

# Manx Syndrome in Tailless Cats

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## At a glance:

- **About:** Manx syndrome is a collection of disorders affecting the spine, hind legs and colon of tailless cats.
- **Symptoms:** Symptoms can include urinary and fecal incontinence, constipation and hind leg paralysis.
- **Diagnosis:** Presenting symptoms along with imaging to evaluate the spine and nerves.
- **Treatment:** Manage symptoms such as stool softeners and diapers.

## What is Manx syndrome?

Manx syndrome is a collection of disorders affecting the spine and sometimes the hind limbs of affected cats. It is believed to be a form of spina bifida, in which the spine fails to develop as it should.

The condition is congenital (present at birth) and occurs during development in the caudal (tail) region of the embryonic neural tube. The (caudal/tail vertebrae) are absent and in some cases, one or more of the sacral bones are deformed or reduced in number. Along with this, a shortening of the spinal cord (*spinal cord dysgenesis*) and/or absence of the cauda equina (the bundle of nerves located at the lower end of the spinal cord which transmit messages to the pelvic organs and hind legs), resulting in fecal and urinary dysfunction due to innervation in the anal and perineal area affecting the bladder and anus. Partial paralysis may also occur in the hind legs.

Manx syndrome gets its name from the Manx cat, a breed of tailless cat originating from the Isle of Man. Not all Manx cats are tailless, tail length varies from no tail to a full-length tail.

- Neck (cervical) – 7 bones

- Back (thoracic) – 13 bones
- Lower back (lumbar) – 7 bones
- Sacral (between the hip bones) – 3 fused bones
- Tail (caudal) – 20 -23 bones

## Manx gene:

The gene responsible for taillessness, labelled M is dominant, meaning only one parent is necessary to pass on the gene. The offspring will be Mm. If both parents pass it on resulting in a cat with two M genes (MM), it is lethal, and the offspring typically die in-utero.

Manx syndrome can range in severity depending upon the extent of the abnormality. Affected cats may have one or more of the following:

- **Meningocele** – Protrusion of the membranes which cover the spinal cord through the vertebrae
- **Meningomyelocele** – Protrusion of the membranes and the spinal cord through the vertebrae
- **Sacrocaudal dysgenesis** – Malformation of the sacrocaudal vertebrae. All cats with Manx syndrome have this and sacrocaudal dysgenesis is often used in place of the term *Manx syndrome*.
- **Shortening of the spinal cord** and absence of cauda equina.
- **Hemivertebrae** – Causing angulation of the spine which should normally be straight.

## Symptoms:

Symptoms of Manx syndrome can vary depending on the level of spinal cord or cauda equina malformation. They typically appear from birth weeks to months later and may include the following:

- Absent tail
- Urinary or fecal incontinence
- Secondary urinary tract infections
- Urinary scalding and staining
- Constipation
- Paraparesis, partial paralysis of the hind legs which can cause difficulty walking
- Bunny hopping gait
- Lack of sensation of the skin around the anal/perineal area
- Plantigrade stance where the cat walks on the entire foot instead of the toes, as cats usually do
- Rectal prolapse
- Some cats may develop megacolon in which the colon becomes abnormally dilated and loses its ability to contract due to long-term constipation

## Diagnosis:

Diagnosis is based on presenting symptoms, physical examination.

**Xray** which will reveal absent or deformed sacral and caudal vertebrae.

**Myelogram** is a test in which a contrast agent is injected into the space around the spinal cord which displays the cord and nerve roots to look for abnormalities.

## Treatment:

There is no cure for this condition, treatment is aimed at managing symptoms. The prognosis for severely affected cats is grave and in most cases euthanasia is recommended.

Treatment options include:

- Manual expression of urine from the bladder.
- Stool softeners can help pass feces more easily.
- Special carts can be provided for cats who have ambulatory problems.
- Antibiotics will be necessary to treat urinary tract infections which are common in affected cats.
- Due to incontinence, many pet owners will use a nappy/diaper on their cat.