First record of the *Echinococcus vogeli* (Cestoda, Taeniidae) metacestod in finding in Iquitos, Peru

Primer registro del metacestode de *Echinococcus vogeli* (Cestoda, Taeniidae) en Iquitos Peru

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**Abstract**

We report for the first time, the finding of the hydatid of *Echinococcus vogeli* in the liver of *Agouti paca* in the city of Iquitos, Peru.

**Key words:** *Echinococcus vogeli* | metacestode | *Agouti paca* | Peru.

**Introduction**

Hydatidosis is a zoonotic disease due to the hydatid of cestodes from the *Echinococcus* gender; within it, *Echinococcus vogeli* is known to cause polycystic hydatid disease and to be spread in the neotropical region. In Peru, the infection is known due to 1 human case in Contamana, Loreto (1). The definitive host in the wild and domestic cycle are the canine *Speothos venaticus* and dog respectively (2), the intermediate host is a rodent from the Agoutidae and Dasyproctidae families, host that have never been found in Peru before.

**Material and Methods**

Four livers of *Agouti paca* were obtained from the Belen market in Iquitos (03°43'46"S 73°14'18"O), there were found polycistic formations in one of them; protoscolices were obtain from one of this for morphologic studies, especially from the rostellar hooks and the others were fixed in 10% formalin before being processed for histological sections. 30 large and small hooks were conveniently pressed under a coverslip slide and then clarified in a mixture of ethanol and phenol (2 parts of melted phenol by 1 of 50% ethanol) and measured at 1000x using a calibrated ocular micrometer. The measures of
the hooks were recorded in microns, indicating first the average and then the rank in parenthesis.

**Results**
The large hooks measurement was 41,1 (40-43), the small hooks were 32,7 (31 – 36). On the mayor hooks it was observed that the blade was bigger than the handle and the eccentric guard (Figs. 1 y 2). In table 1, the measurements of the large and small hooks were recorded and compared with the ones obtained from other authors.

**Tabla 1. Measurements of the hooks of *E. vogeli*.**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Origin</th>
<th>Large hooks</th>
<th>Small hooks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rausch and Bernstein, 1972</td>
<td><em>Speothos venaticus</em> (Ecuador)</td>
<td>0.053 (0.049-0.057)</td>
<td>0.043 (0.030-0.047)</td>
</tr>
<tr>
<td>Gardner <em>et al.</em>, 1988</td>
<td><em>Cuniculus paca</em> (Bolivia)</td>
<td>39.83 (37- 44)</td>
<td>32.59 (27-35)</td>
</tr>
<tr>
<td>Rodrigues <em>et al.</em>, 2002</td>
<td>Human (Brazil)</td>
<td>0.0372</td>
<td>-</td>
</tr>
<tr>
<td>Somocurcio <em>et al.</em>, 2004</td>
<td>Human (Peru)</td>
<td>40-45</td>
<td>28-35</td>
</tr>
<tr>
<td>Abdul-Hadi <em>et al.</em>, 2007</td>
<td>Human (Venezuela)</td>
<td>41</td>
<td>33</td>
</tr>
<tr>
<td>This article</td>
<td><em>Agouti paca</em> (Peru)</td>
<td>41,1 (40-43)</td>
<td>32,7 (31-36)</td>
</tr>
</tbody>
</table>

The hooks of the scolices and the polycystic formations were identified as belonging to *Echinococcus vogeli*.

Figure 1. Large hook, *Echinococcus vogeli*.  
Figure 2. Small hook, *Echinococcus vogeli*. 
Discussion

Neotropical species of *Echinococcus*, *E. oligarthrus* and *E. vogeli*, can be differentiated by the shape and length of rostellar hooks, where the hooks from *E. vogeli* are the ones with larger dimensions (4). So far it does not exists a single report of *E. oligarthrus* in Peru, but it exists in other South American countries (4). In the domestic biological cycle of *E. vogeli*, the dog plays an important role for human infection (4, 5). Polycystic formations found at *A. paca* liver and the protoscolices hooks characteristics like the length and the blade larger than the handle, allowed us to identify them as part of *Echinococcus vogeli*; this characteristics coincide with the ones registered by other authors (table 1) (1, 6, 7, 8, 11). *E. granulosus* is the best known species in our country, its hydatids larvae affects humans and ruminants, especially at the Andean livestock area (4), but its rostellar hooks have smaller measurements that the ones from other South American species (3). In Peru, Somocurcio et al. (1) presented the first case of polycystic echinococcosis produced by *E. vogeli* in a 44 year-old patient that have had contact with wild animals; however, the larval stadium was not found yet in the natural intermediate host. *E. vogeli* is consider to be the most pathogenic among all the *Echinococcus* species (4). Currently, polycystic echinococcosis produced by *E. vogeli* is consider to be an emergent disease (10).

Conclusions:

It is concluded that it is the first time that the larval stadium of *E. vogeli* has been found in *Agouti paca* in Peru.

Author’s contribution:

MTV, Designed the study, analysed the results and wrote the paper. JAT, parasites collection and comments and suggestions. RMR, prepared the samples and technical assistance. SDM, study and drafted the manuscript.

Conflict of Interest: The authors declare none.

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References

Echinococcosis in the State of Rondônia, Brazil. Mem Inst Oswaldo Cruz. 2002;97(1):123-126