

Name: George
Species: Feline
Age: 11 months
Problem: Diaphragmatic Hernia

Diagnosis

George was presented to the vets with dyspnoea (difficulty breathing) and lethargy (weakness). George had been missing for 48hrs and returned home appearing weak and cold to the touch. On examination the Vet was checking for signs of a possible road traffic accident, such as scuffed claws, pain, shock and physical injuries. The vet could not find any skeletal injuries but George was tender in his abdomen and he had an increased respiration rate and laboured breathing. These signs together with tachycardia (fast heart rate) suggested a possible diaphragmatic hernia; **this is a tear in the diaphragm, which allows the abdominal contents to pass through into the chest cavity.** It is usually caused by trauma unless it is congenital (from birth). The herniation greatly reduced the lung capacity causing laboured breathing. The trauma results in a form of shock, the body tries to compensate with tachycardia, to maintain blood pressure to the vital organs. The x-ray

below shows a grey area near the arrow. Soft tissues i.e., liver, stomach and kidneys all show up grey and air in the lungs appear black. Looking at the x-ray you can see the lung space is mainly filled with soft tissue. Blood tests revealed that George was suffering from a level of shock and would need to be put on a drip to help the body cope, by boosting the circulation and also help flush out toxins.

Treatment

George was stabilised on a drip and given strong pain relief for a further day before he was taken to surgery. If an animal is suffering from shock, it is best to stabilise them first before giving them an anaesthetic, otherwise it can further exacerbate hypotension (low blood pressure), which can impair kidney function, which can compromise the patient after they have recovered from the anaesthetic.

On day 3 of being hospitalised George was taken to surgery. He was given a general anaesthetic, so he was fully unconscious for the procedure. His injections comprised of an antibiotic and pain relief. For patients of varying physical condition we taper the anaesthetic used accordingly. In George's case he was given three different drugs, to render him asleep but maintain the same respiration rate as if he was awake, this is to maintain a good level of oxygen saturation in the blood, as the depth of each breath was minimal due to the reduced lung space.

Once the Vet made the incision into the abdominal cavity, the hole in diaphragm means the vacuum in the lung space (up until this point the vacuum has been maintained in the abdominal space) disappears meaning the patient can no longer breathe for themselves. In this case one of the nurses took over George's respiration via the anaesthetic tubing and

gave him a breath every 10seconds for the duration of the operation, with another nurse closely monitoring George's oxygen levels and depth of anaesthesia.

The spleen, stomach and intestines were displaced through the hernia, which spanned from the front to the back of the diaphragm. Delicate handling is required by the surgeon to prevent further trauma to these tissues in replacing them to their origin. Several major structures travel through the diaphragm, through the natural hiatus (e.g Vena Cava, Aorta, oesophagus and vagus nerve). The Vet repaired the tear to the diaphragm with long lasting suture material, so the muscle can get back to full strength before the sutures dissolve.

The critical point in the surgery is draining the air from around the chest cavity. When the air is released this can cause a sudden surge of blood to the lungs to help them re inflate. This can cause cardiac arrest from the sudden movement of blood within the body, so extreme caution must be paid to safeguard the patient.

The procedure took 1.5hrs. George's operation was successful and the same afternoon, he was purring in his kennel.

Recovery

It is essential to keep the patient as calm and as rested as possible, this to maintain steady breathing so the diaphragm is not overworked. George however had different ideas and wanted to bounce around at home, keeping his parents on their toes. Careful and sensible ownership has meant **George has gone on to have a good recovery, and will soon be able to play out with the other cats on the block.**