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Spinal epidural abscess conservatively treated
— a case report

Ropniak nadtworówkowy kanału kręgowego leczony zachowawczo
— opis przypadku

Spinal epidural abscess is an accumulation of pus in suprameningeal sphere (17). It is a rare infection (7, 13). It occurs as a complication after primary inflammatory focus like bedsores, boils, pussy changes in back mediastinum, perirenal, beyond peritoneal and beyond throat abscesses (S). The risk factor of the illness is lowered immunity in different diseases course, e. g.: mycosis, diabetes and in patients treated by immunosuppression (10, 16, 18). In patients with lowered immunity the spinal epidural abscess may follow as a complication after diagnostic and therapeutic intervention like lumbar puncture or intravenous injection (9, 10, 16). Risk factor of the illness may be also hemodialysis (13). In 20 – 25% of patients positive history in back injuries was noticed. However, the role of injuries in described pathology is not clear (1).

Spinal epidural abscesses are sometimes classified as acute, subacute and chronic. Hematogenous character is observed in 45% of acute abscesses and in 10% of chronic ones. However, through surrounding tissues about 70% of chronic abscesses are generated and 40% of acute ones. In 15% of acute abscesses and in 20% of chronic abscesses primary source of infection is not known (1). The spinal epidural abscess may be of focal or diffuse nature and it may coexist with discitis and osteomyelitis (14). Discitis may be a primary focus, but in some patients diffuse nature of abscess is observed without this pathology (12). Infection most often comes from blood from faraway inflammatory foci and more rarely it comes from surrounding tissues (2, 17). The most frequent (50–60%) etiological factor of spinal – epidural abscesses is *Staphylococcus aureus* (2, 10, 13, 17). More rarely in abscess matter *Bacterioides fragilis*, *Proteus*, *Escherichia coli*, *Haemophilus paraphrophilus*, *Salmonella*, *Klebsiella*, *Streptococcus pyogenes* or *Diplococcus pneumoniae* is observed (1, 5, 13, 15). Spinal epidural abscesses are mainly located in thoracic section and in lumbar section of the spine. They rarely occur in the cervical section and are then of numerous character (3, 17). When abscess expands upwards, clinical image may suggest anterior poliomyelitis or other radicular–medullary inflammatory process (17). In literature, our attention is drawn to difficulties in diagnosing spinal epidural abscesses connected with atypical illness course, often with divergence between abscess location and clinical symptoms (6, 16). Taking it into consideration, this pathology is recognized late

and consequently prognosis is bad (10). To prevent permanent neurological losses and to save patient's life the fastest diagnosis and surgical treatment is needed (11, 13, 17).

CASE DESCRIPTION

The patient K.B., age 34, physical worker, was admitted to Neurology Clinic because of increasing, for last few days, pain in lumbosacral section of the spine. The pain was radiating towards both lower legs. According to an interview there had been subfebrile states for a few days. The patient's condition was mid-serious on the day he was admitted to the clinic. The patient was conscious, suffering from acute back pain and pain in lumbosacral section of spine. Serious stiffening of lumbar spine was ascertained by physical examination together with intensive tension of spiral muscles, and pain in spinous processes of 3 and 4 lumbar vertebra. By neurological examination positive meningeal symptoms were seen, with both sides positive Laseque's symptom at an angle of 40°, weakening sense perception surface spreading to left thigh. The patient moved around with the stiff spine. Lumbar puncture was made on L3–L4 level, obtaining cerebrospinal fluid highly pusy, sugar was absent, protein not possible to determine in slide areas densely dotted with leukocytes. Bacteriological examination of cerebrospinal fluid showed the presence of *Staphylococcus aureus* K (+). Computer tomography examination on L3–S1 level showed no signs of discopathy. Vertebrae structure was not changed. There was no sign of abscess. As a result of neurosurgical consultation the patient was qualified for surgery treatment laminectomy and abscess drainage. The patient however did not agree to operation. Examination of cerebrospinal fluid made some days later showed withdrawal of inflammatory changes. Examinations made every 2 weeks showed:

- 1) fluid without full clarity, areas densely dotted with polynuclears, protein – 3300 mg%, sugar 42.91 mg%.
- 2) waterbright fluid, not fully clear, cytoysis 80/3 – 62/3 polynuclears, 18/3 mononuclears, protein – 64 mg%, sugar – 59.4 mg%.
- 3) waterbright fluid, cytoysis 48/3 – 42/3 mononuclears, 6/3 polynuclears, protein – 52.8 mg%, sugar – 52.0 mg%.

The next two examinations of cerebrospinal fluid showed its correct composition with the correct Queckenstedt test.

In III and IV week of the treatment the rise of temperature up to 37.4°C was seen, and starting from V week the temperature was correct. Neurological condition improved quickly, radicular pain and dysesthesia disappeared after about 7 days. Meningo-radicular symptoms were seen for about two weeks from the beginning of illness.

Here are the outcomes of additional tests: Blood morphology – leucocytes 6,000, erythrocytes 4,350,000, hemoglobin – 14.7 mg%, hematocrit – 38.8%, blood plates 181,000, erythrocyte sedimentation 112/140. Urine analysis was correct. Glucose level in blood – 89 mg%. Radiological picture of chest was correct.

Radiological picture of lumbosacral spine: lumbar vertebral bodies of correct height, intervertebral spaces maintained, symmetrical. Radiological picture of the cervical and thoracic spine: straightening of cervical lordosis and thoracic kyphosis. Ultrasonography of abdominal cavity was correct. Radiological pictures of nasal sinuses and laryngological consultation show no sign of deviation. Three times made blood inoculation was also negative. Pantomogram was also made and carious teeth were extracted.

After the treatment gradual normalisation of erythrocyte sedimentation reaction was reached as well as regression of inflammatory syndrome in cerebrospinal fluid and total retreat of neurological symptoms. Evidence of curing the patient was normal MRI of the spine. The patient was let home after 7 weeks of hospital treatment in good condition, both general and neurological. Primary focus of infection was probably odontogenic. In the treatment there were used: antibiotics – Claforan 6 g/24 hours, Biodacin 1000 mg/24 hours, Metronidazol 1000 mg/24 hours, Augmentin 3,6 g/24 hours, Gentamycin 160 mg/24 hours, Ampicillin 3 g/24 hours, steroids through first two weeks, analgesic and anti-inflammatory drugs: Fortral, Tramal, Relanium, Metindol, Fenquil, Piroxicam, Profenid.

DISCUSSION

Spinal epidural abscess is most often acute. It starts with general symptoms of infection – inflammatory disease like: discomfort, fever, rise erythrocyte sedimentation, leucocytosis (2, 13, 17). In the described patient there were subfebrile states, but in literature many cases are found when there is no fever, especially in chronic abscesses (1). Obrador and Levenson described feverless course of illness in their patients (13). Sometimes no leucocytosis is found in blood (1).

In a typical spinal epidural abscess there is acute back pain, acute radicular syndrome and quickly increasing dysfunction symptoms of spinal cord till total crosswise injury occurring after several days of illness (13, 17). In case of subacute and chronic abscesses progression of illness is slower and paresis or paralysis of limbs may occur even after weeks or months of illness (1). Abscess is most often located in thoracic and lumbar part of backbone from where it may spread upwards (17). In the described case the patient reported acute back pain and pain in lumbo-sacral backbone. By neurological examination positive meningo-radicular symptoms were found however in a clinical course of illness, no dysfunction of spinal cord was present. In the literature, stress is put on often atypical course of illness, which causes diagnostic difficulties and worsens prognosis (6, 10, 13, 16). Especially feverless existence of abscess together with existence of radicular symptoms may suggest wrong diagnosis of discopathy (5). Vilke and Honingford described a case of patient with spinal epidural abscess in which no risk factors were stated, like: back injury, diagnostic examinations (lumbar puncture), intravenous injection, primary infection source, immunosuppression, diabetes. Patient had no fever, no neurological symptoms were found (16). Often no primary source of infection can be set (6, 13). Cerebrospinal fluid in some patients is of inflammatory character, with rise of protein level, polynuclear and mononuclear cytosis, with often correct glucose level. In some cases in cerebrospinal fluid stagnant syndrome is seen with the positive Queckenstedt test (1). Cerebrospinal inoculation is often negative. In majority of cases blood is free from bacteremia. In abscess matter *Staphylococcus aureus* is most often found (2, 5, 13, 17). In the described patient, in his, abscess matter *Staphylococcus aureus* was also found, but cerebrospinal fluid and blood inoculations were negative. Radiographs of backbone may show changes of osteomyelitis character or chronic abscess symptom, but in majority of patients they are correct (1). Out of other diagnostic investigations there are of help: myelography, computer tomography, myelotomography and magnetic resonance imaging (MRI) (13, 19). According to Angelo myelography shows irregularities in all patients. In case of total contrast detention in ascending myelography descending myelography should be done (1). Obrador and Levenson stress that myelography and myelotomography sensitiveness in recognition of spinal epidural abscesses gives the highest proportion of correct diagnosis (13). According to the above authors MRI sensitiveness with administration of gadolin gives 80% and computer tomogra-

phy is the least sensitive investigation in diagnosing the described pathology. In the patient described CT of backbone was correct, which however, did not exclude the presence of abscess. Numaguchi and cooperative and Sadato and cooperatives point to MRI as serious diagnostic tool with gadolin as contrast. Those authors described positive correlation between MRI picture and clinical condition of patients. Correlation between changes in MRI and clinical changes and in laboratory tests may play an important prognostic role in this disease (12, 14). Latronico drew attention to an essential importance of MRI in diagnosing and monitoring spinal epidural abscess (8). In the case shown in this paper MRI of backbone was correct after completion of treatment.

In literature, the role of quick diagnosis and immediate surgery of abscess together with antibiotic therapy is stressed (11, 13). Partial or complete withdrawal of spinal cord dysfunction is possible even with symptoms of entire damage of cord, lasting up to 24 or 48 hours (17). However, some patients, who do not agree to surgery are treated conservatively with good prognosis, examples are patients described by Latronico and cooperatives, Corboy and Price, Wu and cooperatives and the above discussed case (4, 8, 19).

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STRESZCZENIE

U pacjentów z podejrzeniem ropniaka nadtwardówkowego kanału kręgowego zasadnicze znaczenie ma szybka diagnostyka i leczenie operacyjne. Opisano przypadek pacjenta leczonego zachowawczo ze względu na brak zgody na leczenie operacyjne.

Główną uwagę zwrócono na trudności diagnostyczne związane z nietypowym przebiegiem choroby oraz na rolę badań instrumentalnych w ustalaniu właściwego rozpoznania.

