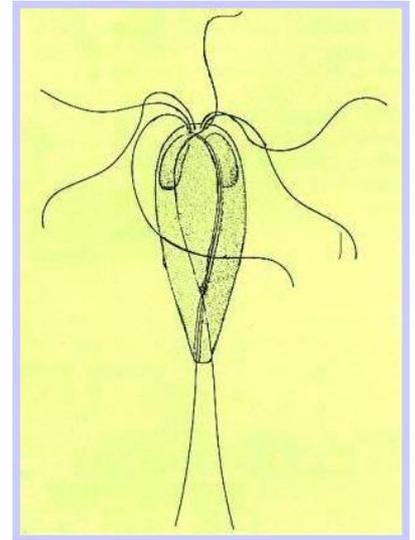
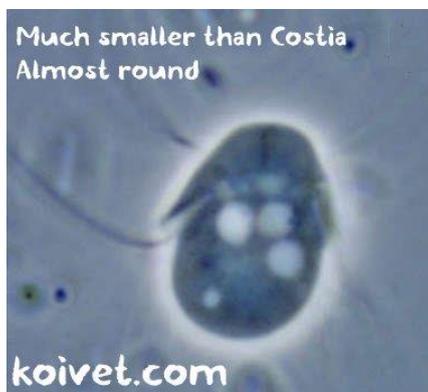


## Hexamita

Hexamita was previously called Octomita until around 1960. It is an “endo-parasite” meaning it lives mostly internally. There are two most common species of Hexamita are “*H. Salmonis*” or “*H. Truttae*” (these two occasionally being classed as the same sub-species) and “*H. Intestinalis*”.



This is a flagella parasite approximately 3-6 microns wide and up to 12 microns long (smaller than Costia). They are shaped like a tear drop although just prior to splitting they become more spherical. This parasite was renamed due to the 6 “flagella” or arms at the wide end and two at the posterior, this is why it was named Octomita



previously. These arms or flagella are around 1.5 times the body length and allow it to move about.

It is usually found internally in the intestinal tract of koi and goldfish. It can also be found in the heart, liver, gall bladder, blood and the peritoneal cavity. It is not a very commonly found parasite which is probably why it is not very well known.

## **Lifecycle**

Hexamita reproduce on/in healthy fish at their normal rate by longitudinal binary fission. In certain conditions for example when the host fish is weak or unwell, this parasite will take full advantage and they can reproduce at an extreme rate. This is referred to as “Schizogony”, this is when the nucleus divides multiple times. This process is achieved by the Hexamita invading and taking over the epithelial cells of the intestines, the Hexamita nucleus combines with the cells nucleus. Binary fission then takes place, usually in less than 24 hours, then newly developed “Merozoites” are ready to infect more cells starting the process again.

## **Symptoms**

Affected fish become increasingly thin. It can take many months to show any signs of infection, even more so if the fish was previously very healthy and the infection is low. They may look emaciated. The affected fish’s abdomen may become swollen/distended and



look very similar to Dropsy. A yellow/white mucoid material may be excreted by the affected fish. Flashing may occur. The gills may be very light coloured. Where there is a

heavy infestation, the affected fish will become listless and sulk in the corners of the pond/tank, they will not feed. Their skin will become darker and they will look off colour. Skin and fins may become eroded when there are heavy infestation to the surface of the skin.

### Transmission

Hexamita is transmitted via the mouth and there is a possibility it can be contracted via the anal passage. Evidence has also been found indicating that amphibians such as frogs, toads and newts. Hexamita can form a protective cyst which allows it to withstand drying out, allows it to lay dormant in faeces on the pond floor and stomach acid when passing through the digestive tract.

### Identification



If a fish dies with no obvious symptoms mentioned above then it may be worth taking samples ASAP of blood and squashed tissues. These samples should be examined using a microscope. If a live fish is thought to have Hexamitiasis then a fresh faeces sample should be taken and examined under a microscope. This latter method would not be suitable for a fish that is not eating as the stomach will be empty and no stools will be passed.

Hexamita can be seen using magnifications of x100 and x400 as long as a thin sample is being used on the slide. This is easy to do with a blood sample but much more tricky when using faeces or tissues. Ensure the tissues/faeces is spread out thinly the squashed tightly between two slides, be careful not to break them. This process should be repeated using a number of clean slides until a very thin sample is present. When you are satisfied you have a thin enough sample, apply a cover slip or two. Adjust your light settings on your microscope, turn the brightness right up and then adjust the iris until you get a good contrast.

### Treatments

When in the advanced stages of the disease it is very difficult to treat. The most effective treatment is one that must also be obtained from a vet. Metronidazole Flagyl which is used to treat intestinal bacterial infections and protozoa. It is an antibiotic which also means that your biological filter bacteria will be killed as will any plants. Therefore; it is preferable to isolate the fish into a separate tank.

- Metronidazole Flagyl: for a bath use a 250mg tablet crushed and dissolved in a little warm water, add to 50 litres of water. Measure the water accurately as you may need more volume if the fish is larger. Keep the fish



in the treatment for three days and raise the temperature. Use air stones in the tank and a filter containing activated carbon to slowly remove the medication, or do water changes.

- If the fish is still eating then you can use metronidazole as a food additive at 1% by weight of the fish. 10mg per 1gram, or one 250mg tablet to 25 grams of food pellets for 5 days. Mix the pellets and crushed tablets in warm water and gelatine. Divide into daily portions and freeze so that you can thaw out a dose daily each day.

Before adding any treatments, it is essential that you make a positive identification of the parasite causing the problems.

Test your water parameters for Ammonia (NH<sub>3</sub>), Nitrite (NO<sub>2</sub>-), Ph, KH and Temperature.

Any treatments added are done so at your own risk. It is your responsibility to know your pond volume and to calculate dosages correctly. Always check the product labels. Turn off UVs if it states to do so. Add extra air.

The YKS will not accept responsibility for deaths of stock resulting from incorrect usage of chemicals/medication.

## References

<http://www.fishhelpline.co.uk/health/hexamita.html>

<http://www.koiquest.co.uk/Hexamita.htm>

[http://koivet.com/a\\_koi\\_parasite\\_hexamita.html](http://koivet.com/a_koi_parasite_hexamita.html)

<https://alchetron.com/Hexamita>

## Videos

<https://youtu.be/YiiOB8k1Q6k>

<https://youtu.be/Okgg0vbrVzo>

<https://youtu.be/sH0RGfJCdis>

<https://youtu.be/nJIMGR2VaYY>