al banding, which is relatively common in MS. Oligoclonal bands are bands of proteins seen in certain spinal fluid tests that indicate immune system activity in and around the spinal fluid pathways.

How is transverse myelitis treated?
Transverse myelitis is a relatively rare disease, and so there are no well-defined randomized trials of treatment for this disease. Most of what we know about treatment for TM comes from case studies or studies of groups of treated patients.

In most cases, hospitalization is required for an attack of TM due to the severity of the disorder. At this time, intravenous methylprednisolone is the front-line treatment for an attack of TM. Usually, the drug is given over five to seven days, followed by a tapering dose of steroids. The aim of the treatment is to reduce swelling and irritation and speed recovery from the disease. There are possible side effects with steroid treatment; in the short term, these may include:

- increased blood glucose
- low potassium
- sleep disturbance
- mood changes (irritability, crying, anxiety)
- weight gain
- flushed cheeks
- facial swelling
- a metallic taste (when using IV Solu-Medrol®)

Long-term complications of steroid treatment include:

- susceptibility to infection
- osteoporosis
- development of cataracts
- personality change
- obesity
- skin changes
- aseptic necrosis, or injury to the shoulder or hip joint. *Aseptic necrosis is rare.*

Another approach to treating transverse myelitis is a process called plasmapheresis. The process seems to effectively remove antibodies by circulating blood through a machine, reducing immune system activity.

Plasmapheresis usually takes a few hours and is done every other day for 10 to14 days, often as part of a hospital stay. Five to seven plasmapheresis treatments are usually needed to treat TM. You might have to have a central venous catheter put in to allow blood to be removed from the system rapidly. Risks of plasmapheresis include the discomfort involved in withdrawing blood and placing a catheter, a tendency to bleed due to a reduction in platelets (sometimes), and infections.

If lupus or another disorder is causing the TM, treatment may take longer. In general, transverse myelitis that is not caused by another disorder is a one-time disease and does not require continuing treatment other than whatever rehabilitation is necessary for the best recovery possible.

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Transverse Myelitis

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What is transverse myelitis?

Transverse myelitis (TM) is a rare neurological syndrome. It is an inflammatory disorder of the spinal cord. TM may be due to a virus or other infection, but in general, the cause is unknown. TM is an autoimmune disorder, meaning that the immune system attacks the body's own tissues. In general, TM is a one-time disease with a sudden onset followed by improvement or stabilization.

What are the symptoms of transverse myelitis?

People with symptoms of transverse myelitis may:

- develop a rapidly progressive disorder with back pain, numbness, and tingling in the legs, trunk, and sometimes arms,
- have weakness in the legs and sometimes in the arms. The weakness may become severe at times, leading to complete paralysis.
- have trouble with bowel and bladder function
- have fever

What are the risk factors associated with transverse myelitis?

Transverse myelitis can occur in any population at any age. Certain people with TM have a related disorder, neuromyelitis optica (NMO). NMO is another neurological disorder that is similar to multiple sclerosis that may cause severe symptoms involving the optic nerve and spinal cord. Some people with incomplete TM may develop multiple sclerosis (MS), but most patients with typical TM do not go on to develop MS.

Recently, a team of researchers at Johns Hopkins found that the spinal fluid of patients with TM shows strikingly high levels of an immune protein (Il-6). The researchers think that the high levels of the protein may be a cause of TM, but this theory has not yet been firmly established.

Transverse myelitis may occur with other diseases, and sometimes testing needs to be directed at isolating these disorders as well as the TM.

- In many cases, the TM is idiopathic, meaning that a specific cause is not identified.
- In some cases, TM can develop as one type of MS attack, either the first attack or a relapse. In general, TM in MS tends to be a less severe form of TM.
- Devic's disease (or neuromyelitis optica, NMO) is a disorder related to MS that produces severe recurrent TM and optic neuritis (inflammation in the optic nerve that connects the eye to the brain).
- TM may occur with systemic inflammatory diseases. Diseases like systemic lupus erythematosus, Sjogren's syndrome, or sarcoidosis can cause TM.
- TM can develop in association with a variety of infections caused by both viruses (such as herpes simplex, Epstein-Barr, influenza, and HIV) and bacteria (such as tuberculosis, syphilis, and Lyme's disease).

What tests are done to diagnose transverse myelitis?

Your doctor will first review your medical history and perform a physical examination. If this review suggests a problem with the spinal cord, the doctor will do further tests to:

- eliminate the possibility that something other than inflammation is affecting the spinal cord, for example, a tumor, herniated disc, or a compression caused by an abscess
- confirm the presence of abnormal inflammation within the spinal cord
- identify the cause of the abnormal inflammation

The diagnosis of TM is considered when patients develop subacute (over a few days) spinal cord symptoms and signs as described above, and magnetic resonance imaging (MRI) or other imaging does not show another cause for the spinal cord disorders.

MRI often shows a long segment of altered signal in the spinal cord which extends to multiple segments along the spinal cord, likely reflecting demyelination and nerve injury in the spinal cord. This may sometimes be associated with swelling of the spinal cord. Demyelination is a process in which the myelin, or coating, which covers many nerve fibers is stripped off by disease.

A test of cerebrospinal fluid may show increased white cells and protein. In TM, the spinal fluid frequently shows an increase in white blood cells at levels that may be higher than levels usually seen in MS. Also, patients with TM usually do not have oligoclon-