Neck Stiffness & Head Tilt in a Young Spaniel

Louis N. Gotthelf, DVM
Animal Hospital of Montgomery & Montgomery Pet Skin and Ear Clinic
Montgomery, Alabama

A 9-month-old female Cavalier King Charles spaniel presented for apparent neck pain when walked on a leash.

History
The owner reported neck stiffness and head tilt. After the leash had been removed, the signs continued to persist for more than 24 hours. The puppy appeared bright, alert, and responded when called.

Examination
Physical examination did not elicit a painful response when the head and neck were manipulated in any direction. A slight head tilt was observed when the puppy walked freely in the clinic; however, laboratory diagnostics were not performed.

Ask Yourself
Which examination would be the best next step?
A. Cervical vertebral radiography
B. Dental prophylaxis
C. Otoscopic examination and eardrum evaluation
D. Neurologic examination (via referral)
Correct Answer
C. Otoscopic examination and eardrum evaluation

Evaluation may reveal a bulging eardrum, indicative of primary secretory otitis media (PSOM). PSOM of Cavalier King Charles spaniels (CKCSs) commonly occurs as head and neck pain that may be difficult to localize. PSOM is well-known in this breed and reportedly occurs in more than 50% of CKCSs.1

With pressure in the bulla, Horner syndrome or facial nerve palsy may be evident. Vestibular disease may be present with increased bulla pressure and can manifest as nystagmus or head tilt.

Causes
The muscles surrounding the eustachian tube may remain dysfunctional from a potential congenital malformation in CKCSs that closes the tube. This creates negative pressure within the bulla, drawing fluid and mucus from the mucous membrane lining the bulla. With the small opening of the eustachian tube of the brachycephalic nasopharynx, mucus normally secreted in the tympanic bulla cannot drain into the nasopharynx. Mucus pressure builds in the bulla and on the eardrum, resulting in nonspecific head and neck pain. Middle ear pain can be demonstrated by manipulating the pinnae or opening the temporomandibular joint.

In patients with unilateral or bilateral PSOM, the eardrum often spontaneously ruptures from increased pressure. Mucoid material entering the lower portion of the external ear canal can be seen via otoscope. Associated pain may subside once the eardrum ruptures and pressure is relieved.

Breed-Specific Considerations
Careful examination can reveal an abnormal or bulging eardrum. Clinicians adept at visualizing a normal eardrum with a handheld otoscope can detect a bulging eardrum; the tip of the cone has to be small yet long enough to make the bend in the ear canal. The tip of the otoscope cone should be placed in the horizontal ear canal close enough to the eardrum to focus on the tympanic membrane. A highly magnified, well illuminated examination should be done with a video otoscope to determine eardrum status (Figure 1).

PSOM has not been shown infectious in CKCSs. Other breeds acquire secondary otitis media, causing intense head and neck pain, associated with enzymatic erosion and spontaneous rupture of a tympanic membrane weakened by bacterial otitis externa. External ear infection extending into the bulla can result in otitis media with subsequent purulent inflammatory exudation and increased mucus secretion. The eardrum may heal, but infection and inflammation may not. Increased middle ear secretions can continue, and this cycle may repeat often.

Additional Clinical Signs
Neurologic signs may be present. Painful middle ears can result in behavioral problems (eg, head shyness). Head scratching and shaking, yawning, and vocalization can occur. Vestibular problems (± nystagmus, head tilt, ataxia, circling, deafness) may result. One study in affected CKCSs found diminished hearing in the lower decibels but near-normal hearing at higher decibels, suggesting why owners seldom notice hearing problems.2

A CKCS presenting with head and neck signs may also have syringomyelia (SM), blockage of cerebrospinal fluid (CSF) flow from congenital malformation of the caudal skull (Chiari-like malformation). In this condition, increased CSF pressure can damage the spinal cord, causing vague pain around the neck. SM can be confused with ear discomfort.

Diagnosis
Both PSOM and SM can be identified via MRI; SM diagnosis requires MRI to image the dilated cystic areas within the cervical spinal cord. Approximately half of CKCSs have SM without clinical signs. It is not uncommon for an MRI to reveal both PSOM and SM, and it is sometimes difficult to ascertain whether one or both may be causing signs.

Treatment Measures
Long-term prognosis is good, requiring periodic myringotomy and monitoring of eardrum pressure. Myringotomy and bulla lavage can provide immediate pain relief (Figure 2). Warm-water irrigation can hydrate and thin the mucus, easing suction and removal. Myringotomy and lavage require general anesthesia. A video otoscope is helpful but not required.

Pressure equalization tubes have been inserted in CKCSs with PSOM with good results, allowing both ventilation and bulla drainage.3 However, these tubes are not routinely available.

Bulla infusions with aqueous corticosteroids may also decrease mucus secretion. Periodic middle ear lavage and mucus removal helps maintain lower pressure, controlling signs.

CKCS = Cavalier King Charles spaniel, CSF = cerebrospinal fluid, PSOM = primary secretory otitis media, SM = syringomyelia

Figure 1 Bulging eardrum (arrow) in a CKCS with PSOM. Courtesy Dr. Lynette Cole
In PSOM of other breeds, the eardrum may have already ruptured from excessive pressure, causing mucus from the bulla to overflow into the horizontal canal. The mucus can become dry and sticky, resulting in glue ear (Figure 3).

Myringotomy in a CKCS using a CO₂ laser. The mucus (arrow) under pressure flowed into the horizontal ear canal once the eardrum had been opened.

The appearance of dried or sticky mucus (black arrow) in the ear canal once the eardrum has ruptured is called glue ear and can be seen with a video otoscope. The tip of a probe (red arrow) extends through the otoscope. The myringotomy hole in the tympanum (green arrow) was made by the surgical laser.

**Bottom Line**

CKCS eardrums should always be evaluated. If PSOM is suspected, a high-magnification eardrum examination may require referral. PSOM can be asymptomatic in CKCSs, in which case myringotomy is not required; however, the owner should be educated to take appropriate steps if signs are displayed.

The Take-Home

- CKCSs often have a genetic defect of their eustachian tube that results in PSOM, which may be asymptomatic.
- Bulging eardrum and ear pain are typical of PSOM in CKCSs.
- PSOM should be differentiated from SM via eardrum evaluation and MRI (if necessary).
- Myringotomy can relieve PSOM signs.
- Antibiotics will not be helpful.
- Periodic treatment is required.

See Aids & Resources, back page, for references & suggested reading.