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Symptomatic Intradural Spinal Arachnoid Diverticulum: Report of a Case and Review of the Literature

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Intradural spinal arachnoid divrticula have been well described in the literature. Asymptomatic spinal arachnoid diverticula are frequent incidental findings on myelography[16] They rarely produce signs and symptoms of spinal cord compression[15,20]

In this paper, a case of symptomatic intradural thoracic arachnoid diverticulum, which was found by conventional positive constrast myelography, is reported, and the partinent literature is reviewed.

Case Report

This 36-year-old man suddenly developed dizziness with nausea and fell down on the floor on August 5 in 1977. After an episode of unconsciousness of a few minutes duration, he regained his consciousness and felt slight left occipitalgia. He consulted to family doctor. No hemiparesis was noted, though he complained of dull sensation of the left upper and lower extremities. A lumbar puncture revealed a blood tinged CSF of 180 mm H_2O of opening pressure. Thereafter, the left occipital dull pain continued for several days.

On August 26 in 1977, he started to complain of a lumbar pain. A dull pain from precordial region to the level of his navel, which was radiated to the back, was also noted. The latter pain was aggravated in the upright position. Additionally, the shooting pain was complained in the upper extremities on both sides when the neck was hyperflexioned.

In his past history, he had a traffic accident in 1964, and hit his right forehead and back. In 1977, he was pointed out to have a moderate hypertension.

He was referred to the Kyoto University Hospital for further examinations for the subarachnoid hemorrhage. On admission on November 21 in 1977, he had primary right optic atrophy caused by the previous trauma with old orbital fracture. X-rays of the spines showed slight kyphosis toward the right side at the level of the 4th to 6th thoracic vertebrae, where the tenderness of spinous processes was noted.

Cerebral angiography and CT scans revealed no abnormality. EEG was within normal limits. In the myelographic study performed on November 28 in 1977, the moderate disturbance of the

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索引語：脊髄くも膜憩室，脊髄造影，外傷，くも膜嚢胞，メトリザマイド CT 脊髄造影.
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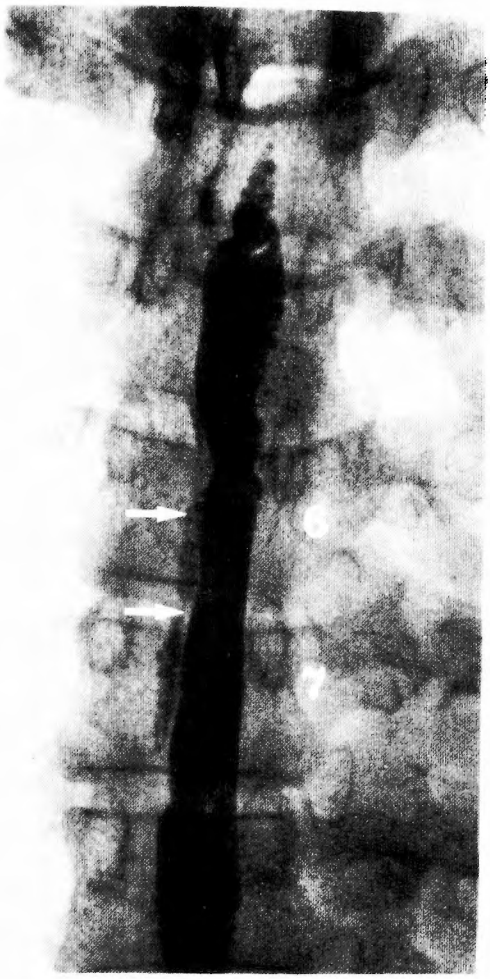

Fig. 1. Myodil myelogram, antero-posterior view, taken in the prone postion. There is a partial block to the flow of contrast agent, suggestive of an intradural extramedullary lesion at the level of the 6th and 7th thoracic vertebrae (arrows).

flow of oily contrast material at the level of the 6th thoracic vertebra was noted (Fig. 1). In the supine (Fig. 2) and sitting (Fig. 3) positions, the bullet-like shadow was demonstrated. The lesion was communicated freely with the subarachnoid space.

The arachnoid diverticulum was opened surgically after laminectomy on December 14 in 1977. Histologically the wall of the divertiuculum was consisted of proliferative fibrous tissues with arachnoidal cell lining. There was a scarce infiltration of inflammatory cells. Postoperative course was uneventful, and his complaints were completely disappeared.

Discussion

Spinal arachnoid diverticula (SAD) have been termed as spinal arachnoid cysts, leptomeningeal cysts, localized adhesive arachnoiditis, and serous spinal meningitis. Various etiologies have

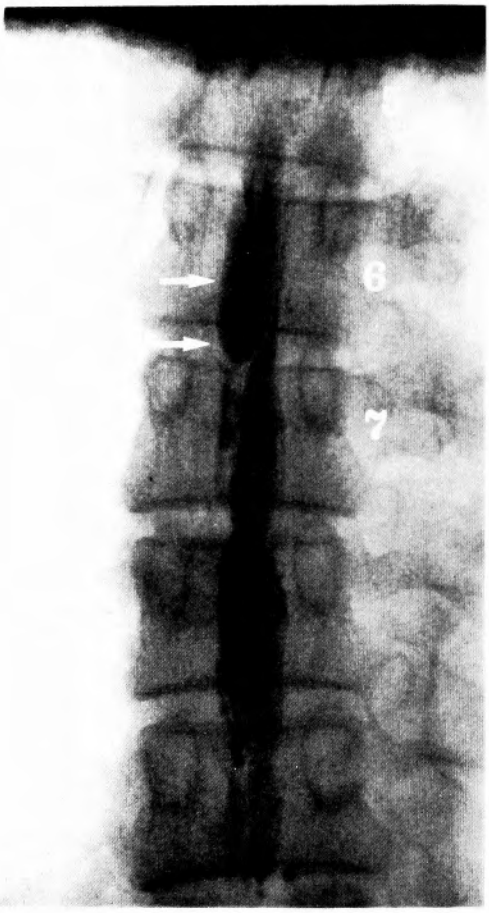

Fig. 2. Myodil myelogram, antero-posterior view, taken in the supine position. There is a bullet-like filling of the contrast agent at the level of the 6th thoracic vertebra (arrows).

been proposed[6,12], including those of congenital[5,13,15], traumatic[1,7,17,18], and inflammatory[1,2] nature. The cause of our case might be due to the preceding trauma.

Most of SAD are asymptomatic and indicentally demonstrated in myelographic studies. TENG[19] found 37 asymptomatic SAD in 43 myelographies. RAJA[15] also reported 44 SAD out of 97 myelographies.

Although SAD may occur anywhere along the spinal axis[23], they commonly located in the thoracic region posterior to the cord[14].

Morphologically "cyst" means the closed cavity, and the freely communicating pocket as in our case is properly named as "diverticulum" A spinal arachnoid diverticulum is a pocket formation of the subarachnoid space lined by arachnoid and collogen tissues.

SAD may produce a wide variety of clinical manifestations. They are often fluctuating and intermittent which mimic multiple sclerosis[9,10,15]. This has been explained by the emptying and filling of the diverticulum with changes in position, or the traction by gravitational forces[14,19].

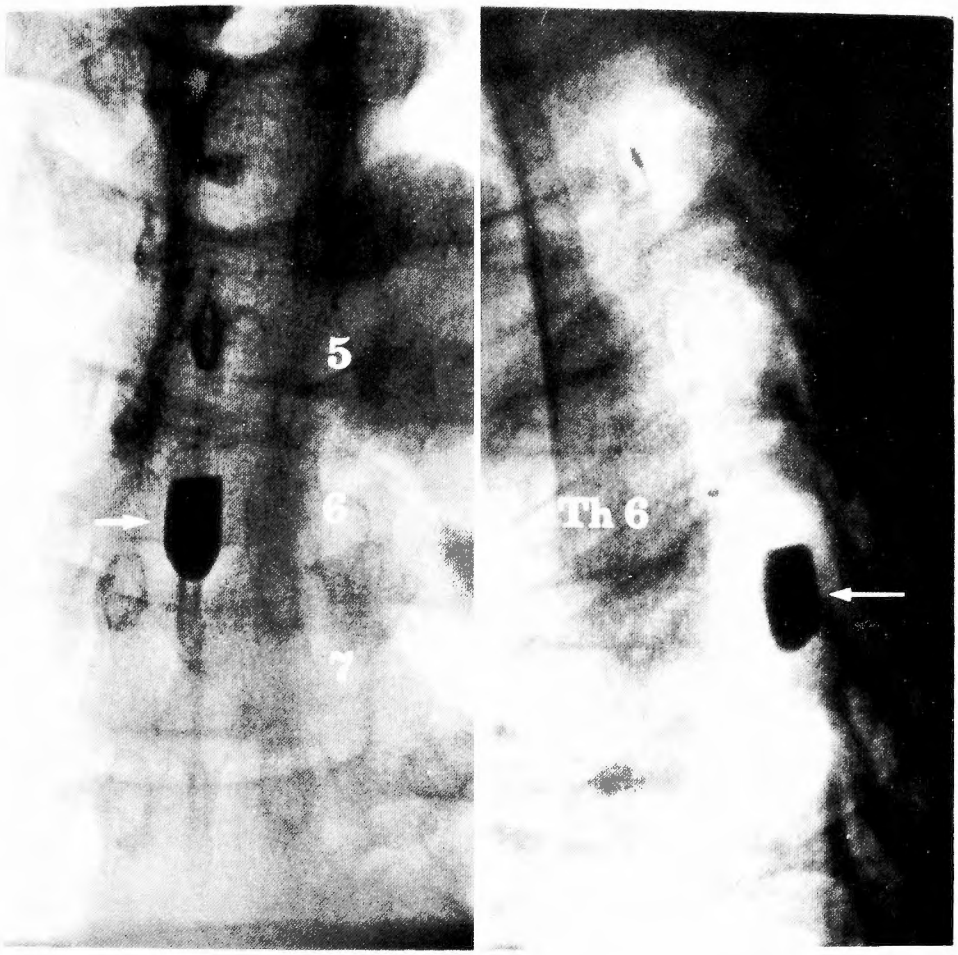

Fig. 3. Myodil myelogram, antero-posterior (right) and lateral (left) views, taken in the sitting position. There is a bullet-like filling of the contrast agent at the level of the 6th thoracic vertebra (arrow).

One of the most common symptoms is a back pain, which is worsened in the upright position and is relieved by the bed rest. Other common symptoms are decreased muscle power and increased deep tendon reflexes in the lower extremities, gait disturbance, and sensory disturbance. Neurogenic bladder and kyphosis are sometimes noted.

Oil myelography shows the collection of contrast media which looks like a pear, a jacket, a bullet or a finger of a glove. It may easily be missed by the water soluble myelography for the easy diffusion of the contrast materials in the diverticulum as in the subarachnoid space. Therefore, when the positional aggravation of the symptoms suggestive of spinal arachnoid diverticlum, conventional oil myelography in the supine position is recommended.

A single lesion with localizing clinical findings can be readily treated by surgical intervention. Conventional positive contrast myelography remains the procedure of choice for the diagnosis of SAD. However, in the presence of multiple diverticula[19,21] with non-localizing symptomatology,

metrizamide CT myelography[3,8,11] may provide important additional information establishing which of several lesions seen on myelography is responsible for the symptoms.

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和文抄録

脊髄くも膜憩室—自験例と文献的考察—

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無症状の脊髄くも膜憩室はしばしば脊髄造影時偶然に発見される．しかし，これらが症状を呈することは稀とされている．最近，我々はくも膜憩室が症状発現の責任病巣と考えられ，手術により症状が軽快した一例を経験したので報告する．同時に文献報告例につき，成因，症状，診断上の問題点につき考察を加えた．