A PAEDIATRIC CASE OF MENINGITIS WITH BILATERAL VIITH NERVE INVOLVEMENT

Royal Devon and Exeter **NHS**
NHS Foundation Trust

S. Janoff¹, C. Bulwer¹, M. Morgan², S. Parke¹, S. Ludman¹

Royal Devon and Exeter NHS Foundation Trust, United Kingdom: ¹Department of Paediatrics, ²Department of Microbiology

1. Introduction

Lyme disease is a tick-borne illness primarily caused by the spirochete *Borrelia burgdorferi* carried by the Ixodes tick.¹

It has a wide spectrum of clinical manifestations with potentially long-term neurological sequelae if left untreated.²

Figure 1 An Ixodes tick, endemic to Dartmoor, Devon.

Creative Commons Attribution-Share Alike Copyright 3.0
Hubert Berberich

Figure 2 An erythema migrans lesion.

Creative Commons Attribution-NonCommercial-NoDerivs 3.0
(New Zealand) DermNet NZ and Professor Raimo Suhonen

2. Case history

10 year old male with bilateral facial nerve palsy, headache, pain over right occiput, nausea and fatigue.

Initially presented with altered sensation of right side of face and inability to close right eye. Treated with aciclovir and prednisolone.

10 days later was unable to close left eye and presented to paediatric department. He reported headaches transiently since onset of facial symptoms, as well as occasional dizziness, worse on standing, but no changes in vision.

Further detailed questioning revealed he had sustained a tick bite on his scrotum after walking on Dartmoor (an endemic area) 3 weeks previously. The bite had caused localised erythema and rash consistent with erythema migrans.

3. Key examination findings

Facial examination: weak smile on the left side, no facial power on the right. Bilateral lagophthalmos. Erythematous groin lesion.

Cardiovascular, respiratory, abdominal and ENT examination unremarkable, mild cervical and axillary lymphadenopathy.

4. Key investigations:

MRI head: Subtle enhancement involving the cranial nerves within the internal auditory meati, greater on the right.

Serum: *Borrelia* C6 (peptide) EIA, IgG antigen and IgM antigen and IgM lineblot **positive**.

CSF: Opening pressure 34cm H₂O Clear and colourless fluid. 82 Lymphocytes, 0 polymorphs.

Think Tick!

Many cases of Lyme disease result from unrecognized tick bites. In endemic areas the absence of a bite does not exclude Lyme disease.³

Travel to endemic areas should be specifically addressed in any child presenting with facial nerve palsy. In this case it took sustained, detailed questioning for the family and patient to recall the bite, genitals should be specifically included in the questioning.

Bilateral facial nerve palsy

Where a palsy is bilateral, *Borrelia* serology should always be considered. Counselling must include that any facial nerve palsy can take many months to resolve.⁴ Involvement of ophthalmology is important in any cases where there is lagophthalmos.

Neurological Lyme

Neuropathies can occur without meningitis but lumbar puncture is standard practice to rule out a CNS infection.⁵

Limb pain and radiculopathies are common and this is the likely cause for the limb pain in this child.⁴

5. Management

Initially treated with amoxicillin

Changed to IV ceftriaxone once Lyme confirmed, Switch to oral doxycycline on day 10.

Review day 17 Limb pain and resolution of erythema migrans.

Review day 29 Improvement of facial power.

Review 3^{1/2} months: Nearing full neurological recovery.

6. Diagnosis

Early disseminated Lyme disease with lymphocytic meningitis and cranial neuropathy.

References

- 1 - Surveillance for Lyme Disease — United States, 2008–2015. CDC. *MMWR Surveill Summ* 2017;66(No. SS-22):1–12
- 2 - Lyme disease: neurology, neurobiology, and behavior. Halperin JJ. *Clin Infect Dis*. 2014;58(9):1267. Epub 2014 Feb 25
- 3- Lyme disease in children in southeastern Connecticut. Pediatric Lyme Disease Study Group. Gerber MA et al. *N Engl J Med*. 1996;335(17):1270.
- 4 - Lyme disease and the peripheral nervous system. Halperin JJ. *Muscle Nerve*. 2003;28(2):133.
- 5 -What are the indications for lumbar puncture in patients with Lyme disease? Rupprecht TA, Pfister HW. *Curr Probl Dermatol*. 2009;37:200.

Acknowledgments Many thanks to the family of this child for their permission to publish this case report.