

## Sarcoids - what you need to know



The equine sarcoid is a skin tumour that affects horses, donkeys, mules and other equids (including the zebra) throughout the world. Around 3-8% of horses are affected by the condition but there are geographical differences in both the proportion of horses that are affected and the specific types of sarcoids those horses get. In Australia for example there is a very different disease profile from the UK.

The disease is problematic because it is very unpredictable and also very difficult to treat. There is a close association with a virus that affects the skin of cattle (bovine papilloma virus). Whilst the disease can seriously affect the skin at any site on the body, it does not spread into the internal organs, so while many horses are badly affected, it seldom "kills" the horse. However, many horses lose value or are destroyed because of the disease.

### What is a sarcoid?

The sarcoid is a form of skin tumour or cancer that affects horses and other equids only. The name sarcoid is used to describe its generally 'tumourous' (sarcomatous) appearance. However, the name covers a spectrum of skin changes that look very different but which all have the common cell changes. The variation in visual appearance are probably related to the individual cell behaviour and to the host's response to these cells.

The cancer results from a change in the behaviour of a certain type of cell called a fibroblast which is a major structural cell in the skin (and many other organs also). The condition does not affect fibroblasts in any other organ in the body - the tumour is restricted to the skin and the immediate region under it. There are however some very aggressive forms in which there is local tissue invasion.

### What causes sarcoids?

There is controversy over the cause - it is however generally accepted that a cattle wart virus (bovine papilloma virus) has some part in the development of the condition. However, up to now no virus particle has been found.

It seems that a part of the virus gene structure is incorporated into the normal cells of the horse where it acts as a cancer generating mechanism (oncogene) by changing the behaviour of the affected cells. These multiply progressively to result in a visible tumour.

The distribution of sarcoid tumours on the horse suggests that flies are involved in some way in the spread of the disease both across the horse and between cattle and horses and even in some cases between horses.

### How do horses get the condition?

There are several ways in which a horse can develop a sarcoid.

- By direct infection with the bovine papilloma virus - in this case the horse needs to be in contact with cattle that are affected by the cattle form of the disease.
- Most horses with sarcoids get more and the new tumours are genetically identical to those at other sites. Therefore it seems likely that the condition can spread over the horse from place to place on the skin. We know that this does not occur via the blood stream and so it seems likely that flies are an important aspect of the spread of the disease. Given that so far no virus particle has been found the suggestion is that flies either transmit the virus genetic structure or that they transfer cells from a sarcoid to another site where the transferred cell(s) may replicate.
- There is a suggestion that the tumour cells can be transmitted between horses but this mechanism requires similar tissue types and a means whereby the tumour cell can be implanted in the new host animal in a site where it can survive and develop.

### Types of horses predisposed

There is no colour, sex or age predilection although most cases are first identified between 3 and 9 years of age. For some years gelding and greys were thought to be more susceptible but this is simply not true. About half the horse population is genetically liable to the disease, ie they have a genetic structure that



renders them susceptible. The remainder of the population are probably less susceptible. The Lipizzaner horse appears to be genetically totally resistant. Individual horses may have lesions that remain static for many years - or even for life. Unfortunately it is impossible to tell which these are!

### **What do sarcoids look like?**

There are 6 major forms of the equine sarcoid - some have subtypes but each type has a characteristic physical appearance.

#### **Occult sarcoids**

These look like grey scaly areas of skin and are regarded as the most superficial form of the disease. However, they can exist for many years in a rather quiescent state so they need not be "young or early lesions". Hair loss is invariably present when they occur in haired areas and so usually they can be easily seen. They are often roughly circular (at least in their early stages). They are easily mistaken for ringworm in the early stages and there are also some other important skin conditions that have circular patches of skin thickening and hair loss.

#### **Verrucose (warty) sarcoids**

These have a scaly, often grey or black surface and they can closely resemble true warts. Most often however, they are larger and more aggressive than warts. The skin lacks elasticity and is rather more fragile than it looks. Some crack open and can bleed heavily. Quite often there are ulcerated areas within the lesion and sometimes there is a bleeding focus. They can cover very large areas in some body sites like the breast and the inner thighs.

#### **Nodular sarcoids**

These appear as a single or multiple almost spherical nodules lying in and under the skin. There may be multiple nodules linked together or separated by a narrow margin of ostensibly normal skin. Sometimes the skin surface over the nodule has a grey flaky, verrucose appearance.

#### **Fibroblastic sarcoids**

These closely resemble proud flesh - they look fleshy, ulcerated and commonly bleed. There are several recognised types and each of these has its own characteristics - some have extensive roots and others have a narrow stalk with no (or limited) roots. They can be small or vast. Interference with any of the other types commonly results in the development of an aggressive fibroblastic sarcoid at the site - this can be either accidental injury or during ill-advised treatment methods. A particularly alarming form of fibroblastic sarcoid develops at the site of limb wounds - the appearance may be indistinguishable from proud flesh but the implications are VERY different and the treatment methods are almost opposite.

#### **Mixed sarcoids**

These are very common - in reality most have some areas or some characteristics of two or more of the other types (see pictures above). However, this classification is only used when there is no predominate type. Often there are two or more types involved and many are extensive.

#### **Malignant sarcoids**

These are the most dangerous type. The tumour cells are highly aggressive and infiltrate the surrounding and deeper tissues. Although it is rare, it is most often found centred on the inside of the elbow, the side of the face and the thigh. However, it can develop at any site, especially after ill-advised treatment attempts.

### **Do sarcoids have any general effects on the horse?**

A few tumours of a superficial type are unlikely to affect the horse at all but there are some that are badly affected by even a single tumour. Performance and general health may however be affected and many horses with even a few sarcoids are reported to work better and feel better after the tumours have been treated.

Sarcoids are usually non-painful; even when they are very large and bleeding many horses seem unaware of the problem. Fly strike and worry is a major cause of irritation and infection can easily complicate the

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sarcoid site making life almost intolerable for the horse. Large sarcoids have a large blood supply - in order to grow to any significant size a tumour must develop a blood supply and so as the tumour develops it "demands" more blood. This explains why any damage to the sarcoid can result in significant bleeding. Under these conditions blood loss or plasma leakage can result in debilitating anaemia and loss of blood proteins.

### How can I be sure a lesion is a sarcoid?

Quite often it is very difficult to tell if a single lesion is a sarcoid! The occult forms can look like ringworm, the verrucose form can look very similar to warts and the related skin tumours and the fleshy or fibroblastic form can look like 'proud flesh'. It is important to diagnose the condition because the treatments for the various conditions are significantly different.

The presence of several lesions that are "characteristic" of sarcoid probably means that they are sarcoids! However, it is entirely possible that a horse could have other conditions at the same time. Vets often rely on simple experience - the condition is so common that most cases can be diagnosed easily from the visual appearance alone. Confirmation of the condition can be made by biopsy (small tissue samples examined under the microscope) because the pathological appearance is very obvious in most cases. However, vets will often be reluctant to take biopsies because of the very real risk that the procedure will exacerbate the disease.

### Can sarcoids be treated successfully?

There are about 20 different types of treatment available and that almost certainly means that no one treatment type is universally effective! The main categories of treatment are used for specific types and locations and no one treatment is universally applicable. Careful selection of the most appropriate treatment for each individual lesion can deliver almost 100% success. If this is accepted then of course benign neglect (leaving the lesions alone because they are either too small, too numerous or too large and aggressive) can be taken as being the treatment of choice!

For any treatment to be successful every single tumour cell must be destroyed or removed. This is a tall order given that the edges of most sarcoids are not clear! Many vets have the opinion that sarcoids "are best left alone".

There are some cases that resolve spontaneously without any treatment, it's just that we don't know which these will be. This response can occur in up to 10% of cases in some parts of the world. In the UK, the figure is one of the lowest rates of self-resolution at around 0.5-1%. Sweden appears to have the highest rate (10% or more). Self-cure cases imply that there is some immunological mechanism that we might be able to exploit in the future. If self-cure occurs it is unlikely that the horse will develop any new ones - this does not imply a genetic change has taken place, but clearly there is some process that is protective. A few sarcoid lesions will 'drop-out' from the skin leaving a cavity that may (or may not!) bleed. Sometimes this is simply because of the weight and the tension on the skin and others it occurs because the skin becomes weaker over the sarcoid. In any case there is a major risk that there is still some sarcoid present and only when no regrowth has occurred after 5-10 years should it be assumed that the sarcoid will not regrow!

### To treat or not to treat...

In some circumstances treatment can be justifiably delayed for some time (months or years) but every lesion should be regularly monitored. An accidental injury to a sarcoid, no matter how small or benign it may seem, can result in dramatic exacerbation.

Typically of all cancer conditions, it is probably better for the most part to treat the lesions at an early stage when they are small and the secondary effects of the treatment are at their least. It is clearly much more difficult to treat a very large or extensive sarcoid than it is to treat a small localised one. However, there are some sarcoids that remain static for many years and even for life! It's just that we cannot tell which these are in advance! The side issue of leaving the sarcoids alone is that they may act as a source of fresh lesions at other sites.

### So what ARE the available treatments?

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In all cases proper veterinary advice **MUST** be sought. Vets are more than aware of the problems associated with the disease and will take all aspects into account before deciding what treatment is best for the case. Individual vets will have their own preferred treatments and so if an owner is unsure of the chosen method he/ she should simply discuss the matter with the vet. In some cases specialist advice can be sought and asking for a second opinion is perfectly reasonable and no vet will refuse to help with this.

### Benign neglect

There are some circumstances when treatment cannot be performed because of the location, type and difficulties with the costs and temperament of the horse. Many vets prefer to leave them alone because their rate of expansion is sometimes slow and failure of treatment carries risks of exacerbation. If this option is used then a very careful and regular assessment of the size and numbers of tumours must be carried out by the vet. This can usually be incorporated into the vaccination/dental/worming program.

### Surgery

This is the oldest method of treatment. When it works it is very good and the scar left behind is small. However, if it fails (and up to 50-75% do fail) then of course it's a potential disaster. Overall about 25% can be expected to be amenable to treatment. Laser surgery carries a better outlook because the laser vapourises the cells along the incision site and so seeding of the operative wound is less likely.

Some types are far more amenable to surgical treatment than others and surgery is far easier at some sites than others, eg some nodules in the groin respond very well to surgery but eyelid lesions are extremely difficult.

### Cryosurgery

This involves the repeated rapid freezing of the affected tissues. The method is very time consuming and whilst it can be useful for some localised and small lesions it does not carry a high success rate. However, there have been suggestions that when one lesion is treated this way, others may regress to some extent. The procedure may require a general anaesthetic if the sarcoids are not easily accessible.

### Ligation

Ligation with a tight elastic band can be useful for isolated small nodules. This method is sometimes combined with other topical applications to ensure a good "kill" of tumour cells. The worst possible application is the partial ligation of a large lesion without concurrent topical treatment. This simply increases the roof!

It is **VERY UNWISE** to try to tie off a sarcoid with tail hairs or a domestic elastic band. Whilst the top of the sarcoid may dry up and even fall off, sooner or later an aggressive lesion will usually develop (even after 20 years)

### Immunotherapy

Immunotherapy using BCG tuberculosis vaccine or similar purified bacterial proteins can be successful in some cases. The results are far better when it is used around the eye on certain types of tumour. Although there are reports of success at other body sites, the overall rate of success falls dramatically and the method should not be used on sarcoids situated on the limbs under any circumstances. Interferon, a naturally occurring anti-tumour protein made in the body can be used in some circumstances but the results are far more unpredictable than many of the other methods.

### Topical treatments

These are widely available. The most commonly used topical treatment is *AW4-LUDES*, available from Liverpool University Sarcoid Consultation Service ([sarcoid@liv.ac.uk](mailto:sarcoid@liv.ac.uk)) which has been reported to be convenient, relatively successful but, because of its composition, can only be handled by a qualified vet. It is not appropriate for every type of sarcoid in every locality, but overall it is acceptably effective. There are however, failures and the effects are rather unpredictable. Some horses react far more than others and it is impossible to tell which is which!

Other materials such as the plant extract of "Blood Root" combined with zinc chloride known as *Exterra* are less effective (but are also less aggressive).

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There are many other compounds advertised in the lay horse press as being the "certain answer to sarcoid" but if this were so, we would have no need to worry about the disease! Most of them are potentially very dangerous and any applications with these may render the sarcoids untreatable by any of the more rational and sensible methods.

Owners should be VERY careful before they embark on any treatment that is not specifically designed for sarcoid treatment and is not prescribed by a vet after consultation and clinical assessment. They may seem a "cheap and easy option" but there are seldom cheap and easy solutions to cancer and anything that makes these claims should be treated with considerable suspicion. When they are used there is a very high rate of serious exacerbation that renders it impossible to use any other treatments at all.

### Anti-cancer chemical injections

Chemotherapy can be used but is logistically very difficult - the injections have to be repeated frequently and some require general anaesthesia each time. The drugs are not without major hazard to both operator and horse. These methods are currently being developed.

### Radiation

This is by far the best option! This carries a success rate of over 90%. However, it is an extremely expensive procedure and is only carried out at Liverpool and Cambridge University Equine Hospitals. This is technically and medically demanding for both the operator and the horse.

### Homeopathy

This simply doesn't work. Cancer requires cancer treatment and the few cases that have been reported to be 'cured' by homeopathy or some dubious medications that are frequently peddled at shows and advertised in the 'horsey press', are usually those that were going to get better on their own. Homeopathic concoctions of diluted water administered to horses have no basis in science or in credible evidence-based medicine. Indeed, there is no evidence whatsoever, to suggest that it can be or is effective at doing anything. The best that can be said for it is that it may do no harm - a few drops of water with a submolecular concentration of table salt or another cheap and available chemical will not have any effect. The wider issue however is that time wasted during the attempts to improve the sarcoid using this means may result in the lesion becoming untreatable and so it can actually be harmful in delaying the application of proper rational treatment. Homeopathy has an "answer" to every outcome possible so to a vulnerable owner the "results" of the "treatment" can be viewed as a 'positive outcome' - even when it clearly is going wrong. This cannot possibly be either sensible or honest. This approach is a waste of money and is both illogical and inappropriate.

Homeopathy is not a cheap option - it is an expensive and ineffective option without any prospect of success that would not be achieved by doing nothing. It is therefore best suited to people with money to waste!

### Vaccines and immune stimulants

Vaccines sound an attractive proposition but they do not work! If they did we would not be worried about the disease at all and we would not have the problem to deal with. Vaccines made from "bits" of sarcoid are highly dangerous and should not be attempted without serious thought. In any case, vaccines have been consistently useless and in many cases they have been responsible for dramatic exacerbations of the disease. This is entirely expected really, since this is a genuine cancer condition and vaccines against cancer in all species have been very difficult to develop.

There have been suggestions that a vaccine can be made along the lines of the human cervical cancer vaccine but the tumours in the two species affect different cells and the relationship between the virus and the cancer is much clearer in humans than in horses. Nevertheless, the spontaneous self-curing horses, do give us hope for some immunological treatment method at some time in the future.

Since affected horses generally have normal fully competent immune systems running at 100% efficiency, it is completely unnecessary to try to "boost it" by administration of herbs and 'immune boosting' concoctions and feed additives. The immune system can only run at 100% and any interference with this jeopardises the natural balances of the immune processes; it is not possible for it to be boosted to over 100%! Sarcoids are not commoner in immune compromised horses than in normal ones.



### Can I prevent my horse from getting the disease?

It is unlikely that anything will be 'sure to prevent' a susceptible horse from getting the disease but reasonable precautions can be taken to limit the risk. Firstly the horse should be healthy! Fly control in summer months is critical and if effective the risks are low - however, this is easier said than done!

### Should I buy a horse with sarcoids?

Whenever a horse is being bought it should be assessed as a package - there will always be some good things about it and some not-so-good ones! The horse should not be rejected out of hand but the purchaser should be made aware of the implications! Your vet will be the best source of advice and help.

- A horse with even one sarcoid must of course be liable to the disease. It will remain liable genetically for life but the condition may not get any worse and it may be treatable.
- The purchase value of the horse with sarcoids is invariably less than an equivalent horse without them! If you are buying you may be able to negotiate a suitable price - if you are selling you may have to be prepared to take less! Of course that is a matter for the sale process!
- The insurance implications are that sarcoid will not be covered by a new policy taken out because the condition is pre-existing and must be declared; failure to declare it on the proposal form will likely result in complete loss of insurance cover for everything!
- The purchaser may wish or need to sell the horse in due course and then of course the new buyer may well have considerable reservations. Even if it has been treated successfully, the seller **MUST** declare the condition before sale - failure to do so may result in court proceedings and much acrimony.

**Note:** We should all be grateful for the availability of health insurance for our horses! If your horse develops sarcoids and you fail to declare it to your insurer as soon as a diagnosis can be made, your insurance may not be valid. Most insurance companies run a 12 month condition limitation for claims. Therefore, you should try to get the condition treated rapidly. At least you should consult with a vet early and then pass the treatments decision to the insurance company. **DO NOT** wait for the condition to get very bad before looking for treatment so that the "claim against the insurance policy" will be a "meaningful amount". Both vets and insurers are more than aware of the slow rate of growth of most sarcoids and so when a bad case is presented with a statement "They developed since yesterday" the insurers will be justifiably sceptical!

**For further information** visit [www.liv.ac.uk/sarcoids](http://www.liv.ac.uk/sarcoids).

**If you want any other information on health issues concerning your horse please contact Dalehead Veterinary Group on (01729) 823538 and we will be happy to advise you.**