

Insulinoma: Diagnosis and Treatment

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Insulinomas are tumors of the insulin-producing cells in the pancreas. Insulin drives blood sugar out of the blood and into body cells. When insulin levels are very high, glucose becomes unavailable to the brain, where it is essential for normal function. Ferrets with very high insulin levels become weak or appear to 'faint' when their blood sugar is very low. The attacks become more frequent as the tumor or tumors grow. Very low blood sugar ([hypoglycemia](#)) causes convulsions, coma, and death.

Insulinomas are diagnosed by finding a low glucose level in a fasting blood sample from an apparently normal ferret. Ferrets that have been showing signs of hypoglycemia should not be fasted for more than a few hours, and should be observed during this interval, in case they become severely hypoglycemic during the fast.

Some older ferrets have both an [adrenal gland tumor](#) and insulinomas. The hormones produced by the adrenal tumor may raise blood glucose intermittently, making diagnosis more of a puzzle and protecting the ferret from the effects of the insulinoma.

A ferret that has an adrenal gland tumor removed may start showing signs of hypoglycemia a month or more after the surgery. This is because small insulinomas were present at the time of surgery, but the hormones produced by the adrenal gland tumor help to maintain blood sugar at normal levels. When the source of hormone is removed, the signs of hypoglycemia appear. Your veterinarian will examine the ferret's pancreas for tumors at the time of adrenal gland surgery, but very small tumors may be invisible.

Diagnosis of insulinoma usually gives the ferret a life expectancy of about a year, whatever the treatment. If the tumors are malignant, they may metastasize to other organs and shorten the animal's life expectancy to a few months. Surgical removal of all obviously abnormal tissue causes instant improvement, but insulinomas often recur. Putting the ferret on an excellent diet and making sure it has nutritious, high-protein, low sugar snacks helps to stabilize its condition.

The best therapy for a ferret with a recently diagnosed insulinoma is removal of all visible tumors. If there are many small tumors or some that are not operable, the ferret can be put on daily prednisone, a steroid that helps to stabilize insulin levels. This will extend its quality life-time. Most ferrets will take the liquid, pediatric form of prednisone without a problem. Another drug, diazoxide (trade name Proglycem), stabilizes blood sugar by blocking the action of insulin, but it is very expensive and beyond the means of many owners. Neither drug will prevent metastasis or growth of the tumors.