
Prevalence of parasitism by Anisakis in a sample of fish caught in coastline of the Golfete of Coro, Venezuela

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Abstract: To evaluate the risk of Anisakiasis in the population, a common zoonotic disease worldwide caused by ingestion of larvae (L3) of the nematode family anisakidae (Anisakis spp, Contracaecum spp, Pseudoterranova spp) present in raw fish or undercooked constitute a health risk that should not be underestimated; fish caught in the area Golfete of Coro, Venezuela Falcon state. Artisanal trawling shore and depth serve as financial support to numerous fishing villages located along the western coast of the isthmus of dunes, the Peninsula Paraguana where trade in species of different orders of zoological scale marine fauna existing there. A study was conducted to determine the degree of parasitism by anisakidae family, using a non-probability purposive sampling 90 specimens were purchased directly from fishermen, giving prevalence to the lowest economic value, which also are used for family consumption as: mullet (*Mugil Mugil curema* or *incilis*), mullet (*Mugil liza*), crappie (*Eugerres plumieri*) and catfish (*Ictalurus punctatus*) among others. They moved to the laboratory for: evisceration, debridement and muscle dissection seeking parasites. Nematodes of the family anisakidae identified in the sample were *Contracaecum* spp. 97% and *pseudoterranova* spp. 3%, and those with high degree of infestation were 88.8% and *mojarra* smooth 80% with parasite loads ranging from seven to nine parasites per specimen, demonstrating a high parasitism.

Keywords: Family Anisakidae, Fish, *Mugil Liza*, *Mugil Curema*

1. Introduction

Anisakiasis is a common disease worldwide caused by ingestion of larvae of the anisakidae [1, 2] family, the presence of parasites in fishery products (raw or undercooked); so it is common to find anisakiasis in geographic areas where popularly ingested raw fish as in Japan and also now in recent times when eating undercooked fish as popularized in the United States, Europe and South America, constituting a health risk. Fish should be eaten cooked or previously frozen at -20 °C. for 48-72 hours, including talk of lower temperature and longer, to prevent disease [2,8,9,10]. Some species of Anisakis originate severe illness with symptoms of gastric or allergic nature, after ingestion of parasitized fish, parasites belonging to the family anisakidae (Anisakis spp, Contracaecum spp and Pseudoterranova spp) to possess a risk to public health, in character zoonotic and cause serious injury to humans [3, 4, 7, 9, 10,11], which is why it is considered appropriate to determine the degree of parasitism having some seafood (fish) caught in waters of Golfete Coro, Miranda municipality located in the north central region of

Falcon-state, Venezuela [6,8]

The reservoir of these Anisakis consists generally aquatic mammals, whales (*Balaenoptera musculus*) and dolphins (*Delphinus delphis*). Excreted eggs hatch in the water, becoming larval stage 2, which are microscopic, swim freely and are able to survive 2-3 months. Being swallowed by young members planktonic crustaceans (first intermediate host), transforming them larvae take place at stage 3, which are infective to fish and squid, in which once ingested, they migrate from the intestine to the tissues especially to the peritoneal cavity and grow to macroscopic size up to 3 inches. or more in length [4]. These larvae can be transmitted from fish to fish predation [5, 6, 8, 9, 10].

In the course the life cycle of parasite, reservoir of these nematodes consists of aquatic mammals (whales and dolphins usually) with parasites in the digestive tract. Excreted eggs hatch into larvae becoming water stage 2, which are microscopic, swim freely and are able to survive 2 to 3 months. Being swallowed by young members planktonic crustaceans (first intermediate host) in them transforming larvae take place at stage 3, which are infective to fish and

squid, in which once ingested intestine migrate from tissues, especially the peritoneal cavity and grow to sizes of 3 centimeters or more in length. In the gastric mucosa of the definitive guest become adults and close the life cycle of the parasite [5, 6].

2. Materials and Methods

The research was descriptive, not experimental which determines the existence of a disease, where the descriptive studies include direct observation of the phenomena of that disease as occurs in nature. This research is cross-cutting, allowing you to provide prevalence data at a given point of time, indicating that the cross-sectional studies or investigated transactional relationships between disease and hypothetical causal factors in a defined population; classifying animals according to the presence or absence of disease and causal factors, to thereby make inferences between the disease and possible causal factors.[6]. A cross-sectional study where research is that one-time characteristics are examined, the population selected for study and measures the frequency and immediately write and discuss issues of interest simultaneously.

2.1. Location and Ecological Conditions in the Study Area

The Golfete coastline in the town of Coro Miranda is in the center of the state north central region Falcon is the fourth largest state with an area of 185Km², which represents 7.28% of the total area of Falcon state municipality. The climate in the area, belong to peninsular maritime classification arid and ranks Golfete Coro and foothills north-west of the Sierra de San Luis, from sea level to the coast and 500 meters semi-arid peninsular maritime some moderation due to local topography and altitude change the temperature and precipitation. The temperature with little variation is always about 26°C. Rainfall is scarce which occur from September to November; their height is at 88 meters above sea level (masl); 11° latitude 20 '18 "; Longitude 69° 32' 52".

In this descriptive cross-sectional study and not intentional probabilistic sampling of fish caught in the Golfete Coro , municipality Miranda, Falcón State, Venezuela were analyzed. 90 specimens of each species were sampled: Mugil liza, Mugil curema and Eugerres spp, during June and July of year 2011 and repeated in 2012.

Was performed on fish caught an incision in the ventral

Table 1. Prevalence of parasitism identified in fish samples (*Mugil liza*, *Mugil curema* and (*Eugerres spp.*) Golfete of Coro-Falcón Venezuela.

Genera Identified	Percentage detected in Mugil liza, Mugil curema and Eugerres spp. Año 2011	Percentage detected in Mugil liza, Mugil curema and Eugerres spp. Año 2012
<i>Contracaecum</i> spp	97%	97%
<i>Pseudoteranova</i> spp	3%	3%

5. Conclusions

Alarming increase in parasitism Anisakidos Golfete Coro, Falcon State. In 1991 it reported a 75% incidence in this research and 97% was found, mainly *Contracaecum* spp.

region, from the mouth to the anus, for evisceration, the gastrointestinal tract, annexes organs (liver) and channel hemal spine was revised; debridement and dissection of the muscles in search of parasites in the third larval stage (L3) was made. nematodes were collected, fixed in alcohol 70% glycerine. Is to impregnate the larvae in glycerine alcohol solution for a period of 24-48 hours at room temperature in order to clarify the taxonomic value structures that help the identification of the parasite.

3. Discussion Shoud Have Four

In the Golfete Coro, specifically in the Medano Blanco sector fish were caught with high parasite loads, in coincidence with the demonstraed in studies previosly [6]; an area in which they are given all the conditions to allow for the presence of nematodes of the genus anisakidae due to the presence of large number of migratory birds and reptiles, which act as definitive hosts according to the suitable for [1,3,5,6,9] there health risk derived from improper handling of fish caught without allowing time immediately gutted the parasite migrates to the muscle of the viscera, and without proper freezing, with the logistical support that lack scale fishermen. You need to educate people to follow the basic steps recommended by food safety agencies to ensure safety, specifically fish marketed in the town Miranda Falcon state [6], since the presence of the parasite Anisakis was detected in viscera muscles and species *Mugil liza*, *Mugil curema* and *Eugerres* spp, captured in Golfete Coro, is the 100%, and this is fish that are used for household consumption.

Having identified all Anisakidos was determined that there is a marked difference between species of parasites observed, in *mugil liza* and *Mugil curema*, the *Contracaecum* spp accounted for 97%, indicating that is the main nematode present in the family anisakidae Golfete of Coro, with difference to the reported for [4].

These results relate to the reported for Bandes et al. [1] who point to 48% of parasitism by *Contracaecum* spp in fish is sold in the largest car market in Caracas, Venezuela. It also relates to the reporting of Petit et al. [6], who showed an incidence of 75% for the specie *Contracaecum* spp in Golfete of Coro-Falcon-Venezuela. Table 1

4. Results “Should Have Three”

Demonstrating that the area has predisposing factors that make them maintain and increase the prevalence of parasites in fish caught and thus the risk to consumer health.

They showed very little knowledge on the part of the fishermen about the existence of this parasitism this

representing the main risk factor for the disease consequences as a result of not taking the necessary sanitary measures; technology coupled with conservation of dry-salted fish increases the risk since this form of conservation does not guarantee the total elimination of the parasite, as well as the toxins they release. Pollution sources fishermen itself is understood as the life cycle of the parasite, representing a serious risk to those families or members of those who consume raw fish cooked in salt or acids which are conservation mechanisms that do not guarantee or culinary elimination of the parasite and its impact on consumers.

References

- [1] Bandes, A.; Selgrad, S.; Rios of S, M.; Hans, M. Nematodes of the family anisakidae fresh fish is sold for human consumption in Caracas, Venezuela. *INHRR Rev.*, 36 (2) :44-71 .2005.
- [2] Hochberg, NS.H. Hamer D Anisakidosis perils of the deep. *Clin Infect Dis* 51: 806-812. 2010.
- [3] Lantigua, I. Anisakis, the parasite of fish. Gastric infections. Veterinary Service of the Department of Public Health. Catalonia, Spain. Online: [http://www. elmundo.es](http://www.elmundo.es)> home> health> medicine. Mundinteractivos, S.A. 12.12. 2006.
- [4] Muñoz, P. pseudoterranovosis. *Rev Chil. Infectol.* 25 (3): 205-206. 2008.
- [5] Myers, BJ The nematodes That causes anisakiasis *J. Food Technol.* 38 (12): 774-782.1975.
- [6] Petit, P.; Guzman, S.; Ramirez, R. Endemic by nematodes (*Contracaecum* spp) in mullet fish Golfete Coro Venezuela. Edo Falcon. *Rev. scientif Act. venez.* 42: Suppl. 1,500. 1991.
- [7] Rodriguez, M.; Tejada, M.; González, M.; Moneo, I; Solas, M. Methods of extracting and detecting Anisakis antigens in food for human and animal consumption. Higher Council for Scientific Research (CSIC), Foundation for Biomedical Research Hospital Carlos III. Spain. ES Invention Patent 2,340,978 B1. Pp.01-14. 2011.
- [8] Solas, M. T.; Moneo, I.; Tejada, M.; Muñoz, M.; Rodriguez, M.; Gonzalez, M; Anisakis antigens detected in fish muscle infected With Simple Gradients Anisakis L3. *J.Food Protec.* 71: 1273-1276. 2008
- [9] Torres, P.; Moya, R; Lamilla, J. Anisakid nematodes interest in public health in fish market in Valdivia, Chile. *Arch Med Vet* 32: 107-113. 2000.
- [10] Yasunga H, Horguichi H, Kuwabara K. hashimoto H, Matsuda S. Clinical features of bowel anisakiasis in japan. *Am J Trop Med Hyg* 83: 104-106. 2010.
- [11] Zuloaga, J.; Arias, J.; Balibrea, J. digestive Anisakiasis. Appearance of interest to the surgeon. Department of Clinical Surgery Hospital. San Carlos, Complutense University of Madrid, Spain. *Rev. Cir. Eng.* 75 (1) :9-13. 2004.