STEROID RESPONSIVE MENINGITIS
Beagle Pain Syndrome

Steroid Responsive Meningitis (SRM) is a syndrome that is occurring in many breeds. It was first call Beagle Pain Syndrome (BPS) due to the fact it was found in a colony of research beagles in the late 1980's. It is known by many other names including Canine Pain Syndrome, Neck Pain Syndrome, Necrotizing Vasculitis or more technically meningoencephalomyelitis. SRM a condition of sterile meningitis and polyarteritis. The problem may present with a variety of symptoms and is often misdiagnosed as Lyme disease, cervical/spinal injury, or massive bacterial infection. Cervical pain, shaking, hunched back stance, fever, lack of appetite, stiff neck, muscle spasms (especially in front legs and neck), lethargy, and unwillingness to move can be noted and theses symptoms may appear quickly. The dog maybe hesitant to bark and opening of the jaw seems to be painful. Some affected dogs may cry out in pain with the slightest attempt of movement. There are reports of blindness and limb paralysis associated with this syndrome. On necropsy research beagles have shown changes associated with irritation or infection in the small vessels in the cervical spinal cord, mediastinum, and heart.

Typically, it is first seen in puppies from 4-10 months of age but can be seen in older dogs. However there is a form in older dogs more often called Granulomatous Meningo-Encephalitis or GME. SRM is more likely to be treatable with GME sometimes being refractory to treatment and more likely to result in a dog that doesn't respond well to treatment. Male and female dogs are affected equally. Left untreated the first episode may resolve within a few days but a relapse will probably occur within a few months. There are two cases where affected dogs develop seizures secondary to scarring caused by the condition and these were both cases which did not get diagnosed straight away and were weaned too quickly from steroids. This same type syndrome is also seen in Boxers, Nova Scotia Duck Tollers, PBGVs, Springer Spaniels, Scottish Deerhounds, Petit Basset Griffon Vendéens and Bernese Mountain dogs.

The cause of SRM is unknown at the moment. It is known to be an immune response but the trigger has not been identified. The immune response results in an intense inflammation of the blood vessels supplying the neurological system particularly the meninges (lining around the brain) and the cervical spinal cord (neck). The body is "attacking" its own cells and suppression of this is imperative in treatment. Dogs are very stoic and as such the owner may not be able to pinpoint initially exactly what is wrong just that the puppy is out of sorts. Often this is initially attributed to an injury or infection.

Bacterial meningitis, diskospondylitis, spinal tumor, lyme disease and cervical disc disease should be ruled out as the symptoms are very similar to SRM. X-rays will often be unremarkable and lab work may show anemia, leukocytosis, neutrophilia, hypoalbuminemia, and alpha2 macroglobulinemia. The usual use of non steroidal anti-inflammatories such as meloxicam and carprofen does not produce any improvement. Antibiotics are usually of no benefit to a beagle with SRM.

Diagnosis is most commonly based on symptoms and a spinal tap. Samples are taken under a General Anesthetic from the fluid bathing the cervical spinal cord and they show typical changes of increased numbers of cells and protein. The recent use of the Magnetic Resonance Imaging technique (MRI) is also producing very useful information on the condition, giving an idea of the severity of the disease in an individual and helping to decide on the best treatment regime. Some dogs may have an apparently normal spinal tap but the MRI scans show abnormalities consistent with the inflammation within the brain. MRI scans have the advantage of being completely safe. Spinal taps and MRIs are expensive. Ideally, both tests should be performed. In some cases testing may not be readily available or affordable to the owners. Some owners and veterinarians have opted to start high dose steroid treatment and see if the dog responds quickly--if so additional testing was not done.

Treatment is with steroids, specifically prednisolone or prednisone at dosages between 1-4mg/kg/day. A protocol used by Dr. Samantha Goldberg is to start on 2mg/kg twice daily and after 5-7 days slowly start

weaning down. Then maintain the patient on twice weekly 5mg for a few months when they have been badly affected and this will often hold them until they are older. Some dogs may grow out of the condition but others may have to stay on steroids permanently. In more severe cases other immunosuppressive agents, such as Azathiorpine or Cytarabine maybe used in conjunction with corticosteroid steroid therapy.

The main goal is to start treatment quickly and with adequate dosages. High steroid treatment should be first line treatment. Weaning off the medication should be done gradual, as cases have shown that relapses may occur quickly if the steroid therapy is discontinued to rapidly. Do not start weaning until the dog is totally back to normal. Treat aggressive- wean slow!!

Steroid treatment will make the dog drink more water and may cause water retention. The side effects of the treatment (excessive eating, drinking and urinating including numerous "accidents") can be overwhelming to the average pet owner. Frequent trips for "potty" breaks are needed, as well as keeping the beagle in a quiet non-stimulating environment. Remember that moving can be painful for them, so if the dog lives in an active household with kids and other dogs, confining the dog in a crate or separate area for is suggested.

Given that some breeds of dog are over represented in the population with SRM there is a possibility of a genetic predisposition which basically means the dog may have a hereditary problem which makes them more likely to develop this immune mediated disease. The availability of DNA marker tests for screening of canine disease is a major research area. Currently there is not research on this syndrome underway. If you have a dog affected with SRM, please consider submitting a DNA swab via the (CHIC) -Canine Health Information Center DNA Banking program. There is a minimal fee for the submission. But if in the future, research is started on this problem it would be ideal to have DNA available from as many affected dogs as possible. For additional information on how submit cheek swabs of an affected beagle, please contact Darlene Stewart at beagleinfo@mchsi.com or review the information on the CHIC website. http://www.caninehealthinfo.org/

The Animal Health Trust in the UK is trying to collect enough blood samples to start genetic research on this problem. In the UK, anyone having a beagle with the condition or knowing of one is encouraged to contact Dr. Samantha Goldberg at samgoldberg@btinternet.com.

This syndrome is similar to Kawasaki disease in humans.