Ankylosing spondylitis: cauda equina syndrome with multiple spinal arachnoid cysts

Case report

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A case of ankylosing spondylitis in a patient with a cauda equina syndrome is reported. A lumbar myelogram revealed erosions of the bones of the neural canal with enclosed multiple intraspinal cysts.

KEY WORDS • ankylosing spondylitis • cauda equina syndrome • spinal arachnoid cysts

In 1961, Bowie and Glasgow described three patients with long-standing ankylosing spondylitis who gradually developed disturbances of the anal and vesicular sphincters associated with loss of sensation in the sacral dermatomes. In one case the lumbar myelogram reportedly showed prominent diverticuli along the lumbar nerve sheaths; in another a myelogram done in the supine position revealed pooling of the contrast medium at indentations at each vertebral level. Since 1961, eight additional cases of ankylosing spondylitis complicated by the cauda equina syndrome have been reported. The myelograms of some of the cases showed peculiar cyst-like protrusions of the unusually spacious thecal sac.

We are reporting a case of ankylosing spondylitis with a typical cauda equina syndrome which showed unusual roentgenograms and myelograms of the lumbar spine.

Case Report

This 53-year-old white man was admitted to the Jewish Hospital and Medical Center of Brooklyn complaining of urinary frequency, urinary and fecal incontinence, nocturia, and anesthesia of the buttocks and posterior aspects of the thighs. He had a 30-year history of ankylosing spondylitis with uveitis and stiffness of the neck and back.

His speech was normal. The 2nd through 12th cranial nerves and optic discs were also normal. There was no paresis or paralysis, and all reflexes were normal except for absent ankle jerk. There was loss of pinprick sensation over the medial aspects of the buttocks, penis, scrotum, plantar surface of the feet, lateral surface of the heels, and a posterior strip of both thighs and legs. The vibration and position sense was normal. The diagnosis of a cauda equina lesion involving sacral roots 1 through 5 was made. Cystometric examination showed a hypotonic bladder with 385 cc of residual urine. Rectal examination showed a poor sphincter tone. The cerebrospinal fluid was clear, with 64 mg% of protein, 68 mg% of sugar, no cells, and an opening pressure of 160 mm H2O.

The entire spine and pelvis showed x-ray
features typical of chronic, inactive, ankylosing spondylitis: bilateral symmetrical ankylosis of the sacroiliac joints, "whiskering" of the ischial tuberosities, bamboo spine with fusion of the vertebral bodies, ankylosis of the zygoapophyseal joints, and union of the spinous processes of L2–L5 by bony bridges. The peculiar findings, however, were the multiple well-defined cystic spaces of varying size noted in the laminae in the fused articular processes and extending into the spinous processes of L2–L5 and S-1 (Fig. 1).

A lumbar myelogram performed by injecting 24 cc of Pantopaque demonstrated an unusually spacious lumbar thecal sac with numerous small and large cyst-like arachnoid protrusions along the posterolateral aspects of the sac. These arachnoid diverticuli appeared to be embedded in the cystic bone spaces described above (Fig. 2).

Discussion

There are remarkably few neurological complications of spondylitis except for those resulting from an injury to the rigid spine or intervertebral disc pathology. The cauda equina syndrome in the present case and in those reported before is a late manifestation of the inactive "burned out" stage of the disease. The erosive bone changes affecting the posterior parts of the spinal canal seem to be caused by pressure of the multiple arachnoid cysts.

FIG. 1. X-ray films showing multiple well-defined small and large bone erosions in the posterior elements of L-2, 3, 4, 5, and S-1 (arrows). Left: Anteroposterior view. Right: Lateral view.
Ankylosing spondylitis with cauda equina syndrome

The postmortem examination of the case reported by Matthews is an important contribution to the elucidation of the nature of the spinal lesions. He noted a general widening of the spinal canal with erosion of the posterior surface of the vertebral canal at L-3, 4, 5, and the upper part of the sacral canal by numerous diverticuli extending into the laminae and spinous processes and into the roof of the sacral canal. The diverticuli were lined by a membrane formed from periosteum, dura, and arachnoid. There were no inflammatory changes in the meninges and no arachnoid adhesions. Some of the nerve roots examined showed fibrosis and loss of myelin. Matthews postulated that the arachnoid cysts were probably a late result of the arachnoiditis which existed in the early stage of the disease. Blind pouches filled with cerebrospinal fluid could have formed between the adhesions and caused pressure erosion of the adjacent bone and the associated neurological symptoms.

Arachnoid cyst formation is probably common in spondylitis with the cauda equina syndrome. Because of the dorsal location of the cysts, it is necessary either to use a large amount of contrast medium when performing routine myelographic studies in the prone position or to put the patient in the supine position.

Summary

A case of cauda equina in a patient with long-standing ankylosing spondylitis has been reported. The outstanding features were multiple arachnoid cysts in the lumbosacral region causing cystic bone erosions.

References


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