LM Syndrome - migration of some nematode larvae, through the tissues of parathenic host, after invading the host either by digestive (ingestion of infective eggs), or subcutaneous penetration of the larvae.

(Schantz și Michelson, 1992)

LMV est une migration prolongée et la longue persistance de larves de parasite, habituellement un nématode, dans les organes internes d’une hôte anormale (paratenique).

(Petithory et al. 1994)

VLM

Etiology

- Toxocara canis
- Toxocara catii
- Balysascaris spp.
- Gnathostoma spp.
- Spirometra spp.
- Toxocara vitulorum
- Parascaris equorum
- Ascaris suum
Morphology

Toxocara adults - dog

EM – Toxocara larvae

Toxocara egg
Life cycle

Eggs need soil development
The disease is due to the larval stage in human tissues

Larvae are trapped in tissue granuloma during the migratory stage

The life cycle remains unaccomplished, larvae wondering, and then remaining in tissues

The pathology is due to the antigenic stimulation produced by the migrating larvae and tissue granulomtous reaction

!! Congenitally transmission of *Toxocara* larvae in dogs (puppies are an important source of infection)
Transmission

- Accidental ingestion of fertilized egg (vegetables, dirty hands, etc...)
  

- Consumption of raw chicken liver, cattle meat, or rabbit giblets
  


Toxocariasis epidemiology

- Adult dog
- Puppies
- Environment
  - Home
  - Parks
- Human infection
- Subclinical infection
- Covert toxocariasis (+/- eosinophilia)
- OLM
- VLM
- Epilepsy (?)
- Asthma (?)
- Neuropsychologic

- Transplacental transmission
- Eggs in stool, by 2 weeks of age
- Eggs in soil
- Risk factors for zoonotic transmission
  - Pica
  - Puppy exposure
  - Poor hygiene
- Larval migration through liver and lungs

(Glickman, 1993)
Risk factors for VLM and OLM

**Host associated risks**

Visceral Larva Migrans
- Children
- Black race > white
- Pica/geophagy

Ocular Larva Migrans
- Children
- Pica/geophagia

**Environmental risks**

- Lower socio-economic status
- Rural residence
- Contact with puppies at home, or with soil contaminated with *T. canis* eggs
- Consumption of raw liver

*Contact with puppies at home, or with soil contaminated with *T. canis* eggs* (Glickman, 1993)
TOXOCARA LARVA MIGRANS NOW

PETER M. SCHANTZ
Division of Parasitic Diseases, Center for Infectious Diseases,
Centers for Disease Control, Atlanta, Georgia 30333

Figure 3. Pathogenesis of Toxocara larva migrans syndromes.
Patients With Toxocariasis
Considering the Risk Factors
(200 cases)

- Animal Contact: 66.4%
- Professional: 2.7%
- Alimentary: 2.7%
- PICA: 4.6%
- Unknown: 23.6%

(Creţu et al. 2002)
"Urbanization"?
Toxocara Serology in Blood Donors

(85 persons)

- 65.9% Negative
- 3.5% Doubtful
- 25.9% Weak Positive
- 4.7% Positive

About 2% of the healthy people tested in UK had positive serology

(Rook & Straughton, Dermatologica, 1972)

...Seropervelence 8.2% in psychiatric patients (Huminer et al, 1992)
Soil samples examined for parasites eggs (200 samples)

Parasites eggs

Percentage

- Negative samples: 38.20%
- Trichinella spiralis: 11.80%
- A. lumbricoides: 20.60%
- Echinococcus spp.: 24.50%
- Toxocara spp.: 47.10%

(Crețu et al. 2002)
Clinical Aspects in Toxocariasis
(200 cases)

No. of patients

According to:
- Parasitic burden
- Larval distribution
- Repetition of infection
- Host background
- Host immune response

(Cretu, 1998)
## VLM - Clinical signs and symptoms

<table>
<thead>
<tr>
<th>Signs Symptoms</th>
<th>Harrison-Snyder</th>
<th>Huntley</th>
<th>Taylor</th>
<th>Gillespie</th>
<th>Crețu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pica</td>
<td>100</td>
<td>90</td>
<td>-</td>
<td>10</td>
<td>4,6</td>
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<tr>
<td>Fever</td>
<td>55</td>
<td>80</td>
<td>33</td>
<td>39</td>
<td>10</td>
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<tr>
<td>Cough</td>
<td>20</td>
<td>80</td>
<td>68</td>
<td>46</td>
<td>51,8</td>
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<tr>
<td>Wheezing</td>
<td>20</td>
<td>63</td>
<td>51</td>
<td>28</td>
<td>38</td>
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<tr>
<td>Failure to thrive</td>
<td>-</td>
<td>39</td>
<td>-</td>
<td>4</td>
<td>-</td>
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<tr>
<td>Anaemia</td>
<td>40</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>38,2</td>
</tr>
<tr>
<td>Asymptomatic</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>12</td>
<td>9,1</td>
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<tr>
<td>Male</td>
<td>75</td>
<td>66</td>
<td>-</td>
<td>60</td>
<td>64,5</td>
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<tr>
<td>Eosinophilia</td>
<td>100</td>
<td>100</td>
<td>-</td>
<td>77</td>
<td>82,7</td>
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<tr>
<td>Hepatomegaly</td>
<td>85</td>
<td>65</td>
<td>26</td>
<td>15</td>
<td>16,4</td>
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<tr>
<td>Splenomegaly</td>
<td>40</td>
<td>-</td>
<td>8</td>
<td>11</td>
<td>12</td>
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<tr>
<td>Limphadenopaty</td>
<td>-</td>
<td>8</td>
<td>62</td>
<td>21</td>
<td>17,3</td>
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<tr>
<td>Bronchospasm</td>
<td>-</td>
<td>43</td>
<td>-</td>
<td>17</td>
<td>10</td>
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<tr>
<td>Skin lesions</td>
<td>-</td>
<td>22</td>
<td>5</td>
<td>5</td>
<td>69,1</td>
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<tr>
<td>Abdominal pain</td>
<td>0</td>
<td>0</td>
<td>63</td>
<td>32</td>
<td>16,4</td>
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</table>

*(Gillespie 1993, Crețu 1998)*
## VLM - Clinical and Biological Signs

<table>
<thead>
<tr>
<th>Clinical signs</th>
<th>Adults</th>
<th>Children</th>
<th>Adults</th>
<th>Children</th>
<th>Biological signs</th>
<th>E&amp;K</th>
<th>Crețu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatomegaly</td>
<td>79</td>
<td>47</td>
<td>13,8</td>
<td>31,3</td>
<td>Hypereosinophilia</td>
<td>100</td>
<td>82,7</td>
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<tr>
<td>Respiratory</td>
<td>72</td>
<td>42</td>
<td>46,8</td>
<td>81,3</td>
<td>Hyperleucocitosis</td>
<td>84</td>
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<tr>
<td>Fever</td>
<td>69</td>
<td>71</td>
<td>3,2</td>
<td>50</td>
<td>Hipergamaglobulinemia</td>
<td>82</td>
<td>51,4</td>
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<tr>
<td>Malnourish</td>
<td>46</td>
<td>36</td>
<td>-</td>
<td>-</td>
<td>Heterophyle antibodies</td>
<td>74</td>
<td>-</td>
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<tr>
<td>Digestive</td>
<td>44</td>
<td>60</td>
<td>11,7</td>
<td>43,8</td>
<td>ELISA toxocara pozitiv</td>
<td>68</td>
<td>100</td>
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<tr>
<td>Splenomegaly</td>
<td>35</td>
<td>18</td>
<td>8,8</td>
<td>15</td>
<td>Isohemaglutinines</td>
<td>67</td>
<td>-</td>
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<tr>
<td>Anorexia</td>
<td>31</td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>Anemia</td>
<td>63</td>
<td>38,2</td>
</tr>
<tr>
<td>Pale</td>
<td>29</td>
<td>12</td>
<td>-</td>
<td>-</td>
<td>Hypoalbumineminie</td>
<td>62</td>
<td>29,2</td>
</tr>
<tr>
<td>Skin signs</td>
<td>23</td>
<td>29</td>
<td>69,1</td>
<td>68,8</td>
<td>Liver biopsy - larve</td>
<td>37</td>
<td>2</td>
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<tr>
<td>Lymphadenopathy</td>
<td>21</td>
<td>19</td>
<td>10,6</td>
<td>56,3</td>
<td>Hyper GGT</td>
<td>-</td>
<td>78,1</td>
</tr>
<tr>
<td>Oedema</td>
<td>13</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>ESR</td>
<td>-</td>
<td>75,5</td>
</tr>
<tr>
<td>Heart</td>
<td>11</td>
<td>10</td>
<td>4,3</td>
<td>-</td>
<td>FG</td>
<td>-</td>
<td>55,5</td>
</tr>
<tr>
<td>CNS</td>
<td>36</td>
<td>33</td>
<td>4,3</td>
<td>18,8</td>
<td>CRP</td>
<td>-</td>
<td>51,8</td>
</tr>
<tr>
<td>Asthenia</td>
<td>38</td>
<td>63</td>
<td>-</td>
<td>-</td>
<td>LDH</td>
<td>-</td>
<td>56,3</td>
</tr>
</tbody>
</table>

*(Erhard și Kernbaum, 1979; Crețu 1998)*
## COVERT TOXOCARIASIS
Clinical and Biological Signs

<table>
<thead>
<tr>
<th>Clinical signs</th>
<th>Biology</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Asthenia</td>
<td>ELISA E/S positive</td>
<td>100%</td>
</tr>
<tr>
<td>✓ Allergic reactions</td>
<td>Specific Ig E</td>
<td>78%</td>
</tr>
<tr>
<td>- cutaneous</td>
<td>Increase total Ig E</td>
<td>69%</td>
</tr>
<tr>
<td>- neurologic (headache)</td>
<td>Hypereosinophilia</td>
<td>59%</td>
</tr>
<tr>
<td>- lung + URT</td>
<td>High ESR</td>
<td>36%</td>
</tr>
<tr>
<td>- ocular</td>
<td>Hyper GGT</td>
<td>31%</td>
</tr>
<tr>
<td>(conjunctivitis)</td>
<td>Hiper Total Ig M</td>
<td>25%</td>
</tr>
<tr>
<td>✓ Digestive disorders</td>
<td>Hiper Total Ig A</td>
<td>20%</td>
</tr>
<tr>
<td>Hepatomegaly</td>
<td>Hiper Total Ig G</td>
<td>11%</td>
</tr>
</tbody>
</table>

(Magnaval, 1989)
Clinical Signs in Toxocariasis
(200 patients)

(Crețu, 1998)
Clinical Aspects in Children and Adults at the Onset

No patients

Cutaneous  118
Pulmonary  60
Fever       15
Adenopathy  18
Digestive   32
General     39
Hepatosplenomegaly  24
Rheumatic   13
MioCarditis  7
CNS         7
Asimptomatic  18
Ocular       22

Children

Adult

(Crețu, 1998)
 Diagnosis

✓ Epidemiology and Risk factors
✓ Clinical symptoms/signs
✓ Laboratory: positive ElISA E/S antigens
  Avidity tests and WB
  WBC and Eo level, RBC
  Total and specific IgE
  Inflammatory biological syndrome (CRP, ESR, Fgl)
  Liver and muscle enzymes
  Gamma GT
  ECP
✓ Pathology: eosinophylic granuloma
✓ Imagery: X Ray, US, CT
Hipereosinophilia in Toxocariasis

- <3% Eo: 17%
- 4-10% Eo: 12%
- 11-30% Eo: 62%
- > 30% Eo: 9%

(Crețu, 1998)
Correlation of Hypereosinophilia With Clinical Manifestations

(Crețu, 1998)
Skin disorders in VLM

- 22% of the patients with Toxocariasis presented skin lesions (Huntley et al. Pediatrics 1965, 36(4), 523-536)

- 24% out of the patients with toxocariasis present cutaneous reactions (Erhard and Kernbaum, 1979, 77, 225-287)

- 7-12% out of 221 patients with VLM presented skin disorders - rash, eczema, urticaria (Taylor et al, The Lancet, 1988, March, 692-694)

- 20% of the patients with VLM presented allergic reactions (Scaglia et al. 1989, 82, 410-421)

- 64.7% out of patients with urticaria presented anti Toxocara antibodies, while 21% in control (Volfrom et al. Ann Dermatol Venerol, 1996, 123:140-46)
Skin disorders associated to VLM

- Pruritus
- Urticaria
- Angioedema
- Acute or chronic prurigo
- Eczema
- Atopic dermatitis
- Dermographism
- Acneea
- Skin rash
- Eosinophilic cellulitis (Wells' syndrome)
- Eosinophilic paniculitis
- Athypical erithema nodosum / hypodermal nodules
- Purpura

- Hematology (WBC + Eo and RBC)
- Inflammatory Syndrome
- Liver Function
- Thyroid function
- Coprology and serology for parasites
- Hepatitis markers B and C
- Chest X Ray
- Ex oto-rhyno- laringology
- Tests for autoimmune disorders
- Tests for malignancies
- Total IgE
- Tests for allergies (digestive, respiratory)
URTICAIRE
ET ŒDÈME DE QUINCKE
Étiologie, diagnostic, traitement

Pr. J. Sayac

1. Service de dermatologie-vénérologie, CHU Timone Adultes, boulevard Jean-Moulin, 13005 Marseille

Rev. Prat. (Paris), 1993, 43, 1
## Classification des urticaires et angio-oedèmes

_J. Sayag et R. Signoret_

### Urticaire et angio-oedèmes génétiques

<table>
<thead>
<tr>
<th>Par anomalie du système du complément</th>
</tr>
</thead>
<tbody>
<tr>
<td>U et AO des hémopathies,</td>
</tr>
<tr>
<td>des lymphomes malins, des cancers</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>U et AO des immunoglobulopathies</td>
</tr>
<tr>
<td>- Des gammapathies monoclonales</td>
</tr>
<tr>
<td>- Maladie de Waldenstrom</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>U et AO des déficits acquis en inhibiteur</td>
</tr>
<tr>
<td>de la C1 estérase (20 %)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Hypocomplémentémique (syndrome de McDofigue : pré lupique, lupique ou idiopathique)</td>
</tr>
</tbody>
</table>

### Urticaire et angio-oedèmes systémiques

<table>
<thead>
<tr>
<th>U et AO des maladies infectieuses</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Bactériennes</td>
</tr>
<tr>
<td>- Fongiques (levures, moisissures,</td>
</tr>
<tr>
<td>dermatophytes)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>U et AO des cryoglobulines</td>
</tr>
<tr>
<td>- Cryoglobulinaémie</td>
</tr>
<tr>
<td>- Hypocryoglobulinaémie</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>U et AO des connectivités</td>
</tr>
<tr>
<td>- Arthrite juvénile chronique</td>
</tr>
<tr>
<td>- Splénomégalie</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>U et AO des vascularites urticariennes</td>
</tr>
<tr>
<td>- Normocomplémentémiques</td>
</tr>
</tbody>
</table>

### Urticaire et angio-oedèmes médicamenteux

- **Urticaire et angio-oedèmes alimentaires**
  - Allergie alimentaire (AA)
  - Fausses allergies alimentaires (FAA)
  - AA + FAA

- **Urticaire et angio-oedèmes microbiens et mycosiques** (focal septis)

- **Urticaire et angio-oedèmes des pneumoallergènes**

- **Urticaire et angio-oedèmes psychiques**

- **Urticaire et angio-oedèmes polyfactoriels**
  - Intriqués
  - Non intriqués

- **Urticaire et angio-oedèmes idopathiques**

---

_U urticaire : AO : angio-oedème._
Toxocariasis in atopic patients

- “...la toxocarose aurais un effet amplificateur sur les manifestations allergiques des sujets atopiques” (Magnaval et al. 1994, 145, 611-627)

- Antibodies level of *Toxocara ES* is associated with high total and specific IgE and Eo

- Asthma, is associated in 6.5-14% of cases of toxocariasis and urticaria between 7.2-25%
  (Magnaval et al. 1993, in *Toxocara and Toxocariasis*, Ed. Lewis and Maizels)

- “Toxocara as environmental factor play a role in the induction of allergen specific IgE and promoting allergic diseases”
  (Buijs et al. 1994, *A J Epidemiol*, 140(9), 839-847)

- “Toxocara stimulates allergic reactions, based on hereditary tendency for skewing to type 2 T-helper cell function and longevity of the parasite within the host.”
  (Buijs et al. 1997, *Eur Respir J.*, 10, 1467-1475)
# Toxocariasis in the Midi-Pyrénées region

J.-F. Magnaval and M. T. Baixench

Laboratoire de Parasitologie, CHU Purpan F-31059 Toulouse Cedex, France

## Table 2. Clinical features at the onset of the disease.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>N=138</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudden weakness</td>
<td>42</td>
<td>30.4</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>Urticaria</td>
<td>10</td>
<td>7.2</td>
</tr>
<tr>
<td>Asthma</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Dizziness</td>
<td>7</td>
<td>5.1</td>
</tr>
<tr>
<td>Pruritus only</td>
<td>6</td>
<td>4.4</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>5</td>
<td>3.6</td>
</tr>
<tr>
<td>Eczema</td>
<td>5</td>
<td>3.6</td>
</tr>
<tr>
<td>Oedema</td>
<td>4</td>
<td>2.9</td>
</tr>
<tr>
<td>Gastric pain</td>
<td>4</td>
<td>2.9</td>
</tr>
<tr>
<td>Bronchitis</td>
<td>3</td>
<td>2.2</td>
</tr>
<tr>
<td>Enlarged lymph nodes</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Loeffler infiltrates</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Myalgia</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Seizures</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Vomiting</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Weight loss</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Arthralgia</td>
<td>1</td>
<td>0.72</td>
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<tr>
<td>Chronic cough</td>
<td>1</td>
<td>0.72</td>
</tr>
<tr>
<td>Paresthesia</td>
<td>1</td>
<td>0.72</td>
</tr>
</tbody>
</table>
Toxocariasis in the Midi-Pyrénées region

J.-F. Magnaval and M. T. Baixench
Laboratoire de Parasitologie, CHU Purpan F-31059 Toulouse Cedex, France

<table>
<thead>
<tr>
<th>Symptom</th>
<th>N=138</th>
<th>%</th>
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Table 4. Biological features.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>N=138</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive western-blot (7-band pattern)</td>
<td>138</td>
<td>100</td>
</tr>
<tr>
<td>Total IgE &gt; 150 KIU l⁻¹*</td>
<td>110</td>
<td>79.7</td>
</tr>
<tr>
<td>Specific IgE &gt; 1 TU⁻¹†</td>
<td>110</td>
<td>79.7</td>
</tr>
<tr>
<td>Hypereosinophilia &gt; 0.6 cell x 10⁹ l⁻¹</td>
<td>102</td>
<td>74</td>
</tr>
<tr>
<td>Gamma GT &gt; 1 N²</td>
<td>20/115</td>
<td>17.4</td>
</tr>
<tr>
<td>Increased ALAT/ASAT</td>
<td>13/115</td>
<td>11</td>
</tr>
<tr>
<td>Increased sedimentation rate</td>
<td>15</td>
<td>11</td>
</tr>
</tbody>
</table>

*KIU: kilo International Units; TU: Toxocara units; †> 1 N: over normal range.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Count</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Arthralgia</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Eczema</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Sinusitis</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Dizziness</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Fever</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Enlarged liver</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
- 48 YO, male, atopic patient, with chronic urticaria
- Developed angioedema, without any explanation
- WBC 11,000 cmm and Eo normal
- Toxocara positive with AI specific for a recent infection (less than 20 w)
- Liver function normal
- Muscle enzymes normal
- Total IgE increased
- Chest X-ray and abdominal US normal
- Tolerance of albendazole very good

(Cretu & Berghea, 2010)
Urticaria & Angioedema

(Cretu & Berghea, 2010)
Urticaria

(Cretu & Berghea, 2010)
Great proportion of patients with IgG against Toxocara spp. have urticaria and prurigo

Half of the patients with urticaria and TES ELISA were cured after the treatment of the parasites

Non specific pruritic papules of prurigo are considered systemic skin reaction to parasitic antigenic stimulus
- 2% of healthy persons tested for Toxocara are positive

-Pruritus, rash, dry skin, dermal oedema, simulating scleroderma, followed by skin nodules, with Toxocara test positive and very good response to DEC treatment
Skin rash & Prurigo

(Cretu & Cristodulo 2010)
In patients sero-positives for Toxocariasis, the risk to develop chronic urticaria is 6.9 times higher than in sero-negative patients.
37 yo, Male
constant dog contact

- Urticaria
- Dermal oedema
- Pruritus
- Fever
- Thoracic pain
- WBC 9600/cmm
- Blood Eo normal
- ELISA ES Toxocara positive
Eo Pleurisy

II 2000
WBC 9 600 - Eo 2.9%
Pleural fluid - Eo 25 %
ELISA Toxocara positive
Chest X ray - Pleurisy

⇒ ABZ 14 days
⇒ 2 courses

IV 2000
WBC 6 800 - Eo 3%
ELISA Toxocara - negative
Chest X ray - sequels
Eczema and VLM

- Boy, 6 YO, rural residence
- Animal contact (dogs, cats)
- Height and wait under limits
- Fever (38–39° C)
- Dry cough, dispnoea
- Pruritus
- Vesicular eruption
- Plantar edema
- Arthralgia
- Nausea, vomitting
- Hepato-splenomegaly

- WBC 34 600/cmm
- Eo 74.4%
- Total IgE 7788gIU/ml
- CRP 9.10/mg/l
- ESR 120mm/1 hour
- Stool examination negative
- Ova/larvae parasites
- Liver function normal
- LDH, CK, CKMB increased
- HIV negative
- Chest X Ray - interstitial pneumonia
- Ocular ex normal
- Toxocara IgG positive with low AI
Dishydrotic eczema
Imaging

Non homogenous HSM
recent infection
Prurigo

Papular type

Eczema-like prurigo

(Cretu & Popescu 2010)
Skin Rash
Dermographism

(Cretu & Popescu 2010)
T.M., 29 YO, Vrancea county
Dg. Chronic Prurigo
Lung Toxocariasis

December 1999
Abrupt onset:
dry cough, fever, dyspnoea,
pruritus

Dg. Acute diffuse Interstitial pneumonia
Respiratory flow reduced by 38%
WBC 19 6000, Eo normal
⇒ Antibiotics
⇒ pruritus and skin lesions
⇒ corticosteroids

New episode after coming home
February 2000 – Inst Pneumology
Ex. BAL *P. carinii* - negativ

II 2000
-WBC 6200 - Eo 9%
-BAL Eo 24.5%
-ELISA Toxocara – Positive

XI 2000
NL 4300 – Eo 2%
ELISA Toxocara negativ

Cured
DG: Chronic Prurigo
Lung Toxocariasis

(Cretu & Popescu 2010)
Concomitant OLM & VLM
3 YO girl, Bacau County

- Atopic dermatitis ⇒ acute urticaria
- Epigastric pain
- Red eye
- Photophobia
- Decreased and blurred vision
- Leucochoria
- Fundus ex. Retinal granuloma
- VBC 12.400/cmm - Eo 17%

Corticosteroids: local systemic
- Liver function normal
- Chest X ray normal
- Abdominal US non-homogenous HSM
- Stool ex for parasites - negative
- ELISA Toxocara negative
- Toxoplasma IgM & IgG - negative
- WB positive for Toxocara
Concomitant OLM & VLM

VLM - non homogenous liver, with hyperechoic areas corresponding to Eo granulomas (old lesions)

OLM - US- retinal detachment due to posterior granuloma and vitreal reaction associated

Vitreal reaction
Retinal folds
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<tbody>
<tr>
<td>Cr. endophthalmitis</td>
<td>Cr. endophthalmitis + Retinal detachment Posterior granuloma Peripheral granuloma Pars-planitis Optic Neuritis Keratitis Uveitis-iritis Hypopion Mobile Larvae in vitros cavity Posterior retinochoroiditis Peripheral retinochoroiditis Papillitis Endophthalmitis Mobile larvae in retinal layer Unilateral diffuse sub acute neuroretinitis Keratitis Conjunctivitis Lens opacities</td>
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<td>Peripheral granuloma</td>
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<td>Mobile larvae Acute endophthalmitis Chronic endophthalmitis Anterior chronic uveitis Posterior granuloma</td>
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<td>Posterior granuloma</td>
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<td>Other forms</td>
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<td>- orbital lesions</td>
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</tbody>
</table>
OCULAR TOXOCARIASIS
RETINAL GRANULOMA

Fundus examination
Active lesion
(Ristea and Crețu, 2000)

Fundus examination
Sequels
(Ristea and Crețu, 2000)

(Cretu & Vintila 2007)
OCULAR TOXOCARIASIS

Fundus examination
Mobile larvae
(Ristea and Crețu, 2000)

Fundus examination
Vitreal reaction
(Ristea and Crețu, 2000)

Total uveitis
(Ristea and Crețu, 2000)
**Toxocariasis - Infection Or Disease?**

**INFECTION**

- Asymptomatic
- Hazardous discovered of hipereosinophilia
- Specification of diagnosis
- Epidemiological studies to detect toxocartiasis prevalence

**DISEASE**

- Various and different intensity clinical signs considered as VLM, OLM or CT
- Can induce differential diagnosis as they can mimic neurological, heart, dermatological, respiratory disturbances, etc...

**TREATMENT - NOT NECESSARY**

Taylor et al, 1987, 1988
Magnaval, 1994
Bass et al, 1987

**NECESSARY TREATMENT**

Beaver et al, 1952
Glickman and Shantz, 1981, 1987
Taylor et al, 1987
TREATMENT

- Specific medication
  - Diethylcarbamazine
  - Albendazole
  - Ivermectine
  - Flubendazole
  - Thiabendazole

- Antiallergic medication

- Steroid and non-steroid anti-inflammatory medication
DIETHYLCARBAMAZINE (DEC)

**Action**

- Piperazine derivate, very efficient on mf. *Toxocara larvae*
- Decrease the muscular activity and block of the organism by the hiperpolarisation effect of the medication
- Changes on the parasite surface membrane which become vulnerable to the host defense mechanisms
- Inhibition of the prostaglandine production
- Increase the neutrophils and eosinophils citotoxicity

**Side effects**

- Transitory hiperleucocitosis şi hipereozinophilia
- Transitory anorexia, nausea, headache

**Posology:** BANOCIDE®, HETRAZAN®, NOTEZINE®

- 3–4 mg/kg/day - 21 days  //  6 mg/kg/day - 8-21 days
ALBENDAZOLE
(ABZ)

Action:
- Selective depletion of cytoplasmic tubules at the digestive epithelium level and parasite cuticle
- Decrease glucose intake → glicogen depletion

Side effects:
- Abdominal pains, headache, nausea, vomiting, alopecia
- Leucopenia, anaemia
- Elevated transaminases
- To be avoided in pregnant woman and children under 12 months

Posology: **ZENTEL®, DUADOR®** - 200 mg/tb
**ESKAZOLE®** - 400 mg/Tb
10-15 mg/kg/day, 5-21 days,
according to the clinical status and location
Clinical score after DEC Treatment

Cutaneous disorders
Pruritus
Arthralgia
Digestive disorders
Hepatosplenomegaly
Adenopathies
Fever
Mioarditis
Cough
Wheesing
CNS disorders
General Symptoms

Number of patients

(Cretu, 1998)
Clinical score after ABZ Treatment

(Cretu, 1998)
Biologic score after DEC Treatment

Investigation (Cretu, 1998)
Biologic score after ABZ Treatment

Number of cases

ELISA IgG  |  Eo  | NKL  | Fg  | CRP  | VSH  | Hemoglobin  | Gamma-GPT  | ALAT/ASAT  | Albumines  | Gamma-globulines  | LDH  | CPK  | IgM  | IgG  | IgE  | CIC  | Cgl

First course  |  Second course  |  Third course  |  Fourth course  |  More than 4 courses

(Cretu, 1998)