

# Steroid-Responsive Meningeal Arteritis

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## BASIC INFORMATION

### Description

Steroid-responsive meningeal arteritis (SRMA) is a disease in which the layers of tissue covering the brain and spinal cord (*meninges*) become inflamed (*meningitis*) due to an immune reaction. Animals with meningitis often exhibit pain and neurologic abnormalities. The disease is seen most commonly in young, large-breed dogs less than 2 years old. Breeds that are predisposed to the condition include the boxer, Bernese Mountain dog, and beagle.

### Causes

The cause of this inflammation has yet to be determined. The inflammation arises when the animal's immune system becomes activated and attacks the meninges.

### Clinical Signs

The most common clinical sign of SRMA is an acute (sudden) onset of pain. The pain typically is isolated to the neck but may be present along the entire spine. Affected dogs may be reluctant to walk, lift their head, or move their neck.

Other clinical signs include fever, lethargy, depression, and decreased appetite. Affected dogs occasionally have signs of inflammation in the joints of the legs (immune-mediated polyarthritis). Polyarthritis, which is an inflammation of multiple joints, may cause additional discomfort, lameness, reluctance to walk, and a short-strided gait.

### Diagnostic Tests

SRMA may be suspected initially, based on the history and neurologic examination findings. Routine blood tests may indicate generalized inflammation. X-rays or other advanced imaging studies, such as magnetic resonance imaging (MRI), myelography, or computed tomography (CT scan) of the neck may be recommended to exclude other potential causes of neck pain and similar signs.

Cerebrospinal fluid (CSF) analysis is a key component in the diagnostic work-up for SRMA. A spinal tap is performed to collect the CSF, which typically shows increased numbers of a type of

white blood cell called the *neutrophil* and elevated total protein levels. Measurement of a specific antibody, immunoglobulin A (IgA), in CSF may also be performed by specialized laboratories. Increased IgA levels in CSF are highly suggestive of SMRA.

Bacterial cultures and other tests are often needed to exclude infectious diseases from consideration, because many of the clinical signs and results of the CSF analysis are not specific for SRMA and may also occur in cases of infection. Consequently, the diagnosis of SRMA is made by a combination of history, examination findings, advanced imaging and CSF analysis, additional laboratory tests, exclusion of infectious agents, and response to therapy.

## TREATMENT AND FOLLOW-UP

### Treatment Options

Treatment of SRMA involves suppression of the immune reaction, most commonly through the administration of steroids. Dogs usually respond to treatment within a few days; however, treatment is continued for several months. As the clinical signs resolve, the dose of steroids is slowly decreased until the dog is weaned off the therapy, if possible, or until the lowest dose that controls the clinical signs is found. Occasionally, affected dogs require additional medications for pain and other clinical signs.

### Follow-up Care

Affected dogs are re-evaluated frequently at first, to monitor response to treatment and to make decisions about tapering the steroids. Rechecks and monitoring are also needed to monitor for recurrence of the disease. Notify your veterinarian if any signs worsen or recur as the drugs are decreased. Occasionally, a spinal tap and CSF analysis may be repeated to evaluate for resolution of the inflammation.

### Prognosis

Prognosis is good if affected dogs are treated early with immunosuppressive therapy; however, some dogs experience relapses. Occasionally, long-term medication is necessary to control clinical signs.