



Intradural spinal arachnoid cyst in a dog

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Abstract — An 8-month-old, spayed female dog was presented with signs localizing a neurologic lesion between the 3rd thoracic and 3rd lumbar vertebrae. An arachnoid cyst was diagnosed by myelography, and a dorsal laminectomy with durotomy was performed. The dog continues to do well 1-1/2 year after surgery.

Résumé — Kyste intradural de l'arachnoïde au niveau spinal chez une chienne. Une femelle castrée de 8 mois présentait des signes de lésions neurologiques situés entre la 3^e vertèbre thoracique et la 3^e lombaire. Un kyste arachnoïdien a été diagnostiqué par myélographie et une laminectomie dorsale et une durotomie ont été effectuées. La chienne se porte bien 1 an et demie plus tard.

(Traduit par docteur André Blouin)

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Spinal arachnoid cysts have rarely been reported in dogs but should be considered when there is progressive spinal cord dysfunction. This case report describes the clinical signs, diagnostic approach, treatment, and follow-up of a young dog affected with a spinal, intradural arachnoid cyst.

An 8-month-old, spayed, female shih tzu was referred to the Small Animal Clinic at the Western College of Veterinary Medicine (WCVM) for evaluation of progressive hind limb ataxia of 4 mo duration. Initial assessment revealed the dog had good body condition. Physical and neurological examinations revealed a bright, alert, and responsive dog, with no evidence of cranial nerve deficits. Spinal reflexes of the hind and forelimbs were normal. Conscious proprioceptive deficits were present in the left hind leg. Pain was elicited when the thoracolumbar junction of the spine was palpated. The owners declined further diagnostic evaluation until a later date.

The dog returned 1 mo later. The owners reported that the dog had been scuffing its hind limb toes for 1 wk and appeared to be unaware of defecation or urination. Physical examination was unremarkable. Neurological examination revealed appropriate mentation, and cranial nerve assessment was unremarkable. Hind limb ataxia was apparent, and conscious proprioceptive deficits were present bilaterally. Patellar, cranial tibial, and withdrawal reflexes were increased, but anal tone was normal. No neurologic deficits were present in the forelimbs. Pain was elicited when the thoracolumbar junction of the spine was palpated. The neuroanatomical diagnosis was a myelopathy between the 3rd thoracic (T3) and the 3rd lumbar (L3) vertebrae.

A complete blood cell count and serum biochemistry profile were submitted and the results were within

normal reference ranges. The dog was sedated; then, survey radiographs of the dog's spine, a cisternal cerebrospinal fluid (CSF) tap, and a myelogram were completed under general anesthesia. Results from the survey radiographs and the CSF analysis were unremarkable. The thoracolumbar myelogram, using iopamidol (0.3 mL/kg body weight; Isovue, Bracco Diagnostics, Mississauga, Ontario), demonstrated an abnormal widening of the CSF column dorsally and laterally at T11 and T12; spinal cord compression was evident in this region (Figures 1A, B). A diagnosis of an intradural spinal arachnoid cyst was made.

A dorsal laminectomy was performed over T11-T12 and confirmed the diagnosis of a spinal arachnoid cyst. A durotomy was performed to reduce the cyst. Large amounts of clear, colorless fluid exuded from the cyst. The spinal cord appeared to be normal on gross inspection. An autogenous fat graft was placed over the laminectomy site and the surgical site was closed routinely. The dog recovered from the anesthesia uneventfully. Initially, the dog was nonambulatory after surgery, but it began to use its hind limbs after 3 d. One month postoperatively, the owners reported that the dog's gait was similar to that noted before the surgery. The dog was scuffing its left hind toes but was otherwise normal 1-1/2 y after surgery.

Spinal arachnoid cysts are outpouchings, or diverticula, of the arachnoid membrane, they are filled with CSF and may be extradural or intradural (1). They are not true cysts, as they are not lined by epithelial cells (2). Arachnoid cysts may be spinal or intracranial. Spinal arachnoid cysts have been reported in the veterinary literature for some time (3,5-13), but it is only recently that intracranial cysts have been reported (4). The majority of the 16 spinal arachnoid cyst cases reported have been in dogs less than 18-months old, but the ages have ranged from 4 mo to 10 y (3,5-12). Spinal arachnoid cysts are tentatively diagnosed using myelography, computerized tomographic myelography, or magnetic resonance imaging (13). These techniques demonstrate a communication between the cyst and the subarachnoid space, thereby establishing the diagnosis of a subarachnoid cyst. In

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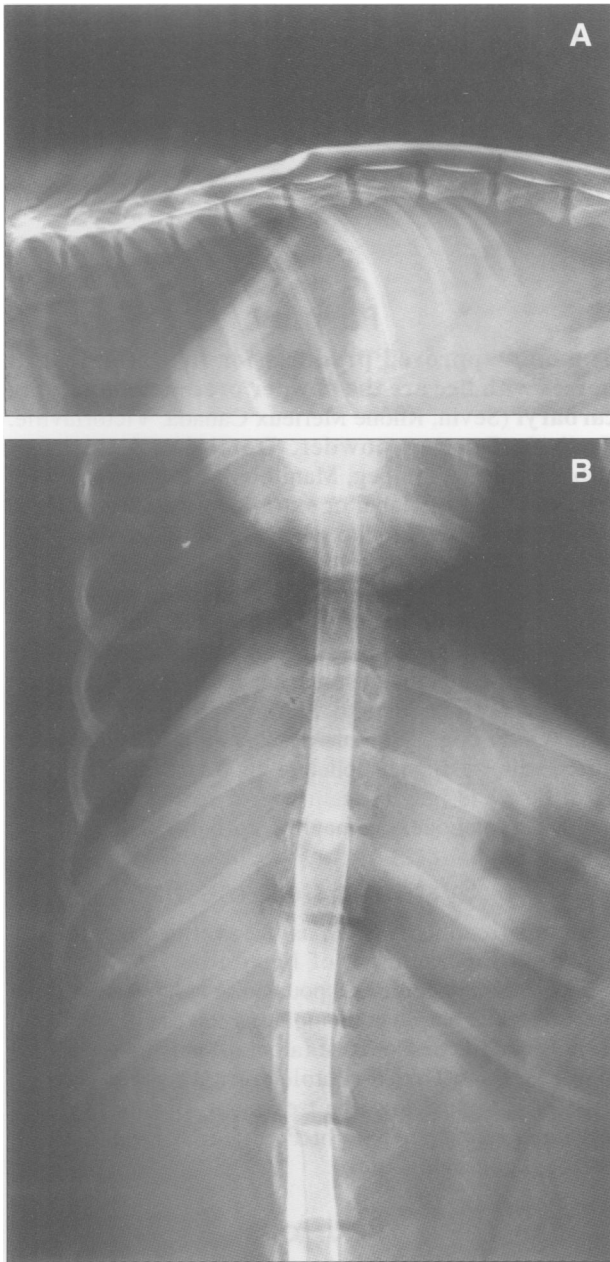


Figure 1. A) Lateral view of myelogram demonstrating pooling of contrast material in a cavitated area dorsal to the spinal cord, yet continuous with the subarachnoid space; B) Ventrodorsal view of myelogram demonstrating widening of the dye column at the body of the 12th thoracic vertebra.

contrast, a true cystic structure does not communicate with the CSF pathway.

Spinal arachnoid cysts in humans are categorized as 1 of 3 types (13). Type 1 is an extradural cyst that does not involve the spinal nerve root. Type 2 is an extradural cyst involving the spinal nerve root. Type 3 cysts are intradural cysts. The etiology of the subarachnoid cyst is unknown. Hypotheses include arachnoidal proliferations creating one-way valve mechanisms, congenital diverticula, defects in the dura through which the arachnoid might herniate, trauma, a complication of myelography, and arachnoiditis (1,13,14).

Complete surgical excision of the cyst is the treatment of choice in humans. When recurrence develops after rou-

tine surgical management, shunt procedures are employed and have been effective (14). Human patients who are asymptomatic may not require therapy (14).

Successful medical management of a cervical spinal arachnoid cyst with tapering dosages of prednisolone in conjunction with the utilization of a harness has been reported in the dog (8). However, medical management of another case by using ibuprofen and corticosteroids was not successful (7).

Surgical management, with varying outcomes, has been reported in 10 dogs (3,5–12). Dorsal laminectomies or hemilaminectomies were completed with either 1) durotomy without closure of the dura, 2) durotomy with marsupialization to the adjacent musculature or facet synovial membrane, or 3) dural excision of the cystic structure (3,5,7–12). Clinical improvement was noted in 7 of these dogs up to 1 y postsurgery (3,5–8,11). In one case, neurological deficits recurred 4 mo after surgery. This animal was retreated surgically, but recurrence of signs developed 8 mo after the second surgery (5).

Arachnoid cysts should be included on a list of differential diagnoses when a young dog presents with signs neuroanatomically localized to the spine. Surgical decompression and drainage of the arachnoid cyst provides favorable clinical results.

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