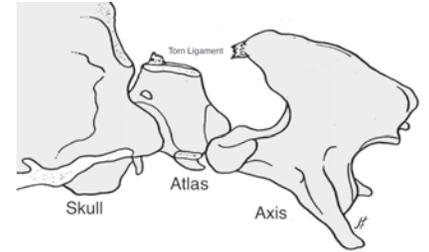




What is atlanto-axial instability?

Atlanto-axial instability is a congenital condition caused by abnormal articulation (joining) between the first cervical vertebrae (the atlas) and the second cervical vertebrae (the axis). The most common cause of the instability is malformation of an area of the axis called the dens, which sits in a groove at the base of the axis. There are several ligaments which hold the atlas and axis together which can also be malformed or torn in dogs with atlantoaxial instability. When the atlas and axis are not secured together properly, the axis can tilt forward and press on the spinal cord in the neck, causing neurologic damage. The disease is most common in small and toy breed dogs such as Chihuahuas and Yorkshire Terriers, however it has also been reported in larger breed dogs.



What are the signs seen in dogs with atlanto-axial instability?

Clinical signs are typically seen in young dogs and may occur after play with accidental trauma to the neck. The most common sign is pain in the neck and reluctance to turn the head. Other signs include collapsing episodes, decreased ability to walk in all four limbs, and, in severe cases, an inability to stand. With severe pressure on the spinal cord, animals can have difficulty breathing and should be seen on an emergency basis.

What is the treatment for atlanto-axial instability?

There are two broad categories of treatment – medical and surgical. Medical treatment involves placing the dog in a splint/cast that covers from just behind the eyes to the middle of the back for several weeks to months. This keeps the dog from being able to move the neck. Over time, some dogs develop scar tissue around the atlanto-axial joint, which stabilizes it. Some dogs do not need surgery after the cast is removed. Other dogs have recurrence of their neurologic signs after the cast is removed and require surgery. Medical management is often preferred in puppies who are still growing and have very small and soft bones.

Surgical management is often recommended for full grown dogs (>8-12 months) or in dogs who have severe enough signs that they are at risk of permanent damage if surgical stabilization is not done (i.e. severe pain, difficulty walking, collapsing episodes). Surgery involves placing pins through the bottom of the atlas and axis to reconnect them.



Pins placed in surgery to stabilize the atlas and axis

What is the prognosis (outcome) for medical and surgical management?

Medical management may be successful in puppies who have had signs for a short period of time (<30 days). Some dogs fail medical management and get worse while others improve initially but have recurrence of signs, especially with any future trauma to the spinal cord in the neck. Complications associated with the splint/cast include difficulty eating/drinking, skin infection and ulcers from the cast, ear infections, and corneal ulcers.

Surgical treatment is successful in most dogs. Young adults (<2 years) with clinical signs for a short period of time (<10 months) have a better overall outcome than older dogs who have had chronic spinal cord compression and potentially permanent spinal cord damage. Dogs with less severe neurologic signs (i.e. pain only) have a better immediate post-operative outcome than dogs with severe neurologic signs (i.e. inability to walk or move the limbs). Even though surgery is successful in most dogs, complications can occur with surgery and should be discussed directly with your Sage neurosurgeon at the time of consultation.