

New feeding tubes for cats with hepatic lipidosis

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Hepatic lipidosis is a disease of unknown etiology that is characterised by an accumulation of triglycerides in the liver resulting in liver failure. It is known to occur most commonly in obese cats that have undergone one week or more of anorexia. Affected cats present with a history of anorexia, weight loss, icterus, and often vomiting.

My approach to this disease is to treat the cat in the hospital for three to five days, with care centred around nutritional support. Since the liver will only resume function due to food intake, immediate resumption of feeding is essential. This is accomplished with a feline orogastric

tube. This is a very soft tube, 16" (40cm) in length and 4mm in diameter. The tube is passed into the cat's stomach using a feline mouth speculum. 30ml to 40ml per feeding is started on day 1 using the formula given below. The amount is doubled each day until 100ml per feeding is achieved (for a 4-5kg cat).

Orogastric tube feeding is an old technique that has never gained widespread popularity among practitioners. The use of improper tubes, especially those that are unduly stiff, creates discomfort to cats and deters many.

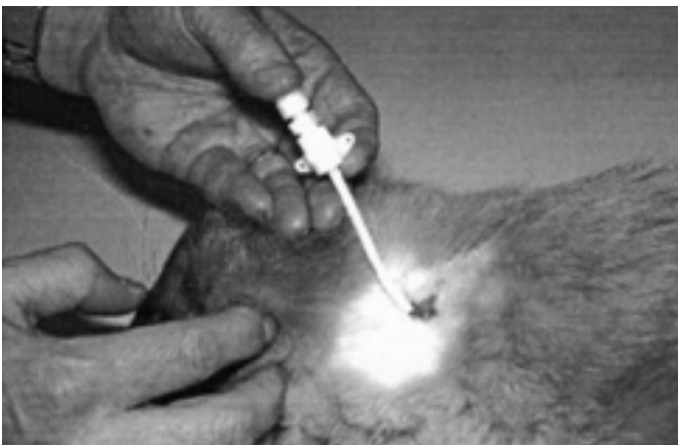
The second phase of treatment for cats with hepatic lipidosis is the use of an indwelling feeding tube that permits the owner to feed the cat at home. This is essential since the average recovery time for this disease is six to seven weeks.

My preference is an oesophagostomy tube, a 12 French tube that percutaneously enters the oesophagus in the left cervical region. Its distal end is placed in the mid-oesophagus and its proximal end is secured to the cat at the dorsal midline of the neck.

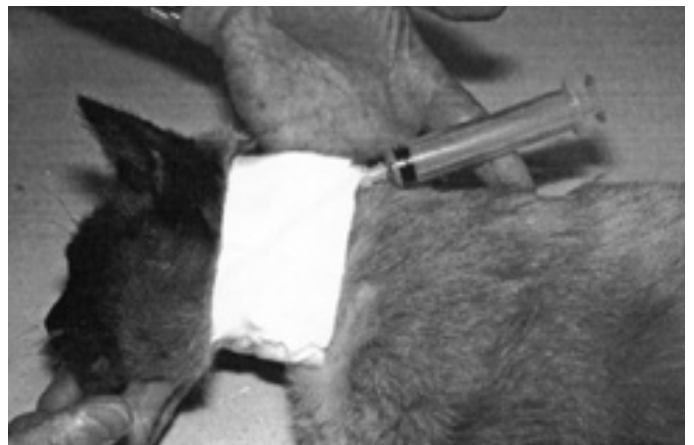
A polyurethane tube is ideal for this. It is soft enough to be comfortable and rigid enough so that it cannot be vomited out the mouth. It is non-reactive to the ostomy site, a shortfall of some other tubes used for this purpose.

Norsworthy's feline feeding formula

3 cans	CNM-CV® (Purina)
8 oz	water
2 oz	vegetable oil (Wesson Oil®)
16mEq	potassium gluconate (Tumil-K®, Daniels Pharmaceuticals) ■



An oesophagostomy tube is placed percutaneously in the left cervical region



The proximal end of the tube can be secured at the dorsal midline of the neck

Non-endoscopic gastro

by Patrick Burns BVSc, MACVSc
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Gastrostomy tube feeding

At the time of admission of a patient, you should immediately begin to formulate a plan as to the nutritional requirements of your patient.

The feeding technique that is eventually chosen is dependent upon the patient's clinical and nutritional status, degree of anorexia, expected duration of nutritional support, patient's ability to protect the airway against aspiration, ability to tolerate anaesthesia, the need for abdominal surgery, and the experience of the clinician.

It is most desirable to use the gastrointestinal tract as your route of administration, as this will not only maintain the integrity of the gastrointestinal mucosa, but will also halve the chances of your patient going into multiple organ failure. A few other advantages of enteral feeding include cost, easier to perform, reduced infection rates, and helps prevent ileus.

Indications for feeding

1. A patient who has gone without food for greater than three days or is expected to go without food for greater than three days.
2. Acute body loss of >5 per cent body weight which is not due to fluid loss.
3. Ill-thrifty patient.
4. Unable to eat due to facial, oesophageal, GIT disorders, neurological disorders, or drug-induced anorexia.
5. Albumin levels (NB. half-life = 8–10 days).
6. Reduced plasma fibronectin, transferrin, thyroxine-binding protein concentrations may provide more immediate indicators of acute malnutrition but these need more verification in animals.

The big advantage of gastrostomy tube feeding is that you can insert a large

bore tube, thus facilitating the administration of special liquid diets. This also means you can avoid the complications of tube feeding in the distal small intestine. In the severely debilitated patient, a gastrostomy tube enables access to both jugular catheters, which are needed for central line therapy. It is also considered the most reliable when tube feeding is required for more than seven days. In the emergency procedure, you should be aware of complications such as gastrostomy tube dislodgement, infections, peritonitis,



and organ entrapment. The latter is more common with percutaneous placement. With a little care, most of these complications can be avoided.

Feeding protocol

1. Rehydrate the patient.
2. Start feeding with a solution of glucose/electrolytes at 1–3ml/kg/hr.
3. After the first two hours, if the gut is working, increase the volume on the tube. If the volume is greater than 50 per cent of the volume infused, stop the volume back into the stomach for further two hours. If the volume of fluid is less than 50 per cent of the volume infused, then try using a

Gastrostomy tube placement

tating easier feeding. do not need to use . Gastrostomy tube most tolerated type of debilitated patient. In debilitated patient, a enables you to have full ear veins that may be lines. Gastrostomy is technique of choice going to last longer Like any surgical can experience associated with feeding. Stomal s, tube dislodgment,



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cient first. ng with a lyte solution at

o hours see how well g by aspirating back e volume retrieved is 0 per cent of the , then replace this the tube and wait a s. Aspirate again. If id is still greater than he volume infused prokinetic. You may

have to try a different method of feeding if this is a consistent finding.

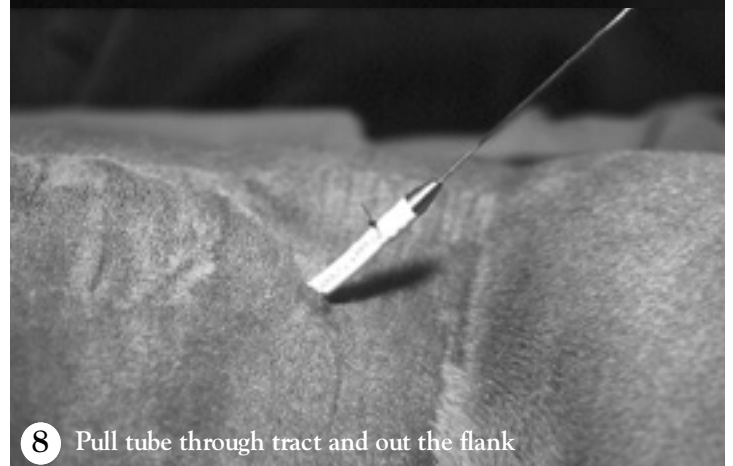
4. Infusion rates can vary from 20ml/kg q6h, 6ml/kg q2h, or 3ml/kg/hr.
5. If you are bolus feeding, at the start of each feed infuse 3–5ml of sterile water and observe for coughing and auscultate for borborygmi.
6. Flush after feeding and recap.
7. Use warmed solutions to prevent gastrointestinal cramping.
8. Over the following 3–4 days gradually increase the concentration of the food to 100 per cent.
9. Adding a food colouring helps to identify any regurgitated food.

With any hospitalised patient, to optimise your therapeutic regime, nutrition will play a vital part in the success of the management of the patient. Wound healing is not the only function that seems to improve with nutrition. Good nutrition is vital to maintain normal renal, hepatic and cardiopulmonary function, as well as a normal immunity, thereby reducing your morbidity.

A gastrostomy feeding tube will enable you to provide a higher level of care for your patients using a relatively simple feeding technique.

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Annual insemination programme aims to save endangered black bears

by Jeff Catlin,
Cook Veterinary Products USA

Six of the eight species of bear left in the world today are considered to be in danger of extinction.

Bears, Inc., a small, non-profit organisation, organises an intense week of research, performed annually in the United States at Bear Country USA in Rapid City, South Dakota.

A team of professionals is applying human assisted reproductive techniques to animals in the hope that the black bear will become a model recipient for endangered bear embryo transfer.

The group worked diligently for the eighth year, July 21–24, 1997, and were once again successful in retrieving embryos, using the V-MERS catheter supplied by COOK VETERINARY PRODUCTS. One embryo was transferred surgically to a recipient bear; the other was sent to Greenville Hospital in Greenville, South Carolina, to be cryopreserved.

The process of developing a technique to access the reproductive tract in a bear, implement the procedure and transfer embryos, with the result of a live birth, was first accomplished in 1995.

The group is now employing laparoscopic techniques which allow them to visualise ovaries. Three female bears were segregated from males and compared with four females in the general population to confirm their previous findings that the female black bear is an induced ovulator, similar to the domestic cat.

This means that the female has to experience the mating process for her to release her oocytes (eggs). This is different from other animals such as the cow and the human, in which oocytes are released spontaneously every cycle.

A new process, refined at the University of Wisconsin in sheep was applied this year with much success. The use of estradiol, injected IM via



Bear Week 97 . . . Penny Dye, DVM, and Jeff Catlin perform embryo flushing using laparoscopic techniques

dart the night before, made access to the very tortuous cervix of the bear much easier. As well, the use of oxytocin is being adapted for the bear, so that the uterus will not be as tender during access.

The longest part of the annual conclave is the waiting. The bear is also a delayed implanter, which means the embryo stops developing at the four-cell stage until the animal goes into torpor (hibernation) in November.

It then implants and develops until it is born in late February. It will not

come out of the den until late March, when a hair specimen must be retrieved for genetic testing, the results of which will not be received until just before “Bear Week” the following year.

The group maintains a web site at <http://www.geocities.com/RainForest/4208> if you wish to see a few pictures of Bear Week 97 or read a few reference articles.

BEAR FACT: The front claws of a brown or grizzly (actually a smaller brown, only found in North America) range in length from 10cm to 15cm. ■

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