Listeria Meningoencephalitis in an Immunocompetent Person

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CASE REPORT SUMMARY
Listeria monocytogenes is a small, aerobic or facultative anaerobic, non-sporulating gram positive bacillus that can be isolated from soil, vegetation or animal reservoirs. There are six species of Listeria, and only L. monocytogenes is pathogenic for humans. Human disease occurs mainly in immunocompromised people, neonates and in pregnancy, while the cases in immunocompetent people are rare. CNS manifestations of the disease can be in form of meningitis, encephalitis, and also cerebritis and abscess since L. monocytogenes shows tropism for brain and brain stem as well for the meninges. In this case we presented 55 year old male patient with etiologically confirmed listerial meningoencephalitis, transferred from regional hospital to the Clinic for Infectious Diseases with diagnosis of acute meningoencephalitis. Disease started 4 days before the admission. Prior to this the patient was completely healthy. In his history he denied any preexisting disease. At admittance he was febrile, with altered consciousness, disoriented, showing ocular deviation, dystaxia, and completely positive meningeal signs. Neurologist diagnosis was rhombencephalitis. CSF analysis showed mildly opalescent liquor with pleocytosis 546/mm3 and polymorphonuclear cell predominance >70%. CSF culture showed positive isolate of L. monocytogenes. Initial therapy was: Penicillin G and Chloramphenicol, together with all other supportive and symptomatic therapy. After initial therapy and based on antibiogram, ampicillin was administered for 4 weeks, followed by imipenem for 10 days. Control CSF analysis showed pleocytosis and increased protein level. Patient was discharged as recovered with diagnosis of acute meningoencephalitis.

Four months later we arranged his further evaluation, patient had no complaints, physical status was normal, and CSF analysis showed pleocytosis 153/mm3, with lymphocyte predominance and increased protein level 1.5 g/L. Third sample of serum analyzed with IFT was negative both in IgM and IgG fraction. MRI showed two small areas of changed signal intensity left, paraventricular-probably vascular etiology. EEG showed mild electro cortical dysfunction in both frontotemporal regions of brain. Discharged with normal CSF cytological finding and increased protein level.

1. INTRODUCTION
Listeria monocytogenes is a small, aerobic or facultative anaerobic, non-sporulating gram positive bacillus that can be isolated from soil, vegetation, animal reservoirs (1). In clinical samples organism can be gram variable and look like diphtheroids, cocci, or diplococci. There are six species of Listeria, and only L. monocytogenes is pathogenic for humans (1,2). Human disease occurs mainly in immunocompromised people, neonates, and in pregnancy, cases in immunocompetent people are rare (1,3). CNS manifestations of disease can be in form of meningitis, encephalitis, and also cerebritis and abscess since L. monocytogenes has tropism for brain and brain stem as well as for the meninges (1, 2).

2. CASE STUDY
We presented case of 55-year old male patient who was transferred from regional hospital to Clinic for Infectious Diseases with diagnosis of acute meningoencephalitis. His illness begun 4 days before admittance. Prior to this he was completely healthy. In his history he denied any preexisting disease. From second day he received oral antimicrobial treatment.

At admittance he was a febrile, with altered consciousness, disoriented, with ocular deviation, and completely positive meningeal signs. He had symmetrically decreased miotic reflexes on his lower extremities, also in neurological examination dystaxia was noted. Laboratory findings were: ESR 18/49; CRP 92, 6 ng/ml; WBC 12,3 x10e9; (neutrophilia >70%), Fibrinogen 25,6 mmol/L; while RBC, HGB, blood glucose, urea, creatinin, bilirubin, AST, ALT, CK, LDH, ABS, serum minerals were normal. Blood cultures were negative. Lumbar puncture was performed and CSF analysis showed mildly opalescent liquor, with pleocytosis 546/mm3 with polymorphonuclear cell predominance >70%.

CSF culture showed positive isolate of L. monocytogenes. Results of IFT serology, series of 2 samples taken in 15 day were negative. EEG finding showed nonspecific changes in brain activity, laterally on both sides. Radiological examination: X-ray findings of head (pyramidal, mastoid, sinuses) were normal, CT showed no pathological findings. MRI showed area sized 5 mm, located right, in back, in brain stem region, at border of pons and mesencephalon, without opacification with used contrast. Neurologist diagnosis was: Rhombencephalitis per acuta, Encephalitis acuta; ENT specialist: normal finding.

Initial therapy was started according to protocol that was used in that period: Penicillin G and Chloramphenicol, together with all other supportive and symptomatic therapy. After initial therapy, based on antibiogram result we used ampicillin for 4 weeks, followed by imipenem for 10 days. Control CSF analysis showed pleocytosis and increased protein level. Patient was discharged as recovered with diagnosis of acute meningoencephalitis.

Figure 1. Electron micrograph of a rod-shaped Listeria monocytogenes
for him to diagnose rhombencephalitis. Listerial rhombencephalitis is rare condition where brain stem involvement with progressive dysfunction occurs. In clinical picture combined motor, sensory and cerebellar deficits together with alterations of consciousness and circulation and respiration failure can be found (3). Untreated disease is fatal. According to literature clinical diagnosis of rhombencephalitis can be established when patient have combination of 2 or more of signs and symptoms of brain stem lesion including cranial nerve deficits, cerebellar dysfunction, motor deficit, respiration, altered consciousness.

It is important to state that due to changes in epidemiological patterns and introduction of immunization for other pathogens Listeria is listed as third causative organism responsible for meningitis among adults in USA and Netherlands(4). Competent data for our country still do not exist but we can expect similar changes due to immunization programs.

4. CONCLUSION
Listeria should be kept in mind as possible pathogen not only in elderly and immunocompromised patient with meningitis and meningoencephalitis, but also in immunocompetent people.

Listeria rhombencephalitis is rare condition with brain stem affection, it is considered that many of cases goes undetected, therefore we should keep in mind possibility of rhombencephalitis in adult patient with meningitis and symptoms of brain stem involvement.

In this paper we presented Listeria meningoencephalitis with three important clinical concepts:

- we presented Listeria meningoencephalitis in adult patient younger than 65 without preexistent disease and without immunocompromised state
- etiological diagnosis is confirmed (liquor culture: L. monocytogenes isolated)
- after second hospital course, definit diagnosis was chronic Listeria meningoencephalitis, without obvious concenquences in neurological and psyhical status.

Empirical therapy directed against potential listeriosis, must be used as initiating therapy for meningitis and meningoencephalitis in elderly patient.

REFERENCES

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