Lyme disease and Tick bites in children
Summary of NICE Guideline

1. Tick bite with no symptoms

- Do not test
- **Do not offer antibiotics**

Advice for prevention

- Wear long trousers, check for and remove ticks
- **Most tick bites do not cause Lyme disease**
- Pets can be pre- treated to prevent tick bites

2. Erythema Migrans

- No test necessary
- **Offer Antibiotics†**

3. Facial nerve palsy

- **Lower motor neurone – no red flags**
- Send blood (serum sample) for Lyme ELISA

Treatment

- **Offer Antibiotics for all cases pending serology †**
- Follow PIER guideline for Bells Palsy

4. Other symptoms

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Cognitive impairment
Fatigue
Fever and sweats
Headache
Malaise
Migratory joint or muscle pain
Neck pain or stiffness
Parasthesia
Swollen lymph nodes
Send EDTA for Lyme ELISA

Negative ELISA*

- Review history and ongoing symptoms
  Consider alternative diagnosis
- **If symptoms ongoing and ELISA done within 4 weeks of onset, repeat ELISA**
- If symptoms persist after 12 weeks, offer Immunoblot test

Positive ELISA*

- Offer Immunoblot test

Negative Immunoblot

Consider alternative diagnoses
Consider specialist referral if symptoms persist

Positive Immunoblot

Diagnose Lyme disease
Offer antibiotics †

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When to refer

All Lyme in children that is not a single Erythema Migrans (EM) lesion should be discussed with specialist (e.g. general paediatricians, PIID, neurology, rheumatology etc)

Consider referral to tertiary specialist (PIID, Neurology, Rheumatology) with cases of:

- Infants
- Non-EM disease
- Ongoing symptoms
- Acknowledge internet information availability issues
- Avoid “CFS” label in children/young people but acknowledge infection can trigger long term symptoms that always improve (CFS service is useful for treatment plan)
- Grey area of when extended antibiotic course may become a child protection issue

When symptoms don’t improve

If symptoms do not improve/worsen after a course of treatment, retake history and explore:

- Possible alternative causes
- If re-infection may have occurred
- If treatment might have failed
- Details regarding course of treatment and adherence
- If symptoms may be caused by organ damage due to Lyme disease (e.g. Bell’s palsy)

Consider a second course of antibiotics for children with ongoing symptoms, and offer an alternative antibiotic to the original

If ongoing symptoms after 2 courses of antibiotics:

- Do not offer a further course of antibiotics
- Discuss with national reference laboratory, and consider referral to tertiary specialist

†Antibiotic Choices

9 - 12years (excluding meningitis)

Oral Doxycycline (2.5mg/kg b.d on day 1, then 2.5mg/kg daily in 1 or 2 doses) for 21 days

<9yrs, simple EM or Bell’s palsy

Oral Amoxicillin (30mg/kg t.d.s) for 21 days

<9yrs other symptoms, confirmed Lyme

Oral Amoxicillin (30mg/kg t.d.s) for 21 days
Doxycycline may also be appropriate, please discuss with PID if considering Doxycycline

<12yrs Lyme meningitis and carditis

IV Ceftriaxone 80mg/kg o.d initially. Consider step down to oral Doxycycline. Discuss with PIID

>12yrs (excluding meningitis/carditis)

Oral doxycycline 100 mg b.d or 200 mg o.d for 21 days

>12yrs Lyme meningitis

IV Ceftriaxone 4g o.d for 21 days

>12yrs Lyme Carditis

IV Ceftriaxone 2g o.d. for 21 days

*Interpreting Lyme serology

A positive IgG but negative IgM does not rule out acute Lyme disease.

In the event of indeterminate ELISA with ongoing symptoms please forward sample to RIPL for Immunoblot test to confirm Lyme status.

Also Consider Lyme disease with:

Eye symptoms – uveitis or keratitis

Inflammatory arthritis +/- cardiac involvement

Neurological symptoms e.g. **facial palsy**, meningitis (unusual CSF eg monocytes raise suspicion), radiculopathy or neuropsychiatric symptoms

Rare skin rashes e.g. acrodermatitis chronica atrophicans or lymphocytoma

PIER
Paediatric Innovation, Education and Research Network