

Cement Fillings

When someone's tooth hurts, you do not always need to take it out. There may be a way to treat it and keep it. Always ask yourself whether a bad tooth really needs to come out.



This chapter is about filling cavities. Cavities are the holes that tooth decay makes in the teeth.

From this chapter, you can learn:

- When to fill the cavity, or when to take out the tooth
- How to place a temporary filling.

WHEN NOT TO PLACE A FILLING

Do not fill a cavity if you think there is an abscess in the tooth. Look for these signs of an abscess:

- The face is swollen.
- There is a gum bubble (p. 72) near the root of the tooth.
- The tooth hurts constantly, even when the person tries to sleep.
- The tooth hurts sharply when you tap it.



An abscess occurs when germs from tooth decay start an infection on the inside of the tooth. If you cover up an abscess with filling material, it will make the problem worse. Pressure builds up inside the filled tooth, causing even more pain and swelling.

If a tooth has an abscess, take it out (see the next chapter), unless you can give special nerve treatment (root canal treatment).

WHEN TO PLACE A FILLING

You can fill a cavity if the tooth does not have an abscess. There is not yet an abscess if:

- there is no swelling of the face or gums near the bad tooth.
- the tooth hurts only once in a while—for example, if it hurts only after food or drink, or when breathing cold air, probably no abscess.
- the tooth feels the same as the others when you tap against it.



The decay is deep enough for the nerve to feel temperature changes, but not near enough to the nerve to be infected. So **there is not an abscess. You can save the tooth by filling the cavity as soon as possible.**

What a Filling Can Do

A filling can help a person in three ways:

- It stops food, air, and water from entering the cavity. This will stop much discomfort and pain.
- It stops the decay from growing deeper. This can prevent a tooth abscess.
- It can save the tooth, so the person can use it for many more years.

TWO KINDS OF FILLINGS

A permanent filling is made to last for many years. To place one requires special equipment and skills. An experienced dental worker can shape the cavity with a dental drill so it can hold the filling material better (see pages 145-146).

A cement filling is a temporary filling. It is meant to last only for a few months. It helps the person feel more comfortable until it is possible to get a permanent filling.

**Replace a temporary filling with
a permanent filling as soon as possible.**

This chapter shows how to place cement fillings only, for most readers do not have the expensive equipment needed to make permanent fillings. But remember that many people can benefit from the extra time that a temporary filling gives them before they get a permanent filling.

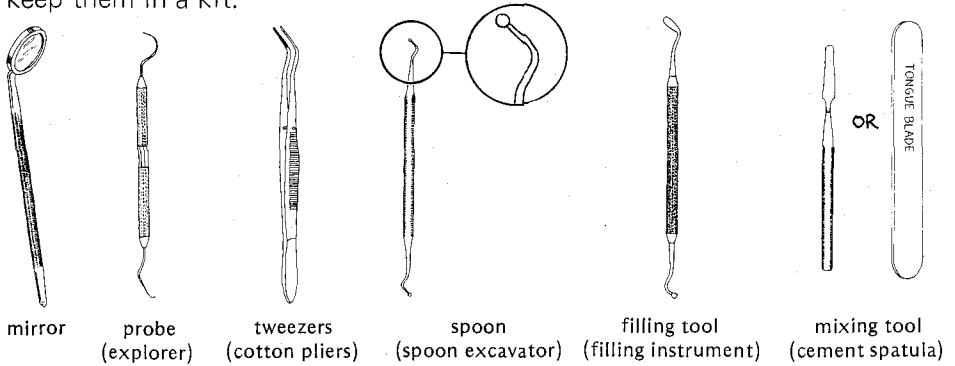
A cement filling is often the first step to saving a tooth.

THE INSTRUMENTS AND FILLING MATERIAL YOU NEED

In many places, government medical stores can provide most of the instruments as well as cement filling material. If this is not possible, a dentist may be able to help you to order what you need.

Instruments

Most dental instruments look alike, but the small end of each instrument is shaped to do a special task. Try to get instruments similar to these and keep them in a kit.

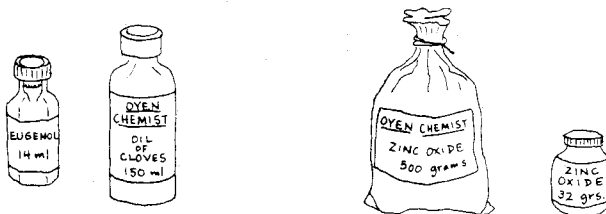


Some instruments have more than one name. The second one, in (), is the proper name. Use the proper name when you order.

Cement Filling Material

Many companies make temporary filling material. The names on the packages are different. This makes it hard to know which one to order.

However, the basic material of each product is the same—zinc oxide and oil of cloves (eugenol). To save money, order these two main ingredients in bulk, instead of an expensive kind of cement filling material.



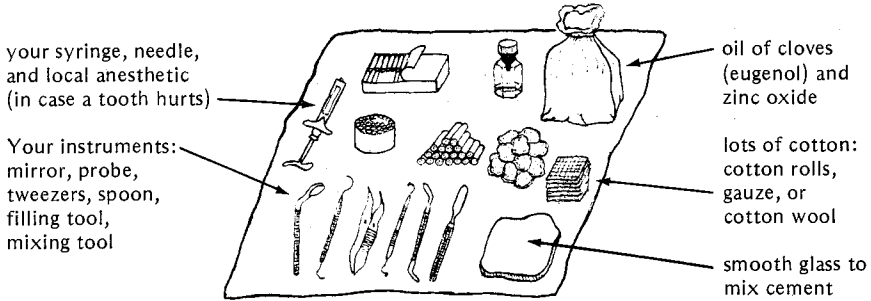
Oil of cloves is a liquid.

Zinc oxide is a powder.

You may be able to buy a special kind of zinc oxide powder called **I.R.M.** (Intermediate Restorative Material). Fillings with I.R.M. are stronger and harder, so they last longer. But it is more expensive than zinc oxide.

HOW TO PLACE THE CEMENT FILLING

Lay out on a clean cloth:



To place a cement filling, follow these 6 steps (pages 140-144):

1. Keep the cavity dry.
2. Lift out some, but not all, of the soft decay. (If the tooth hurts, inject local anesthetic.)
3. Mix the cement.
4. Press the cement into the cavity.
5. Remove the extra cement from around the cavity and the tooth.
6. Explain things to the person.

1. Keep the cavity dry. The cavity and the area around it must be dry so you can see what you are doing. Just as important, **cement stays longer inside a dry cavity.**

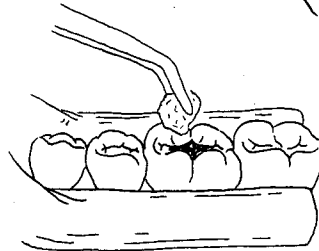
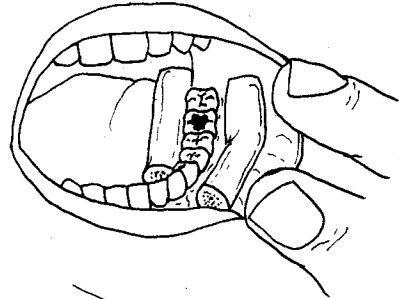
Place cotton between the cheek and gums to keep the area dry. Put some cotton under the tongue when you work on a lower tooth.

Use whatever kind of cotton you have: gauze, wool, or even rolls.

Change the cotton whenever it becomes wet.

Keep the cavity dry while you work. Wipe the inside of it every now and then with a bit of cotton.

Then leave a piece of cotton inside the cavity while you mix the cement.

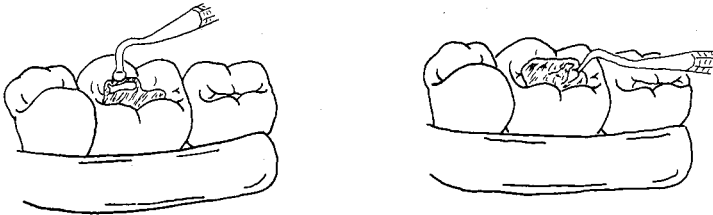


2. Lift out some of the decay. You do not need to remove all of the decay on the bottom of the cavity. You can leave some, as long as you cover it with cement. If you try to dig out all of the decay, you might touch the nerve. Try to cover the decay so it stops growing.

However, you must remove all of the decay from the edge of the cavity. Otherwise, germs and food can go between the cement and the cavity and keep the decay growing inside.

Scrape clean the walls and the edge of the cavity. If you find that the edge is thin and weak, break it deliberately with the end of your instrument. That makes for stronger sides to hold onto the cement.

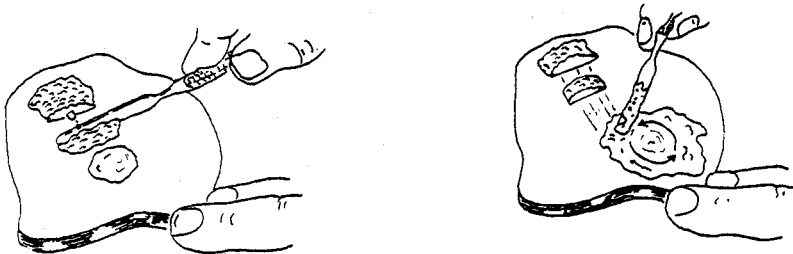
Use the spoon tool and lift out soft decay from inside the cavity. Do not go too deep. Make the cavity just deep enough to give thickness and strength to the cement. **If the tooth hurts when you do this, stop and inject some local anesthetic.** Use cotton gauze to collect the bits of decay so that the person does not swallow them.



Use your mirror and look closely around the edges of the cavity for decay that you may have missed. Put some cotton inside the cavity and leave it there while you mix the cement.

3. Mix the cement on a piece of smooth glass. Place separately onto the glass a pile of zinc oxide powder and a few drops of eugenol liquid.

Pull a small amount of the powder to the liquid with the mixing tool and mix them together. Add more powder in this way, until the cement mixture becomes thick.



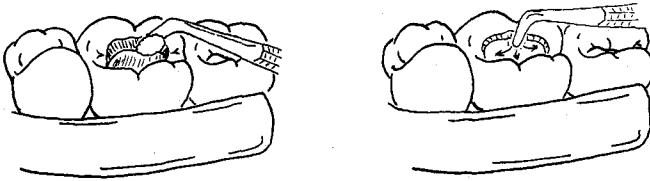
Suggestion: Practice with the cement ahead of time. You can then find out the time it takes to become hard.

Cement is much easier to use when it is thick and not too sticky. Roll a bit between your fingers. If the cement sticks, it is not yet ready. Add more powder and then test again.



Now take the cotton out of the cavity. Check to be sure the cavity is dry. If the cotton around the tooth is wet, change it.

4. Press some cement into the cavity. Put a small ball of cement on the end of your filling tool. Carry it to the cavity. Spread it over the floor of the cavity and into the corners.



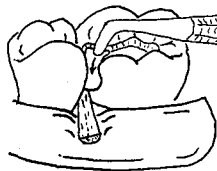
Then add another ball of cement, pressing it against the other cement and against the sides of the cavity.

Remember: Decay stops growing only when the cement covers it completely and tightly.

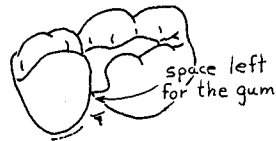
Keep adding cement until the cavity is over-filled. Smooth the extra cement against the edge of the cavity.

If a cavity goes down between two teeth, one other step is necessary. You need to take care that the cement does not squeeze and hurt the gum.

Before you spread the cement, place something thin between the teeth.



before



after

You can use the soft stem from a palm leaf, a toothpick, or a tooth from a comb. Be sure it has a rounded end to prevent damage to the gums.



5. Remove the extra cement before it gets too hard. Press the flat side of the filling tool against the cement and smooth it towards the edge of the cavity.

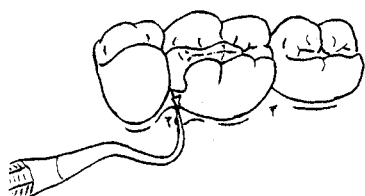
As you smooth the cement, shape it to look like the top of a normal tooth.

This way, the tooth above or below it can fit against the filling without breaking it.

After you take out the stem or toothpick (p. 142), smooth the cement. **Gums stay healthier when the cement beside them is smooth.**

Cement that sticks out and is not smooth can hurt the gums. It can also later break off. When that happens, spit and germs are able to go inside and start the decay growing again.

It is also important to look closely around the tooth for loose pieces of cement and to remove them before they make the gums sore.



Use the end of your probe. Gently reach into the gum pocket and lift out any pieces of cement caught there.

Wipe off your probe with cotton gauze each time.

Now remove all the cotton and ask the person to gently close the teeth. The teeth should come together normally and not hit first against the cement filling. **Too much pressure against the cement filling will crack and break it.**

Always check to see if part of the filling is high:

- (1) If the cement is still wet, you can see the smooth place where the opposite tooth bit into it. Scrape the cement away from this place.
- (2) If the cement is dry, have the person bite on a piece of carbon paper. If there is too much cement, the carbon paper will darken the cement. Scrape away that extra cement.



If you have no carbon paper, darken some paper with a pencil.

The person must not leave your clinic until the filled tooth fits properly against the other teeth.

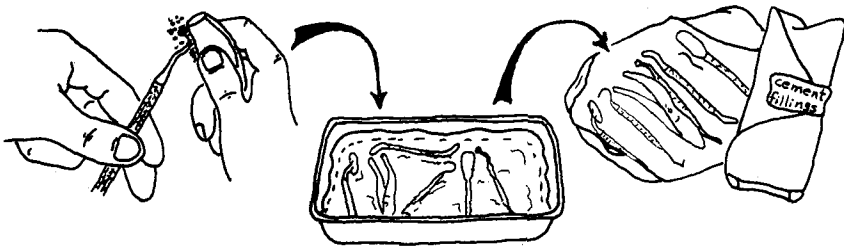
6. Explain things to the person. Explain how to look after the filling so it will not break:

- Do not eat anything for 1 hour—let the cement get hard and strong.
- Try not to use that tooth for biting or chewing. Until there is a permanent filling, the cement and sides of the cavity are weak. They cannot take much pressure.

If the tooth hurts more after you place the cement filling, there is probably an abscess. Take out the tooth. If you cannot take out the tooth immediately because of swelling, take out the filling to relieve the pressure, and take out the tooth after you treat the swelling (p. 87).

CLEAN YOUR INSTRUMENTS AFTER YOU FINISH

You do not need to boil your cement filling instruments. In fact, boiling can weaken the small pointed ends.



First scrape the dried cement from the filling and mixing tools. Then, after you scrub them with soap and water, leave them for 20 minutes in disinfectant (see page 85). Finally wrap the instruments together in a clean cloth so they are ready for use when you need them again.

REMEMBER: A cement filling is only a temporary measure. A good one can last up to 6 months. During this time, the person must see a dental worker who has the equipment to put in a permanent filling. For this, the person may have to travel to the city, or wait for the dental worker to visit your area.

ABOUT PERMANENT FILLINGS

This chapter has shown how to place a **temporary** filling. Remember that within a few months, the person needs to replace this filling with a **permanent** one. This book does not give full instructions for placing permanent fillings, because most readers of the book cannot buy the dental drill needed to make them. In a later book, we hope to give not only instructions for placing a permanent filling, but also ideas for constructing simple dental drills using low-cost local resources.

Some Simple Dental Drills

We use a dental drill to remove all decay from a cavity and to change the shape of the hole in the tooth so it can firmly hold the permanent filling material. The most expensive drills use electricity, but some drills are powered by people instead of electricity.



Village dental workers in the mountains of western Mexico use bicycle power to make compressed air, which runs a high-speed drill.

Local young people or family members volunteer to pump the air while they wait to have their own teeth fixed.

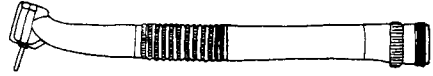


In India and Guatemala, health workers use a foot treadle to power a drill, the same way they operate a sewing machine. This kind of drill is slower than a compressed-air drill, and the grinding produces a lot of heat, so one must take care not to let the tooth get so hot that it kills the nerves (see p. 146). Still, this is one of the simplest and cheapest ways to place a permanent filling.

There are many other excellent ideas for simple, low-cost dental drills. Some are lightweight, so you can carry them to remote areas. **Please write to the Hesperian Foundation if you know of a design for a low-cost drill.** We will use these ideas in the next book. We also will answer letters from those interested in ways to make or buy inexpensive drilling equipment.*

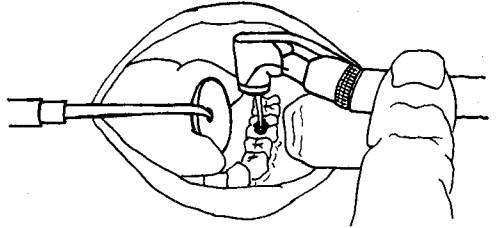
*Some simple but strong portable equipment has been made for use in remote areas by the National School of Dental Therapy, 710 - 15th Ave. E., Prince Albert, Saskatchewan S6V 7A4, Canada.

How a Dental Drill Works



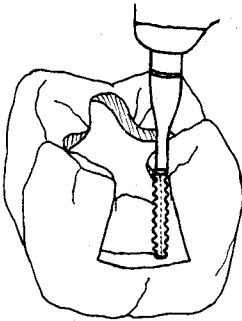
Even if you have the equipment, **it is essential that you learn how to make permanent fillings from a person who has experience using a dental drill.**

The tip of the drill (drill bit) is sharp. The ones powered by compressed air move at high speed, which makes it easier to dig out all of the decay and shape the hole. Some drills spray water on the tooth to keep it cool. Cooling is especially important with a slower treadle-powered drill. An assistant can spray water on the tooth if the drill does not have a sprayer.



As the drill bit moves slowly back and forth, it opens the cavity further. This makes it easier to see all of the decay. The decay is later removed with a spoon instrument. (p. 139).

The drill bit also changes the shape of the cavity. The hole in the tooth is shaped so that it will keep the permanent filling material in place.



When all of the decay is removed, the dental worker will place a paste containing calcium hydroxide into the

deepest part of the cavity. This paste helps to separate the final filling from the nerve, so the filling will not cause pain.

The filling material, which is made of metal or plastic, must be very strong. It must not break apart when the person chews food or when saliva washes over it.

Unfortunately, the best kinds of filling material often require special instruments to prepare and place them in the cavity.

