

Unravelling the mysteries of anaemia



Rachel Korman is FAB's resident at the University of Bristol and she recently treated an elderly feline patient suffering from anaemia.

OLD AGE ISN'T SO BAD when you consider the alternative, but Tiggy, a 16-year-old domestic shorthair, was feeling a little under the weather when her owners collected her from a boarding cattery and collapsed when she got home. She was rushed to the vet who identified a severe anaemia and referred her to the Feline Centre.

Tiggy was surprisingly bright given the severity of her anaemia. Physical examination revealed that she was very pale, slightly dehydrated and had a heart murmur. Blood tests were assessed to identify potential causes of the anaemia. Was Tiggy bleeding somewhere we couldn't see? Was she not producing enough red cells or were they being destroyed? From the blood tests we were able to identify young red blood cells. This meant that Tiggy's bone marrow was working to produce new cells to fight the anaemia — so she must have been either bleeding internally or destroying her cells. Abdominal and thoracic X-rays and ultrasound did not identify any areas of bleeding but showed changes consistent with Tiggy's advancing age. The only place left where Tiggy may have been losing blood was in her intestine. Typically bleeding into the small intestine causes a darkening of the faeces as the blood is digested. Although Tiggy had not shown any evidence of this, she did have a long history of problems passing faeces (both diarrhoea and constipation). Endoscopy (examination of the oesophagus, stomach and upper small intestine with a video-scope) and colonoscopy (examination of the colon) were performed to look for bleeding. None was found.

The possibility remained that Tiggy's blood cells were being destroyed by a process called haemolytic anaemia. (Haem is Latin for 'blood' and lytic means to break open.) A number of different diseases can result in haemolysis of red cells in cats. One of them is infection with a bacterium of the *Haemoplasma* species. These tiny bacteria can be spread by fleas, although the exact mechanism of transmission for all the species is unknown. The bacteria then make their way into the red cell, where the body's immune system identifies their presence and destroys the cells in order to try and kill the organism. A blood test (polymerase chain reaction) was performed to look for

haemoplasma in Tiggy's blood, but none was found.

Many drugs and some toxins can also result in haemolysis. Onions and garlic and any products that include them, such as soups and flavourings, can cause the problem. As far as her owners were aware, Tiggy had not been exposed to anything that may cause concern, but you never know with cats! Hereditary causes of haemolytic anaemia exist, such as pyruvate kinase deficiency, but this is typically seen in Somali and Abyssinian cats and Tiggy was most definitely 100 % moggy. Hereditary problems are also usually identified when animals are young — not at 16 years of age.

One more possibility remained — immune-mediated haemolytic anaemia, a disease which is more common in dogs than in cats. It occurs when the body's immune system decides that red blood cells are a foreign material and must be eradicated. The primary function of red blood cells is to carry oxygen around the body to various organs such as the liver, kidney, heart and brain. If these organs become starved of oxygen, they will suffer damage to the cells and are less able to function.

Secondary haemolytic anaemia occurs from hypersensitivity reactions against drugs, cancers and other infectious agents. Primary haemolytic anaemia is less common and is diagnosed when no obvious trigger can be identified. We suspected that Tiggy had secondary haemolytic anaemia, but could not identify an obvious trigger.

As soon as Tiggy was admitted she began to receive treatment for her anaemia. This included gastroprotectants in case she was bleeding from her intestine and antibiotics to treat for the possible *Haemoplasma* infection, while we awaited those results. Tiggy also needed something to help replace the red cells that were being destroyed so she was given a transfusion of a product called Oxyglobin — a haemoglobin product derived from cows that has the ability to carry oxygen around the body like blood cells. This fluid was trickled in slowly over 12 hours using syringe drivers that allow the delivery of small volumes of fluid continuously. Tiggy also received prednisolone to help reduce the hyperactivity of her immune system.

After three days of nursing care, medication and TLC, Tiggy started to feel better. She ate her chicken and began wandering about her kennel looking for a head scratch! Repeat blood tests showed that her red blood cell count was increasing and after nine days, to the delight of her owners, it was time for her to go home.

After three months, Tiggy is still receiving her prednisolone medication, crushed up in tuna. With every blood test her cell count is increasing and we are slowly reducing the amount of medication she receives. She is back to her old self, into everything and lazing fully stretched on the sofa in the conservatory in the sun.