

TOTAL INTRADURAL DISK PROLAPSE IN THE LUMBAR REGION

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Penetration of the intervertebral disk material into the intradural space in the lumbar region is a clinical and neurosurgical casuistic. According to literature data available, this pathology occurs in less than 0,3 per cent of the operated patients with lumbar disk herniation. The few clinical reports aim at forming a typical clinical syndrome. The authors presented two own clinical observations of operatively verified patients with total intradural disk protrusion in the lumbar region at the level of L4-L5 vertebrae. The unexpected operative finding required a revision of the intradural space. Good surgical results could be obtained in early decompression of the flattened nerve roots.

Key-words: Intervertebral disk herniation, intradural space, symptoms, diagnosis, neurosurgery, case reports

Intradural disk herniations are a very rare complication of spinal degenerative changes (1,3,5,7). They have been first described by Dandy in 1942 (2) and since that time despite the great number of operations performed on the occasion of disk herniation in the whole world, there are only a few case reports in the literature available. According to Tronnier et al. (8), their incidence rate remains less than 0,3 per cent of all the cases with operated disk hernia. Peyser et al. (6) detect two cases out of a total of 753 operated ones while Prestar et al. (7) establish 3 cases among

5000 operated ones. Clinically, the patient presents mainly with an acute *cauda equina* compression and manifested neurological deficiency. Preoperative diagnosis is difficult and almost impossible. That is why the diagnosis can be commonly clarified during operation. Being acquainted with the intervertebral disk pathology of this type, as well as with the peculiarities of the pathological morphology, diagnostics, and operative technique is of utmost practical importance.

In the present communication, two clinical cases with intradural disk herniation are reported.

CASE ONE

A 44-year old male patient (R.M.D., Record No 8003/5.VI.1996) complained one week prior to hospital-

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ization of lumbar pains and paraesthesia in the left leg without any reason for that. Very rapidly, both pains and paraesthesiae covered the right leg, too. He began to move independently rather difficultly. At the time of admission to the Department of Neurosurgery, Medical University of Varna, he already suffered from urinary retention as well.

Clinical examination established a normal somatic status and lack of accompanying diseases. A syndrome of lower torpid paraparesis with anaesthesia for pain in S1-S4 dermatomes, absent Achilles and knee tendon reflexes could be diagnosed. There was urinary and faecal retention, too. Urgently performed myelography with Omnipaque established a full "stop" of the contrast matter at L5 level. The paraclinical parameters were within normal ranges.

The patient was operated as emergency case with a preliminary diagnosis of a tumour of *cauda equina*. After laminectomy of L5, a strongly strenuous and dense dural sac was observed. After its opening, amidst the roots a free disk sequester of a volume of about 2 cm³ was detected. It was totally extirpated after careful ecarting the roots. A dura mater defect, about 1 cm long, in the left-lateral region was found out through which the disk hernia had penetrated. Both dura mater sheets were separated and the orifices of the external and internal layer did not mutually covered each other. By this way, between the sheets a 5 mm-long canal was formed through which the disk

hernia entered freely the subdural space. Wound was sutured layer by layer after careful hermetization of the sac. The postoperative period was smooth and characterized by complete restoration of the neurological functions and disappearance of the pelvic reservoir disturbances.

CASE TWO

A 54-year-old male patient (Y.N.P., Record No 4656/24.III.1998) complained two months prior to hospitalization of acute lumbar pains irradiating towards both legs. Later on, urinary incontinence appeared, too. The clinical examination revealed a normal somatic status and lack of accompanying diseases. Gait was paretic without any vertebral syndrome. A hypaesthesia of radicular type involved the S-dermatomes bilaterally. There was also areflexia of the Achilles tendon and positive growth phenomena bilaterally along with urinary incontinence.

Myelography with Omnipaque established a "stop" of the contrast matter at L4-L5 level. The paraclinical data were within normal ranges. No contraindications were present. The patient was operated as emergency case with a preliminary diagnosis of median disk herniation. A partial laminectomy at L4 level was carried out. Dura mater was strenuous and dense at palpation. After the opening a disk materail was observed among the roots. After disk hernia extirpation, a defect of the anterior wall of the dural sac was detected. The postoperative period was comparatively smooth. A considerable reduction of the neurological deficiency as

well as of the pelvic reservoir disorders was achieved. Three months after the operative intervention, the patient moved independently and reported insignificant subjective complaints only.

DUSCUSSION

These two case reports illustrate the rare occurrence of disk material in the intradural space as well as the rapidly advancing *cauda equina* syndrome with manifested neurological deficiency typical of this kind of pathology. Most authors (1,4,7,10) emphasize that the more dense adhesion of dura mater to the posterior longitudinal ligament in the caudal portion of the spinal column and mostly at L4 and L5 levels where the herniations of this type are most common (7,10) is an important pathomorphological reason for this disorder. At the aforementioned levels, the ventral dura mater is thinner than the dorsal one because of the intensive flexion-extension movements in this segment. Tronnier et al. (8) consider the preceding injuries of the spinal column and the minimal, latent fractures of the vertebral bodies as a probable reason for dura mater lacerations. Along the mechanical factor, some authors outline the probable etiological role of the congenital defects or malformations, as well as of the intradural cysts facilitating the intervertebral disk penetration into the subdural space.

The clinical picture is characterized by a relatively rapid formation of *cauda equina* syndrome preceded by intensive lumbar pains irradiating towards

both legs.

The preoperative diagnosis of the intradural disk herniations is difficult. Both myelography and computer-assisted tomography are of informative value (7, 9) while in the recent years, NMR significantly contributes to specification of the diagnosis of this rare pathological anomaly (5,7,10).

Treatment is operative in any cases. Laminectomy provides a good access to the dural sac and is, therefore, recommended by most authors (3,5,7). After opening the dura mater, the roots should be very carefully separated from the disk material as they are very often rather intimately attached to it. Induction of microhaemorrhages in the roots can delay or even compromise the restoration process. One has to look for the dural defect through which the disk material has penetrated and then the defect needs to be hermetized. Timely and perfect operative intervention leads to rapid involution of the painful neurological syndromes and thus to definitive healing (6,9,10).

CONCLUSION

These two cases reported represent a rare variant in lumbar disk pathology. The acquaintance of the pathological morphology and clinical characteristics of the disease could to a considerable extent shorten the diagnostic period and thus enable an effective operative management. The timely removal of intradurally located disk hernia results in a rapid and definitive health status restoration.

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Тотален интрадурален дисков пролапс в лумбалната област

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Резюме: Проникването на дисков материал в интрадуралното пространство в лумбалната област е клинична и хирургична казуистика. Тази патология се среща според различни автори при по-малко от 0,3 % от оперираните пациенти с лумбални дискови хернии. В литературата са описани единични случаи, като се правят опити да се оформи характерен клиничен синдром. Представени са две лични клинични наблюдения на оперативно верифицирани случаи с тотална интрадурална дискова протрузия в лумбална област на ниво L4-L5-прешлени. Неочакваната интраоперативна находка налага ревизиране на интрадуралното пространство. Добри хирургични резултати се постигат при ранна декомпресия на притиснатите коренчета.