Leprosy and Leishmaniasis in London

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London School of Hygiene & Tropical Medicine
Leprosy in London

• Important imported disease
  – 33 countries

• Ways in which you might be consulted about leprosy

• Early diagnosis is important
  – Anti-bacterial treatment
  – prevent nerve damage

• Paradox- leprosy easier to diagnose in an endemic country

• Significant delay in diagnosing leprosy in the UK
Key Facts

• Leprosy caused by *Mycobacterium leprae*
• Type of disease determined by host immune response
• Skin and nerves
• High cure rates with antibiotic treatment - Multi-Drug Therapy (MDT)
• Chronic damage to nerves- requires steroid treatment
• Stigma
Leprosy Spectrum

- CMI
- Ab
- BI

Type 1
Type 2
Lock Hospital, Kingsland, Hackney
1280 - 1760
Hospital for Tropical Diseases 19th and 21st century
Leprosy in London

• Hospital for Tropical Diseases
  – UK leprosy referral centre
• 400 patients
  – Newly diagnosed
  – Patients referred for management of complications or review after treatment
  – Patients diagnosed and treated 1950-1995
• Nurse lead foot clinic
• OT monthly
• Ophthalmologist
Diagnosis of Leprosy

- History
- Clinical Examination
  - Skin lesions
  - Thickened nerves
  - Eyes
- Slit skin smears/histology
- No useful serological test
- No useful skin test
Leprosy in London 1995-2012

• Cohort 145 newly diagnosed patients registered between June 1995 - Dec 2012
• Clinical examination
• Skin lesions
• Peripheral nerve examination
• Ethnic and geographical origins of patients
• Diagnostic pathways
## Top 8 countries of acquisition

<table>
<thead>
<tr>
<th>country of acquisition</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>39</td>
<td>29%</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>16</td>
<td>12%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>11</td>
<td>8%</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>11</td>
<td>8%</td>
</tr>
<tr>
<td>Brazil</td>
<td>9</td>
<td>7%</td>
</tr>
<tr>
<td>Philippines</td>
<td>8</td>
<td>6%</td>
</tr>
<tr>
<td>Nepal</td>
<td>5</td>
<td>4%</td>
</tr>
<tr>
<td>Somalia</td>
<td>3</td>
<td>2%</td>
</tr>
</tbody>
</table>
Patients acquired leprosy in 25 other countries*

<table>
<thead>
<tr>
<th>Region</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>14</td>
<td>11%</td>
</tr>
<tr>
<td>South East Asia</td>
<td>5</td>
<td>4%</td>
</tr>
<tr>
<td>Americas</td>
<td>5</td>
<td>4%</td>
</tr>
<tr>
<td>Caribbean</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Middle East (Afghanistan)</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Europe (Kosovo)</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>ISC (Pakistan)</td>
<td>1</td>
<td>1%</td>
</tr>
</tbody>
</table>

*Angola, Cameroon, Egypt, Ghana, Kenya, Libya, Mozambique, Sierra Leone, Uganda, West Africa, Zaire.
East Timor, China, Indonesia, Thailand.
Bolivia, Colombia, Ecuador, Guyana, Surinam.
Jamaica, Trinidad.
## Born in the UK – travel details

<table>
<thead>
<tr>
<th>Patient details</th>
<th>Years abroad</th>
<th>Country</th>
<th>Time to Sx*</th>
<th>Sx to Dx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian nun, born 1917</td>
<td>1945 – 1993</td>
<td>Bangladesh</td>
<td>2 yrs</td>
<td>&lt;1 yr</td>
</tr>
<tr>
<td></td>
<td>48 yrs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian female, born 1940</td>
<td>1994 – 2005</td>
<td>Indonesia</td>
<td>&lt;1 yr</td>
<td>5 yrs</td>
</tr>
<tr>
<td></td>
<td>11 yrs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian female, born 1943</td>
<td>1969 – 1975</td>
<td>India</td>
<td>14 yrs</td>
<td>7 yrs</td>
</tr>
<tr>
<td></td>
<td>6 yrs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>28 yrs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26 yrs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African male, born 1965</td>
<td>1965 – 1989</td>
<td>Uganda</td>
<td>3 yrs</td>
<td>3 yrs</td>
</tr>
<tr>
<td></td>
<td>24 yrs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11 yrs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Time to Sx = date left endemic country – date of first symptoms
Nerve damage

- Occurs across the spectrum
- Occurs before diagnosis, during and after treatment
- Skin
  - Sensory and autonomic nerve fibres
- Peripheral Nerve Trunks
  - Motor weakness
  - Regional sensory loss
  - Ulnar, median, radial cutaneous, facial
  - Common peroneal, posterior tibial
Neurological evaluation - Monofilaments for Sensory Testing
Neurological evaluation
Nerve Impairment in London Patients

- Motor: Ulnar (35%), Median (17%), common peroneal (14%)

- Sensory: Post Tibial (49%), Ulnar (36%), median 33%
## Contact with health services

<table>
<thead>
<tr>
<th>Specialists seen</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Practice</td>
<td>108</td>
<td>81%</td>
</tr>
<tr>
<td>Dermatologist</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>A+E / Hospital Neurologist</td>
<td>12</td>
<td>9%</td>
</tr>
<tr>
<td>Health Screening Rheumatologist</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>12</td>
<td>9%</td>
</tr>
<tr>
<td>Infectious Diseases</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Misdiagnosis</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>----</td>
<td></td>
</tr>
<tr>
<td>Dermatological</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Neurological</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Rheumatological</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Infectious Disease</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Pathological</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

NB – some patients have more than one misdiagnosis
Erysipelas?
Lupus vulgaris
VASCULITIS
Skin signs of Leprosy

• Types of lesion
  – macules
  – plaques
  – papules
  – nodules
  – infiltration

• Characteristics of lesion
  – colour
  – Sensation

• Any migrant with an unusual skin lesion
Presentation of Leprosy

• Skin lesion
  – Range of lesions
  – Suspect if erythematous, granulomatous, nodular, hypo-pigmented
  – Different from vitiligo
  – In reaction
    • Previously flat lesion become red and raised

• Nerve damage
  – Peripheral neuropathy
    • Ask about previous treatment
  – Neuropathic ulcer
JP

- 46 yr Londoner, born in India, came to UK 1984
- June 2008 rash on nose
- Referred by GP- 6 mo wait rash spread face, forehead, arms, back
- Feb 2009 “lupus rash”
- Mar 2010 Skin biopsy – TB, revised “Leprosy”
- July 2010 Large BT lesions on face, arms, > 100 lesions on arms, legs
- Borderline leprosy, no peripheral nerve damage
- Diagnosis could have been made clinically, anaesthetic lesions
Management

• WHO MDT for 24 mo
• Warn a/e MDT
• Educate about leprosy
  – Transmission, prognosis
  – Warn about reactions
  – Eye review
  – Notify, screen family contacts

• Oct 2010
  – Skin pigmentation, anaemia, switch to monthly ROM

• April 2011 Severe Type 1 reaction
  – Massive oedema hands and feet, > 50 new lesions
  – Add Prednisolone- 40 mg reducing for 4 mo

• Aug 2011
  – 2nd reaction

• Jan 2012 3rd reaction
JP

- July 2012 Stopped MDT
- Feb 2013 Treated & Cured
  - Immune-mediated complications
  - Lesions no longer visible
- Misdiagnosis
  - Disease progressed, put her at risk of developing reactions
  - a/e effects from MDT
  - Protect her from steroid a/e
- No stigma
  - Customers monitored her lesions
How to avoid missing leprosy

• Leprosy patients may present long after leaving the leprosy endemic area
• Undiagnosed skin patches should be tested for anaesthesia
• Do a skin biopsy in anyone with a pigmented skin and an unusual skin lesion
• Think leprosy before TB and sarcoid
• Refer to Hospital for Tropical Diseases
Treatment of leprosy

- Treat the infection
- Treat reactions and nerve damage
- Prevent neuropathic damage
- Education
- Psychological support
- Reduce stigma
Chemotherapy

• Rifampicin/Clofazimine/Dapsone
  – MB cases
  – 12 months
• Rifampicin/dapsone
  – PB
  – 6 months
MDT Success Story

- rapid clinical improvement
- toxicity rare
- time limited
- 14 million patients treated since 1982
- low relapse rates 1%
- no evidence of drug resistance
Management of Neuropathy

- Protection
- Self awareness
- Dry skin
- Ulcers heal better than diabetic ulcers
- Nurse lead neuropathy clinic
  - Health education
  - Soaking and paring
  - Managing ulcers
Summary

• Leprosy continues to be imported into the UK
• Geographical and ethnic origins of our patients reflect leprosy case loads in home countries
• Migration patterns are a major determinant of leprosy case loads
• Diagnosis is delayed in the UK
• GPs will be the first doctors seeing patients with leprosy
• All types of leprosy are seen
• Nerve damage is common, probably worsened by late diagnosis
Combating Prejudice
Cutaneous leishmaniasis
Structure

• Clinical presentation cutaneous leishmaniasis.
• Diagnosis: clinical and laboratory.
• Epidemiology of imported CL in London
  – Geographical site of origin
  – Risk groups
• Therapeutic approaches
Clinical presentations

- Simple
- Complex
  - multiple, or disseminated
- Mucosal
- Non-healing ulcer 2 weeks after travel to an endemic area
- 1\textsuperscript{st} diagnosis infected insect bite
Diagnosis of Cutaneous Leishmaniasis

- See parasite
  - Smears, biopsy
- Skin biopsy key
- Culture parasite
- Identify parasite DNA
- Histological diagnosis
  - Granulomatous inflammation, leishmania amastigotes
  - Helps in excluding leishmaniasis
Cutaneous leishmaniasis – at HTD

223 patients seen (90 OWCL, 133 NWCL)
Cutaneous Leishmaniasis in Afghanistan

Urban / Anthroponotic CL in Bagram, Afghanistan (2001)
Area of acquisition and reason for travel

Area of acquisition

- Mediterranean: 26
- Afghanistan: 10
- Near East: 12
- Iraq: 8
- Pakistan: 1
- Africa: 1
- India: 19

Reason for travel

- Tourism: 30
- New entrant to UK: 20
- Military: 15
- VFR: 15
- Business: 10
- Backpacker: 5
- Volunteer: 5
Cutaneous Leishmaniasis – New World
Mucosal involvement NWCL- Viannia sp

Facial and nasal involvement
NWCL area of acquisition and reason for travel

Region of acquisition

- Belize: 58
- Bolivia: 24
- Peru: 12
- Central America: 23
- South America: 16

Reason for travel

- Backpacker
- Military
- Volunteer
- Work/business
- Tourism
- VFR
Leishmaniasis in children

- 18 (8%) with CL
- 1 with VL
- 10 new entrants, 5 holiday travel, 3 VFR

Country of acquisition:

- Afghanistan: 6
- Pakistan: 5
- Turkey: 2
- Spain: 2
- Belize: 2
- Sudan: 1

**Total:** 18 cases
Treatments for Cutaneous Leishmaniasis

- No good evidence base
  - many lesions self heal
  - no good RCTs
- Topical or systemic treatment
- Is the patient at risk of mucosal disease?
  - Old or New World?
- Lead by geography, confirmed by species identification
- Are the skin lesions troublesome?
- European guidelines Leishman consortium
Treatments for Old World Cutaneous Leishmaniasis

• Local/Topical
  – Intra-lesional antimony
    • may require several injections
  – Heating/Freezing/Surgery
  – Paromomycin (aminosidine) ointment

• Oral agents
  – Ketaconazole (L.major)
  – Miltefosine
Treatments for New World Cutaneous Leishmaniasis

- Antimony 20mg/kg for 20 days IV/IM
  - Liver, cardiac adverse effects
  - 95% cure rate
  - HTD out-patient based service
Conclusions

• Leishmaniasis regularly seen in London
• Presents with non-healing ulcer
• OWCL- all species, reflects immigration patterns
• NWCL tourism and military activities key factors
• Geography and species identification important in determining treatment
Thanks to

- Maggie Armstrong
- Emma Wall
- Maggie Armstrong
- Julie Watson
REMARKS
ON
LEPROSY IN THE BRITISH EMPIRE.*
By PHINEAS S. ABRAHAM, M.A., M.D., B.Sc., F.R.C.S.I.,
Assistant Surgeon, Hospital for Diseases of the Skin, Blackfriars;
Dermatologist at the West London Hospital; and Hon. Sec.
of the "Special" and "Leprosy Investigation"
Committees of the National Leprosy Fund.

With regard to the disease in Great Britain and Ireland, we
may say that:
1. A certain small number of cases are always to be met
with in this country.

3. In all cases, since Dr. Hantrey Benson’s in 1872, the
patients have become affected with the disease after a longer
or shorter sojourn in countries or districts where leprosy is
endemic,

5. As the disease, therefore, cannot be regarded—at least
in Great Britain and Ireland—as highly contagious, or likely
to be passed on to others, there is at present, at any rate,
no need for repressive legislation, nor any cause for alarm at
the existence of a comparatively few lepers among the
people.