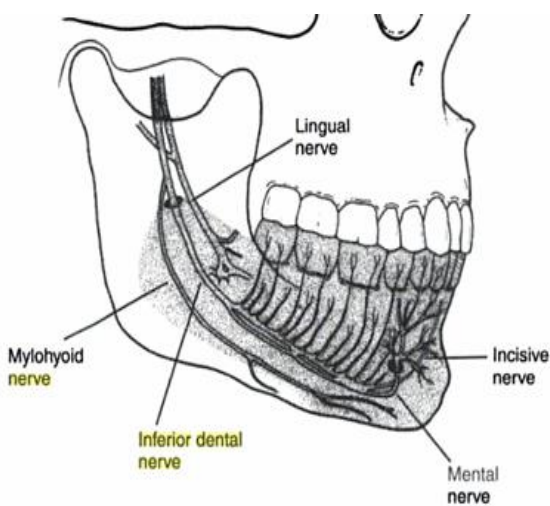
There are three main ways of giving local anaesthesia before dental treatment.

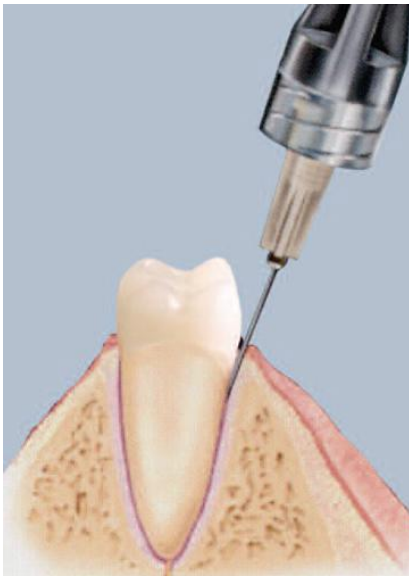


Infiltration Injection: Used for the upper teeth, and lower anterior teeth. A syringe with a short needle is used next to the apex of the tooth or area to be anaesthetised.

Block Injection: An aspirating syringe with a long needle is used as the needle is inserted close to a main nerve and care must be taken not to inject into a nearby blood vessel.

The Inferior Dental Block: Is used to anaesthetise all the lower teeth on one side





Intra-ligamentary Injection: a special syringe is used with a 1.8ml cartridge and an extra short needle. This allows the operator to force the anaesthetic between the tooth and bone –the periodontal ligament. The injection has to be given VERY slowly on either side of the tooth.

This type of injection means just the tooth is anaesthetised and not a large area around the tooth. This can be very useful for children as they do not see a large needle and it does not feel as though a needle is being put through the gum.

Needle Safety:

After a needle has been used it must be treated with great care to avoid injury to the operator or assistant and the needle cover must never be put on by hand without the use of a needle guard.

Special safety needles are available which have a plastic slide to protect the needle and allow it to be unscrewed from the syringe.

Needles after use must always be placed in a rigid sealable container that can be incinerated.



Hazards of local anaesthesia

An explanation should be given to patients before being given a local anaesthetic so they know what to expect. There may be discomfort and sometimes some pain as the injection is given – this may be due to the needle passing through muscle or nerves. An injection will also be painful if the injection is given too quickly.

Patients should be warned that the anaesthetic effect may last for several hours and they must take care not to bite their tongue, cheek or lip as they will not be able to feel that area. Hot food and drinks should not be taken to avoid any burns.

There may be some discomfort (very mild pain) after the anaesthetic has stopped working as there can be bleeding into the tissue and muscles where the needle was injected especially with the inferior dental block.

A patient must **never** be left alone after receiving a local anaesthetic in case there is some complication.

Fainting is a common problem after local anaesthesia – especially when an inferior dental block has been given and some local anaesthetic has been accidentally injected into a blood vessel. Fainting is more common if the patient is sitting upright, if they are wearing a lot of clothing, if they are very nervous or if they have not eaten for some time.

It is important for the dental assistant to help the patient relax by good explanations of what is going to happen, by ensuring there is no excess clothing or tight clothing at the neck, and talking to the patient throughout the procedure.

Haematoma – as an injection is given the needle can damage a blood vessel and the tissue can start to swell up (increase in size). They can be quite big – they appear red and change to brown then yellow over the next ten days. The colour change (or bruise) can spread down the neck.

Trismus – After an inferior dental block if there is damage to a blood vessel, or muscle and there is swelling it will be difficult and painful to open the jaw –this is called trismus and may last several days.

Continuing Anaesthesia – this can occur if the needle damages the nerve during the injection – this is very rare even though the operator is often trying to reach a nerve to anaesthetise it. If the needle hits the nerve the patient will often say there is a sudden sharp feeling along the line of the nerve. If damage occurs it may take some weeks or months before there is normal feeling again.

Conscious sedation

- This is a method of reducing the anxiety and pain of dental procedures.
- There is no loss of consciousness.
- There are two methods of inducing conscious sedation:



Inhalation sedation The patient inhales a very safe concentration of nitrous oxide and oxygen and feels very relaxed. Pain is greatly diminished.

Inhalation sedation is sometimes used together with a local anaesthetic, resulting in a completely pain free treatment.

Normal activities can be resumed shortly after inhalation sedation has ended.

Intravenous sedation

- This is administered by injection into a vein in the arm.
- There is no loss of consciousness, but anxiety and pain are greatly diminished to allow a pain free session.
- There may be no memory of what happened during the treatment.
- Intravenous sedation results in drowsiness after the treatment. It is therefore necessary to be accompanied on the way home.
- Driving is not advised for at least 24 hours.

General anaesthesia

- General Anaesthesia allows the dentist to work on an unconscious patient.
- It may be necessary when the treatment is particularly painful or difficult.
- If the patient's emotional or behavioural problems make it impossible for the dentist to carry out the treatment in the surgery, a general anaesthetic can solve the problem.
- General anaesthesia should only be used in a hospital or similar environment, and be administered by a specialist anaesthetist.