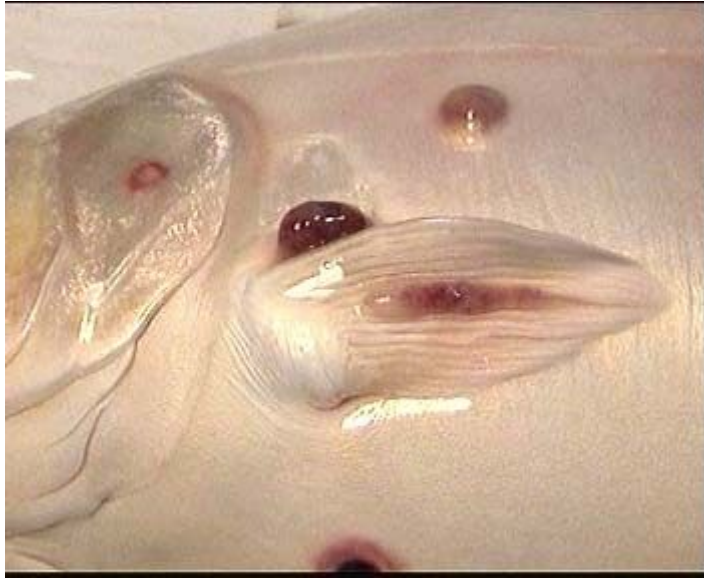


Dermocystidium

Fortunately, this condition is not very common in the koi hobbyist world. Also known as Dermocystidium Koi (DK), referring to the fish it infects. It is a disease that affects the skin (Dermis) of the host, it can be found on the gills, fins or body. This condition is believed to be a fungal infection due to it having “spores” and “hyphae”, however some authorities believe it is a



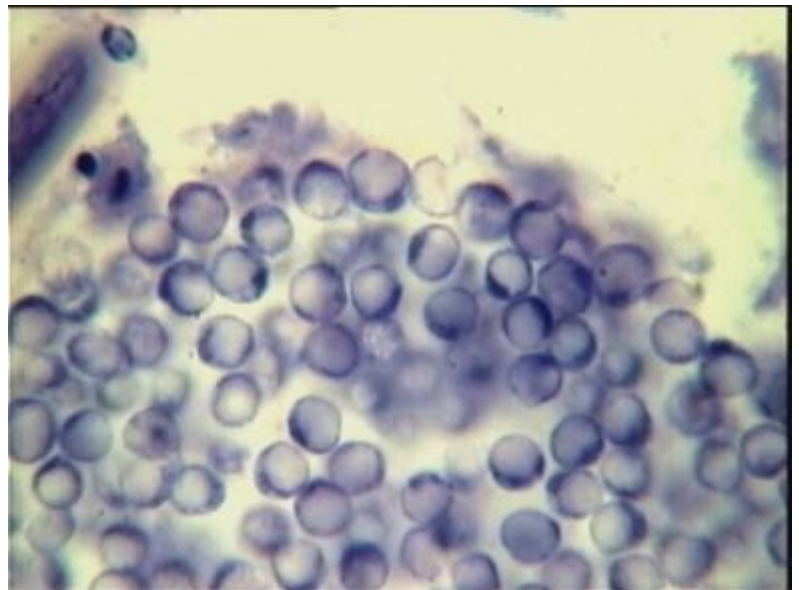
protozoa. It is not the same type of fungal infection such as Saprolegnia which attacks the skin as a secondary infection and should not be confused as such. In many cases only one or two koi are affected by this disease at the same time but further outbreaks can appear if isolation is not commenced.

When a cyst has ruptured it can heal without a scar, many of the affected koi can heal without the need for further intervention. Fatalities from Dermocystidium are usually due to high lesion counts that have developed secondary infection.

DK usually appears in spring but has been found at other times of the year, temperatures play a role in when it appears and it can last for approx 6 to 8 weeks. There is no way to avoid this in your pond as it can be carried for many months without any symptoms, quarantine may not reveal a koi has dermocystidium either.

Symptoms.

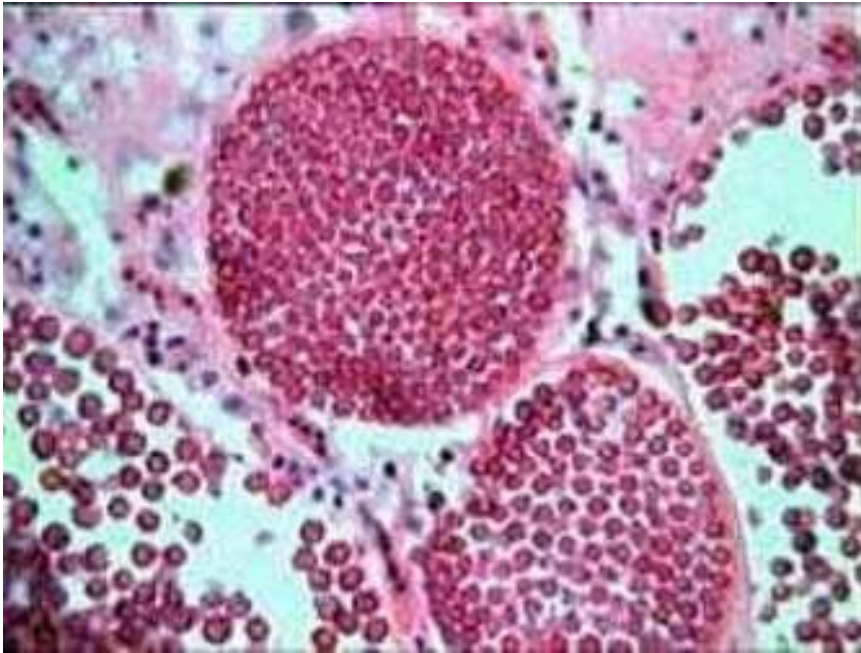
Lesions appear to be raised swellings of various shapes and sizes from 1-2cm and up to a massive 10cm. They can vary in colour from a light pink to bright red. The surrounding tissue of the lesions tends not to become too inflamed. A single fish may have a couple of lesions but in some cases they can have many more. The cysts rarely burst if under 6mm.



Identification.

As the lesions swell they may become a white cloudy colour, this is the hyphae inside the cyst. The skin covering the lesion becomes thinner and thinner over time which then eventually ruptures, this releases thousands of infective spores into the water to infect other koi. Ruptured lesions leave a deep hole in the skin which is referred to as a “crater”.

Positive identification can be made by taking a sample from a lesions contents and using a microscope to examine it, this would likely need to be done by a specialist as a strong magnification would be required. Each cyst can be filled with hundreds of spores and are 8-12



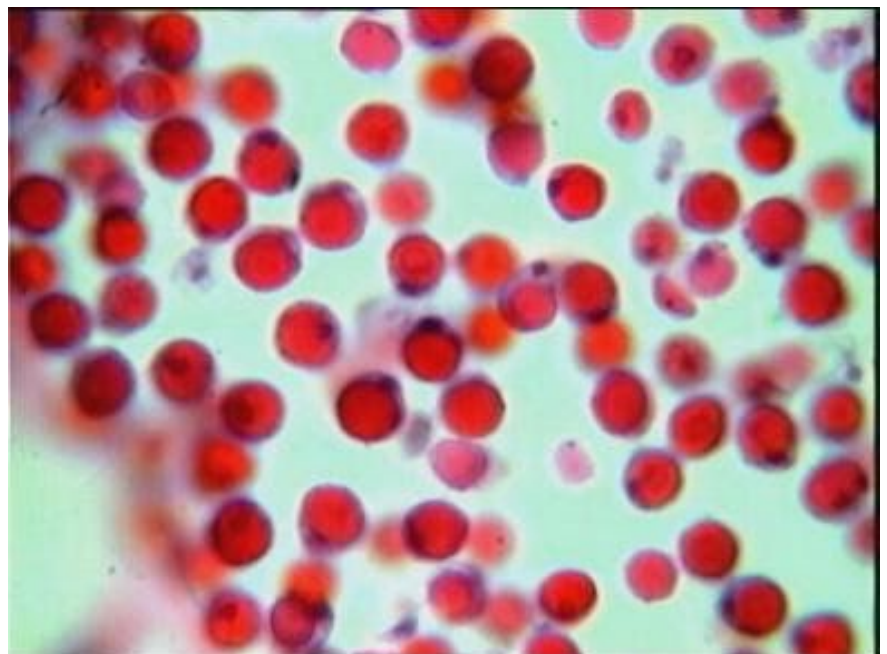
micrometers, about the size of a red blood cell. In each spore it has a large fluid filled vacuole in its centre which pushes the nucleus to one side. The image on the left is at x400 magnification, it shows the spores and hyphae crammed into a cyst (round pink stained areas), the red blood cells are darker.

The image directly below is at x1000 magnification. It shows the spores. If you look closely enough you can see the little dark dots to the side of each spore, these are

the nucleus. The larger red circle is the fluid filled vacuole and a fainter pink/red outer shell. The sample has been stained.

Treatment.

Unfortunately there is no known treatment that can be added to the pond water. Baths of Malachite Green (MG) and Potassium Permanganate (PP) had little to no effect. Neither did making a paste of PP or topical application of MG directly to lesions.



Signs of secondary infection

should be treated accordingly with topical treatment and antibiotics. The higher the number of lesions on a single fish, the greater its chance of secondary infection developing and a poor outcome being the end result. Treatment duration of those koi requiring antibiotics is likely to be weeks rather than days but this also depends on temperature. Acriflavine or MG with Salt can be added to the hospital tank to help reduce the risk of secondary infection developing. Iodine based products can be applied to the cyst wound bed once it has ruptured until healing is underway.



Some people may try and tackle the lesions with surgery. This may not be possible for all lesions though due to their location and size. Affected koi are sedated and the lesions are cleaned carefully then opened up using a

sharp sterile blade. Absorbent gauze or tissue is used to soak up the contents of the cyst, being careful not to let it spill anywhere. The crater is then cleaned out and a cotton bud is dipped in Hydrogen peroxide (HP) and then the crater thoroughly cleaned with it. The HP acts as a cauterising agent and also slows down any bleeding. The wound is then sealed as normal, propolis may also be useful due to its antibiotic properties.



****Any treatments or medications carried out are done so at your own risk. The YKS will not accept any responsibility for any damage or losses. It is your responsibility to know your pond volume and calculate dosages accurately.****

References

<http://www.fishdoc.co.uk/disease/dermocystidium.htm>

<http://www.lincsfishhealth.co.uk/html/dermocystidium.html> (good clear images available here)

<https://www.int-res.com/articles/dao2005/65/d065p245.pdf>