Lymphoma

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Lymphoma is one of the most common cancers in equines, but diagnosing it is difficult. Vet and equine internal medicine specialist Michael Hewetson explains all to *Catherine Welton*

LYMPHOID tissue is found throughout the horse's body and helps fight infection. Lymphoma occurs when the white blood cells (lymphocytes) in this tissue change and become malignant.

What happens next, and the prognosis, varies widely depending on where in the horse's body the affected cells are.

"We tend to classify equine lymphoma based on the anatomical location of the disease," explains Michael Hewetson, associate professor in equine internal medicine at the Royal Veterinary College. "Multicentric is the most well-known and involves two or more organs in the body, either the spleen and the liver or perhaps the spleen, liver and kidneys."

The disease also occurs in the gut (alimentary), the chest (mediastinum) and the skin (cutaneous). Finally, solitary or extranodal lymphoma can develop anywhere in the body.

"I've seen them everywhere from the eyes, to the spinal column and the heart," says Dr Hewetson.

While lymphoma is relatively rare in the general equine population, it accounts for 2–3% of all cancers and is the most common form of internal malignant cancer in horses.

But it's not understood why some horses develop it while others don't.

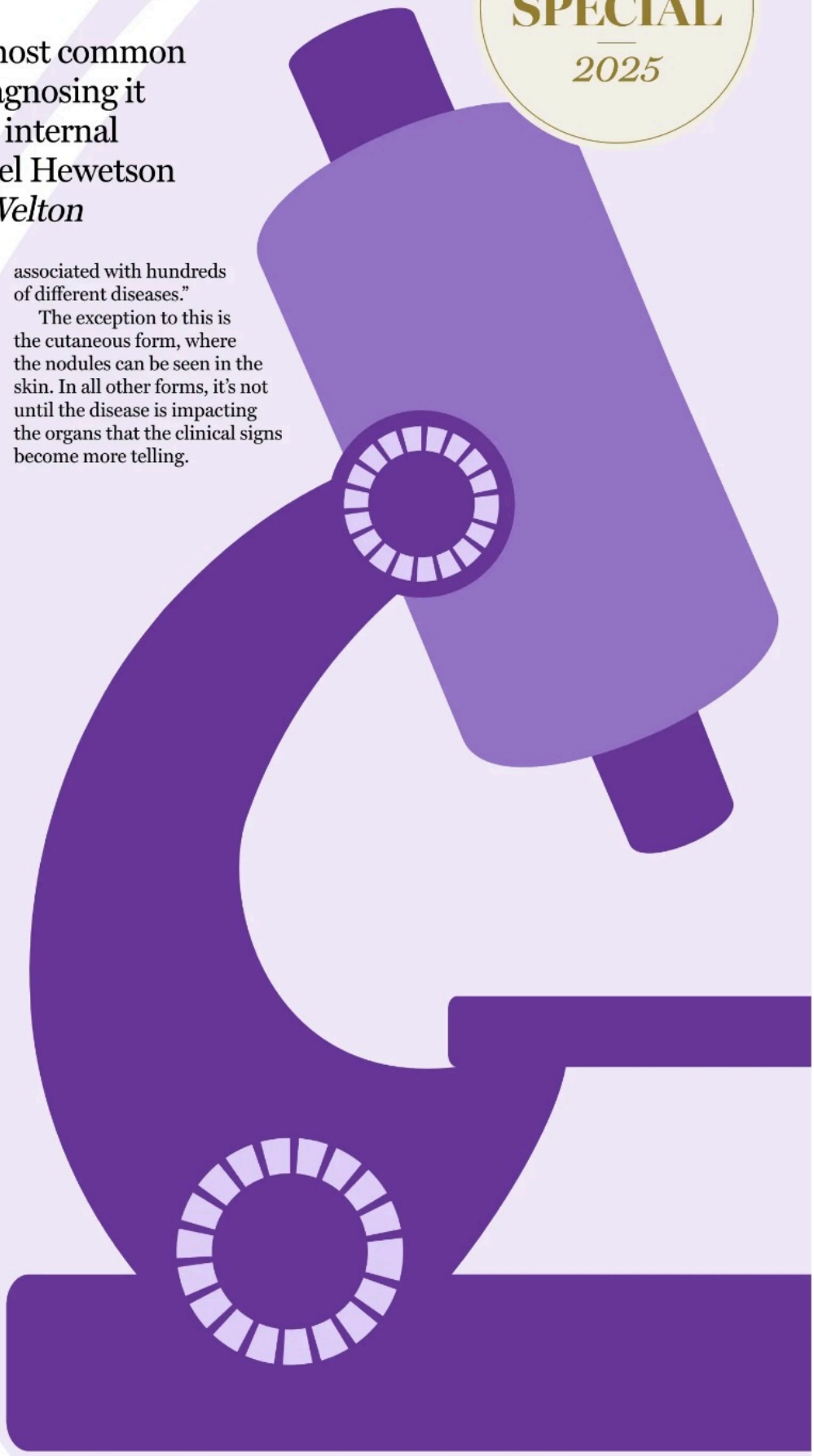
"There's no good evidence of any clear underlying risk factors that will result in lymphoma developing. It tends to be a disease of younger horses – primarily four to 10 years of age.

"But, based on the current evidence available, there's no suggestion of a genetic link and no breed predilection."

WHAT ARE THE CLINICAL SIGNS?

"IN general, a horse with lymphoma tends to present with fever, weight loss, variable appetite and lethargy," Dr Hewetson continues – though he points out that these non-specific symptoms make the disease hard to diagnose in its early stages. "The signs are very general, and could be associated with hundreds of different diseases."

The exception to this is the cutaneous form, where the nodules can be seen in the skin. In all other forms, it's not until the disease is impacting the organs that the clinical signs become more telling.



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Maintaining quality of life for an affected horse

A HORSE'S quality of life will be specific to the clinical form of lymphoma, explains Dr Hewetson. "For example, if you've got a horse with multicentric lymphoma involving the liver, then it's in liver failure. It's not going to have a quality of life."

But his recent case of corneal lymphoma will hopefully have an altogether different outcome.

"We simply removed the superficial layer of the cornea that was infiltrated with the tumour cells – a keratectomy. The prognosis in this type of case is generally more favourable and the horse can have a good quality of life.

"But, of course, we can never be sure that the cancer won't come back and that is a risk that owners need to factor in carefully when considering treatment.

"It's a discussion to have with your vet. You need to ask them what the realistic outcomes are, and what the horse must go through to get there."

"If it's in the liver, we'll have signs of liver disease, for example jaundice. If the spleen, the horse might be anaemic or might even bleed into the abdomen.

"If it's in the spinal cord we may see ataxia, if in the eyes the horse may present with uveitis."

The mediastinum form is particularly nasty: "The fluid on the chest causes compression of the lungs and the heart, so the horse presents with a high respiratory rate, increased respiratory effort, and distended jugular veins."

With the solitary form, the clinical signs depend entirely on where the tumour is. Dr Hewetson recalls one recent case of corneal lymphoma: "The horse presented with a cloudy eye. Otherwise, he was completely normal."

HOW IS IT DIAGNOSED?

"IT'S a real challenge, because the clinical signs are too non-specific until the horse is at the end stage of the disease," explains Dr Hewetson. "You're trying to put together a jigsaw puzzle, but it can be really challenging to find all the pieces."

For this reason, a vet will use multiple diagnostic tools, including a full clinical examination, a rectal exam, an ultrasound of the chest and abdomen, and an abdominocentesis or biopsy if possible.

"Bloods are also helpful as part of a general work-up. Many horses with lymphoma are anaemic. Platelet counts can also be low."

Another clue can be protein levels, explains Dr Hewetson: "A protein called albumin is likely to be low, while another, called globulin, is likely to be elevated."

"It can be challenging for a vet as the owner may ask why they're doing all these tests. But you need to localise the problem."

All these clues can help point towards a diagnosis, but Dr Hewetson explains there is only one way a vet can be definitive.

> *"It can be challenging to find all the pieces"*
>
> DR HEWETSON ON THE "JIGSAW PUZZLE" OF LYMPHOMA DIAGNOSIS

"There is no magic test. You need to get cells and look at them under a microscope, but depending on the location of the affected tissue, that's not always possible. Sadly for many owners, it's only possible to give a definitive diagnosis at post-mortem."

CAN IT BE TREATED?

TREATMENT depends on where the lymphoma has occurred but in general, Dr Hewetson says the principle is "if you can cut it out, you cut it out".

"Surgery is very useful for cutaneous and solitary lymphoma, and occasionally for the alimentary form if just one section of the gut is affected," he continues. "It becomes very difficult, however, when you have multicentric lymphoma."

Where surgery isn't possible, chemotherapy and radiotherapy are the only options.

"Radiotherapy is only relevant where you can access the tumour. If you can see it, you can direct a beam of radiotherapy onto it or physically implant a radioactive wire in it. But this is only an option for single accessible tumours," explains Dr Hewetson.

Chemotherapy can be local – injected into the tumour – or systemic. But Dr Hewetson advises owners to think carefully before embarking on any of these treatments.

"Firstly, for most horses, we've sadly recognised the disease very late, so you have to ask yourself if it is ethical to treat. The chemotherapeutic agents we use are not without side effects for the horse.

"Secondly, the cost of the chemotherapy is not insubstantial. Each treatment can cost as much as £4,000 to £5,000 and a horse typically needs at least three.

"Finally, at that stage it's usually palliative, not curative. You're likely to prolong a horse's life, but you're unlikely to cure the cancer."

In fact, a 2019 study found that, with chemotherapy, the median survival time for horses with lymphoma was still only eight months.

Ultimately, Dr Hewetson concludes, the question is: can future advances allow us to diagnose the disease earlier, giving us a better chance to treat these tumours? **H&H**

Towards a new understanding of lymphoma?

POTENTIAL new insights into equine lymphoma have emerged over the past few years, but study sizes are often too small to be able to offer definitive answers. For example, some studies have suggested a possible connection between equine herpesvirus-5 and lymphoma.

However, Dr Hewetson is cautious about a causal link.

"We need to take these findings with a pinch of salt, as equine herpesvirus-5 is prevalent in the general equine population," he explains. "But further investigation might prove interesting."

He's also interested in a potential link between inflammatory bowel disease (IBD) and the alimentary form of lymphoma.

"If causation was proved, we could follow those horses with biomarkers and catch the cancer earlier.

"The holy grail would be to find a biomarker to identify the disease early. A 2021 study found the presence of a biomarker called thymidine kinase-1 (TK1) in horses with lymphoma. Another study failed to support those findings, so the jury is still out. But we should be looking for more biomarkers."