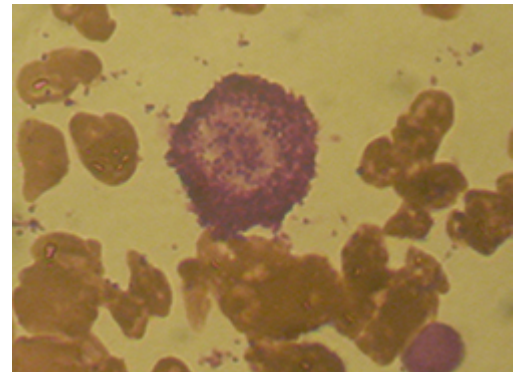


Cryosurgery in Dogs

What is Cryosurgery?

Cryosurgery (cryotherapy) is the application of extreme cold to destroy abnormal or diseased tissue. The term comes from the Greek "*cryo*" meaning *icy cold* and the word *surgery* meaning literally "*hand work*". Cryosurgery is used to treat a number of diseases and disorders, especially skin conditions. *Cryotherapy* may be a better description of the procedure since surgery is usually associated with cutting and in most cases, the treatment (therapy) does not involve actual cutting.

Cryotherapy has been in use for about a hundred years. The application of intense cold will result in the death of the target tissue and the numbing of surrounding sensory nerves, reducing pain and discomfort. In man, this aspect is often employed for the treatment of patients with intractable cancer to reduce pain and discomfort by temporarily numbing sensory nerves. It is also used in humans to treat liver and prostate cancer, cervical cancer and hemorrhoids. In animals, the technique is employed to treat tumors in locations where conventional surgery would be difficult or impossible, such as some tumors of the mouth, or where the analgesic/anesthetic properties of the technique would be useful. Examples include the removal of highly irritant tumors or lesions which the animal is constantly biting, licking or scratching, tumors or infected itchy lesions in elderly patients considered high risk for general anesthesia and prolonged surgical techniques where a long anesthetic may present unacceptable risks.



How is cryotherapy performed?

Cryotherapy uses freezing temperatures to destroy cells in the target tissues. Cells are about 70% water, and when subjected to freezing, ice crystals form inside the cells, causing them to tear and rupture. Additional cellular and tissue damage occurs when blood vessels supplying the diseased tissue freeze.

In the past, the most common method to perform cryosurgery was with liquid nitrogen. The super-cooled liquid nitrogen was sprayed on the diseased tissue, circulated through a tube called a *cryoprobe*, or simply dabbed on with a cotton or foam swab. Recent technologic advances include the development of ultra-thin 17 gauge cryoneedles and the ability to use Argon gas to cause ice formation, using a principle known as the Joule-Thompson effect. This newer procedure gives doctors excellent control of the amount of tissue that is frozen and helps minimize complications.

Is the technique painful?

Anyone who has been frost bitten will confirm that the actual freezing is painful. With cryotherapy, the treatment is always carried out under anesthesia. This may be either a local anesthetic with sedation or more usually a general anesthetic. Because of the inherent analgesic/anesthetic effect of the procedure, if future cryotherapy is necessary at the same location, it may be possible to perform it without the use of any further anesthetics.

The intense cold also kills bacteria and other germs. This is particularly advantageous when dealing with infected tissues.



Anesthetized German Shepherd Dog

Once freezing has occurred, the tissue slowly dies and falls away. In some moist sites such as the mouth and the anus, the tissue may liquefy and look green and gangrenous. Usually all that is necessary is gentle bathing of the area to remove as much of the dead and sloughing tissue as necessary. There is sometimes a foul odor from the affected tissues. Despite the unpleasant appearance, there is no discomfort because of the temporary anesthetic effect on nerve endings. The patient is usually much happier than before. In more advanced or serious conditions, multiple cryotherapy treatments may be required.

How effective is cryosurgery?

In many cases, it can be curative depending on the condition and the site.

The technique is used for the removal of aberrant or extra eyelashes (distichiasis). This procedure has a high success rate.

Small warts and small skin tumors are usually cured with just one cryotherapy session.

Tumors in the mouth often go into remission after one treatment and cause no further trouble.

This client information sheet is based on material written by: Ernest Ward, DVM

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