New cases of human diphyllobothriosis in Patagonia, Argentine*
Novos casos de difilobotriosis humana na região da Patagônia, Argentina

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Diphyllobothriosis is an ictic zoonosis acquired by humans when they accidentally ingest plerocercoids while eating raw, undercooked and sometimes smoked fish. Restricted to Northern Central Europe till past century, this disease has now spread to other temperate latitudes, and a human case was even described in India.

Of all known species of Diphyllobothrium only 3 are found in South America: D. pacificum with marine cycle and D. latum and D. dendriticum with freshwater cycle, these latter two were brought to South America via European immigrants.

The first case of human diphyllobothriosis was registered in Argentina in 1911, in a young Russian immigrant who had just arrived in the country. Seventy years passed until the first autochthonous case was identified in 1982. D. latum is recognized as the only etiological agent of diphyllobothriosis in Argentina and the disease is restricted to the Andean Patagonia.

The purpose of this study is to describe 4 new cases of diphyllobothriosis in Patagonia (Argentina).

Medical records of health facilities in the provinces of Neuquén (public hospital of San Martián de los Andes) and Río Negro (Private Hospital Bariloche), from 1994 to 1999, were revised and parasitological material was obtained from institutional collections and examined.
Adults and eggs were identified. Adults were submitted to morphological and histological analyses. Materials were fixed in 10% buffered formalin and 70% ethanol or AFA (ethanol 85 ml, formaldehyde 10 ml, and acetic acid 10 ml). Adults were immersed in 45% acetic acid to remove the cortical parenchyma or in lactophenol to clarify the proglottides, to improve the observation of genital and uterine pores and uterine loops. For the histological analysis, specimens fixed with 10% buffered formalin were used and serial longitudinal and sagittal (in the midline of proglottides) sections were performed (5 µm a 7 µm). All the histological materials were stained with hematoxylin-eosin. Eggs obtained from proglottides were measured (length, width and thickness of membrane) and the presence of operculum and knob were registered.

Proglottides were characterized for the presence of uterus with a posterior portion closely coiled and an anterior one with 4 to 7, most frequently 5 loops at both sides of the midline, presence of constriction between proglottides, presence of cirrus – vaginal aperture situated in the first half of the ventral surface, and a round or oval ovary. Longitudinal histological sections show vitellaria and testis arranged laterally in 2 separated lateral fields without connection between them. Sagittal histological sections show an elliptical seminal vesicle in a caudal position to the cirrus sac and a rounded to oval cirrus sac situated horizontally in the segment. Types in Helminthological Collection of Centro Regional Bariloche (P 94/1-4, P124/1, F 125/1-3). Eggs were oval with an operculum and a knob. One hundred eggs were measured in each case and the medium size were 73 µm in length, 50 µm in width, 1.6 µm in membrane width and 1.4 length – width ratio.

Although eggs are of little value for a reliable species diagnosis, all the other analyzed characteristics enabled to assign the 4 recovered specimens to *D. latum*.

The presence of *D. latum* and *D. dendriticum* has been reported in freshwater bodies of Andean Patagonia but the latter species has not been documented as a parasite to humans. *D. latum* continues to be the only etiological agent of human diphyllobothriosis in Patagonia. These data combined other collected information increase the number of autochthonous cases of diphyllobothriosis reported in Argentina to 18. Other two cases were suspected but, as parasitological material was not available for analysis, they cannot be included as positive ones.

Characteristics of infection in the 4 cases are shown in the Table. The spontaneous elimination of the parasite, the absence of symptomatology in patients, the simple infestation and the ingestion of salmonids are epidemiologically in accordance with previous cases and with general characteristics of diphyllobothriosis in other parts of the world.²³

Presence of plerocercoids of *D. latum* and *D. dendriticum* in *Salmo trutta*, *Salvelinus fontinalis*, *S. salar* and *Oncorhynchus mykiss* of numerous water bodies between lake Huechulaufquen (39º46’S) and lake Rosario (43º15’S), including the provinces of Neuquén, Río Negro and Chubut,¹ le one presume their presence in the majority of waterbeds of the region. The great development of fishing sport in Patagonia and the prevalence of plerocercosis in different species of salmonids²³ would indicate that this illness is probably underdiagnosed in humans in that region.

Only 2 countries in South America, Chile and Argentina,⁵ have reported autochthonous human cases of diphyllobothriosis by *D. latum*. Presence of introduced salmonids in lakes, water temperatures and vicariant species of copepod enable this species cycle to develop in the southern temperate part of America, where human cases were described in both these countries in the beginning of the century.

The epidemiology patterns of some illnesses has been changing with the increase in demands and a larger

<table>
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<tr>
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<tr>
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<td>M</td>
<td>F</td>
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<td>Neuquén</td>
<td>Neuquén</td>
<td>Río Negro</td>
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</table>

*only part of strobila was recovered
distribution of raw (sushi, sashimi) and smoked ictic meat, which could have a subsequent economical and health impact as they can cause diphyllobothriosis.2,6

Therefore, an adequate sanitary education of the population and an appropriate diffusion seems to be the best strategy for controlling this illness.

REFERENCES

1. Cortelezzi E. Los protozoos y vermes parásitos: apuntes de parasitología. La Plata: Talleres Gráficos Sese; 1913.


