Fish Anisakidae Helminthes in Khuzestan Province, South West of Iran

A Farahnak*, I Mobedi, R Tabibi

Department of Parasitology and Mycology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran.

Ahwaz Health Center, Ahwaz University of Medical Sciences, Ahwaz, Iran

ABSTRACT

Fish including; Barbus spp, Cyprinus carpio, Liza abu and Aspius vorax have very important role in the economic condition of the rural areas of Khuzestan province. These fish have been consumed as fried or roasted. In adequately cooked fish, could serve as a source of infection in these communities. For this reasons, 701 fish were trapped from 4 lagoons (Atash, Sobhanieh, Al-hai, Houfel) and transported alive to Ahwaz Health Research Center. Their skin, gills, eyes, muscles, intestine and body cavity were examined carefully. In 54 (7.7%) of fish, 6 cases of Contracaecum sp. (0.85%) and 48 Anisakis sp. (6.8%) were identified belong to helminth family of anisakidae. These results suggested that human anisakiasis could be health hazard in these areas.

Key words: Anisakidae, Fish, Iran

INTRODUCTION:

Anisakis simplex is a common nematode parasite present in many marine fish, including finfish and squid. It is potentially a public health problem if it is not destroyed during food processing (4). Anisakis simplex can cause different diseases in humans. The human acquire the larvae by eating raw or undercooked seafoods. Acute anisakidosis is probably caused by an inflammatory and/or allergic response in the digestive tract mucosa with abdominal pain. It can also induce IgE-mediated reactions with several clinical manifestations ranging from urticaria and angioedema to anaphylaxis. Chronic anisakidosis results from abscesses or eosinophilic granulomas caused by parasite invasion (2). Fish are the main meal of the people of khuzestan province in south west of iran. Fresh fish are consumed as fried or roasted especially in the rural areas. The Lagoons, which are the most important fisheries resources, have very important ecological effects on fish parasites. There are many records of Contracaecum spp and Anisakis sp. from fish in the Caspian Sea and Persian Gulf (1, 3) but anisakidae infection has been poorly described from host in the lagoons (5).

This study is a part of a research project entitled"The faunistic survey on fish helminthes in south west of Iran". The purpose of the present study was to determine the anisakidae infection in fish.

RESULTS

From the total fish examined in this survey, intestinal tract of 54 (7.7%) fish contained nematodes of either Contracaecum sp. (fig.1) or Anisakis sp. (fig.2). The results of prevalence of helminth parasites from 701 fish surveyed are given in Table1. The study of fish from lagoons in khoustnean province has been shown a high rate of infection (7.7%) with Anisakidae larvae which could be a health hazard for people in this area once provided to be eaten raw or undercooked. Relative frequencies of caught fish according to the sex, length and

*Correspondence author: P.O.Box: 14155-6446. farahnak@ sina.tums.ac.ir
weight are shown in fig. 3. Majority of caught fish were with length of 100-149 mm and weight to less 50g.

Table 1. Prevalence of Anisakiae Helminth Parasites From 701 fish surveyed in South West of Iran.

<table>
<thead>
<tr>
<th>Fish species</th>
<th>Contracaecum sp.</th>
<th>Anisakis sp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. grypus (Shirbot)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>B. luteus (Hemri)</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>A. vorax (Sheleg)</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>C. carpio (Kapour)</td>
<td>1</td>
<td>33</td>
</tr>
<tr>
<td>L. abu (Biah)</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Total of infected fish</td>
<td>6</td>
<td>48</td>
</tr>
</tbody>
</table>

Percent of infected fish (from 701 fish) 0.85% 6.84%

Fig. 1. Anisakidae helminth parasites from surveyed fish in south west of Iran: *Contracaecum* sp. Caudal end (A), Head (B), Anterior end (C), Drawing picture (D)

Fig. 2. Anisakidae helminth parasites from surveyed fish in south west of Iran: *Anisakis* sp. Caudal end (A), Head (B), Anterior end (C), Drawing picture (D)
Discussion

From an ecological point an important question is; what’s the origin of fish anisakidae in this region? May be there are two answers for this question. First, the lagoons are refuges of migratory birds, which could be host of anisakidae parasite. Recently we found an *Anisakis* sp. parasite from the birds (unpublished data). Second, the Atash (Shadegan) lagoon is near the Persian Gulf (the seawater) and is connected with it. The Persian Gulf could contain host of parasites. Fish treatment at a pressure of 200 MPa for 10 min at a temperature between 0 and 15 degree C, kills all *Anisakis* larvae, with a lack of motility being used as an indicator of larval death (4). As preventive measures heating for 10 min over 65 °C or freezing (minus 20 °C for 24 h) destroys the infectivity of the larval stage but not always prevent allergic reactions (2). The endoscopical extraction of possible larvae is the only effective therapy, as anthelmintics against nematodes (mebendazole, albendazole, and thiabendazole) are ineffective (6).

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REFERENCES


