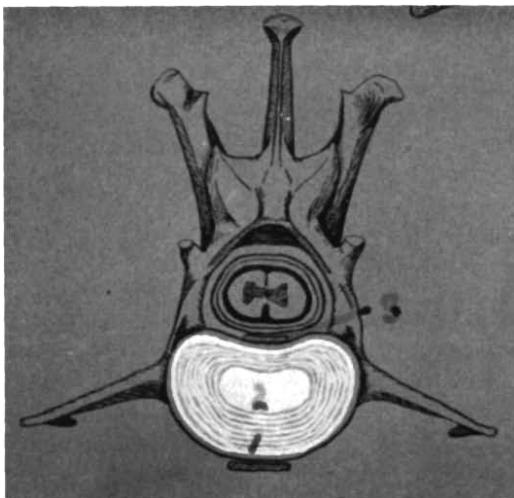


Intervertebral Disc Syndrome

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VETERINARIANS, whether in mixed or exclusive small animal practice, are often called upon for advice concerning dogs showing paralysis, paresis, (partial paralysis) or paraplegia (complete paralysis) caused by protrusion of the nucleus pulposus.



Drawing showing (1) annulus fibrosus and (2) nucleus pulposus.

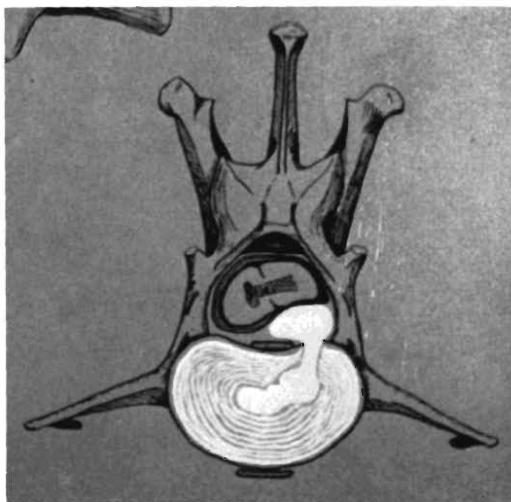
On Dec. 23, 1958, a four year old, male Dachshund was presented at the Stange Memorial Clinic. The dog was completely paralyzed in the hind quarters, which were pulled around in extended position up under the thorax (paraplegia in extension). On further observation, the patient was found to have urinary incontinence, which is quite common in these cases due to interruption of sympathetic

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impulses. Dorso-ventral and lateral radiographs confirmed the tentative diagnosis of prolapse of the nucleus pulposus.

Conservative treatment consisting of enforced rest and phenylbutazone failed to relieve the symptomatology and permission was obtained to perform euthanasia.

At necropsy, the top of the vertebral canal was reflected and the spinal cord lifted out. The prolapse of the nucleus pulposus had occurred between the 12th and 13th thoracic vertebrae and was present as a large, uneven, granular appearing mass herniating through the dorsal longitudinal ligament, which lies on the floor of the vertebral canal, overlying the intervertebral discs.



Drawing showing prolapse of the nucleus pulposus.

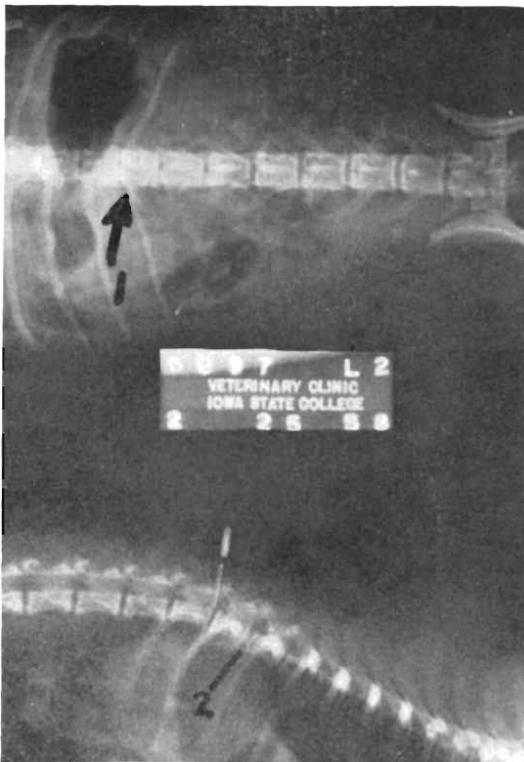
Incidence of disc herniation is greatest between three and eight years of age, and seems to be most common in the

Dachshund, Cocker, and Pekingese. Protrusions are most prone to occur in the posterior thoracic and the anterior lumbar area, but may occur at any point.

The intervertebral disc is comprised of two basic parts: the annulus fibrosis, the outer fibrous ring; and the nucleus pulposus, the central, semifluid portion. There are 26 intervertebral discs between adjacent vertebral bodies, extending from the axis to the sacrum. In addition to their articular function, the discs act as important shock absorbers. In fulfilling this function, the nucleus obeys the laws of fluids, in that it becomes flatter, broader, and distends the fibrosis in all directions under sudden pressure.

Radiology

Examination of the dorso-ventral radiograph (figure 2) reveals a narrowing of the intervertebral space between the 12th and 13th thoracic vertebrae, due to the loss of the nucleus pulposus into the ver-



(1) arrow points to calcified disc.

(2) narrowing of intervertebral space between T. 12 and T. 13.

tebral canal. A calcified disc can be seen between the 11th and 12 thoracic vertebrae. The significance of these calcified discs is questionable, as they are found in many dogs showing no spinal symptoms.

Necropsy

In addition to the protruding nucleus pulposus, the corresponding area of the spinal cord had undergone liquefaction necrosis (myelomalacia).

Treatment

It would be impossible to describe a typical course in the case of disc protrusion. In the treatment, McGrath recommends treatment for at least three weeks, realizing that the majority that recover will do so in this time.

Conservative treatment usually consists of enforced rest, salicylates, cortisone, phenylbutazone, vitamin B complex, and sedatives when indicated. A frequent sequela to this syndrome is cystitis, and it also should be treated. Urinary and/or fecal retention should be relieved. The shock syndrome, also a frequent sequela, should be treated.

Surgery

Surgery may have to be resorted to. One surgical procedure that may be gratifying is the hemilaminectomy, as described by Hoerlein. Concerning surgery, Hoerlein states, "Surgery should be employed as soon as possible after injury — within three to five days if paralysis and allied neuropathies are profound. The pressure in these cases will cause an irreversible damage unless relieved soon."

Some patients have recurring attacks, evidenced by a paresis which may eventually lead to paraplegia. In these cases, early recognition of the intervertebral disc syndrome and employment of a conservative treatment may prolong the useful life of the patient for several years.

REFERENCES

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Hoerlein, B. F., Further Evaluation of the Treatment of Disc Protrusion Paraplegia in the Dog. J.A.V.M.A. 129:(1956) 495-502.