

Reexaminación paleoparasitológica de coprolitos de roedores procedentes de la Patagonia argentina considerando información parasitológica actual

Paleoparasitological reexamination of rodent coprolites from Argentinean Patagonia, considering current parasitological data

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Previous paleoparasitological studies were developed in Alero Mazquián an archaeological site located in the south of Chubut Province, Argentina. In those studies, coprolites from Cricetidae rodents (don't identified) were examined and three species of parasites were found (*Pterygodermatites* spp., *Trichosomoides crassicauda* and *Monoecocestus* spp.). Among these parasites, the trichosomoidids are zoonotic nematodes and, in this sense, the paleoparasitological studies will allow to understand the distribution of parasites in time and space.

Currently, new parasitological studies in sigmodontine rodents are being carried out in Santa Cruz Province, in an area near to that mentioned archaeological site. In this context, it is interesting to contrast the previously obtained results with the new information presented in the current study, to contributing to the interpretation of epidemiological models. This paper reexamines the identity of a nematode assigned to the family Trichosomoididae using morphological and molecular studies.

Materials and methods

Archaeological sample: coprolites were found in the archaeological site Alero Mazquián Chubut Province, Argentina. This deposit, associated with human occupation, was dated with a radiocarbon date of 212 ± 35 years before present. The samples were rehydrated in phosphate trissodium solution and submitted to spontaneous sedimentation as previously described.

Modern samples: feces from *Abrothrix olivacea* specimens and feces of other rodent species from the same region were studied. All samples were measured with a digital vernier caliper (± 0.1 mm). Three measurements were taken and compared with those obtained in the coprolites. Incomplete specimens of Trichosomoididae were isolated of the gastric mucosa from *A. olivacea*. The eggs were isolated from the female. Aliquots of the pellet were used for measuring and photographing mature eggs under an optical microscope.

The DNA extraction was performed according to Gasser et al., (1993) with modifications. For the molecular identification of adult stage, a fragment of cytochrome c oxidase subunit I mitochondrial gene (*co1*) was amplified by PCR. Negative PCR controls were added. The triplicates of the specific fragment were sequenced and the consensus was compared with the GenBank sequences by using the BLASTN algorithm of the National Center for Biotechnology Information (NCBI).

Results

The comparative study of feces (archeological and modern samples) from sympatric species of rodents indicated that the coprolites obtained could belong to *Abrothrix* spp. From archeological samples, eggs from Trichosomoididae and Rictularidae nematodes as well as from Anoplocephalinae cestodes were confirmed. However, the current study also reports the presence of *Trichuris* spp.

From modern samples of *A. olivacea*, Trichosomoididae nematode was found. The partial morphological study of adult specimens allowed the identification of generic level *Anatrichosoma* spp. In addition, the measurements of *Anatrichosoma* spp. eggs showed a similar morphological pattern to that of the archaeological sample.

The sequence here obtained (GenBank database AN: KF581196) showed 76% of identity with the only nucleotide sequence of *co1* available, *Anatrichosoma haycocki*, using BLAST. This result corroborates the generic belonging of the samples of Trichosomoididae studied (incomplete adult, and ancient and modern eggs) from a sigmodontine rodent in Patagonia.

Discussion

The reexamination of the coprolite samples corroborated previous findings and allowed to observe the presence of *Trichuris* spp.

Through morphological analysis of *A. olivacea*

modern samples, *Anatrichosoma* spp. (Trichosomoididae) were identified. And this result was supported by molecular analysis.

The molecular studies provide a new tool to integrate information obtained from modern samples and paleoparasitological data. Due to the conservation of archaeological sample, here we were unable to perform molecular analyzes from obtained eggs in coprolites.

The comparative analysis from archaeological and modern samples, considering the morphological and molecular data from specimen adults and eggs, suggest that the Trichosomoididae eggs found in the archaeological sample belonging to *Anatrichosoma* spp. previously attributed to *T. crassicauda*.

Since, the trichosomoidids are zoonotic nematodes the understanding about their correct identification and distribution in time and space will contribute to the interpretation of epidemiological models. The paleoparasitology contributes to know the history of parasite-host relationships and opens a new page to study the spatial and temporal dimension of parasitism. The emergence and reemergence of infectious diseases over time can be better understood with paleoparasitological studies

References

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15 años de formación en Salud Pública Veterinaria

15 Years of Veterinary Public Health Training

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La Residencia de Veterinaria en Salud Pública (RVSP) es un sistema de postgrado de capacitación en servicio creado en el año 1999 como parte de las Residencias del Equipo de Salud de la Dirección General de Docencia e Investigación del Ministerio de Salud del Gobierno de la Ciudad Autónoma de Buenos Aires, siendo su única sede de formación el Instituto de Zoonosis Luis Pasteur (IZLP). De esta manera, la RVSP constituyó la primera experiencia del país en un sistema de capacitación en servicio para la formación de veterinarios en el área de salud pública.

La RVSP trabaja en la prevención y control de distintas zoonosis urbanas utilizando como ejes de trabajo, la atención primaria de la salud, la vigilancia epidemiológica y la educación para la promoción de la salud. Siguiendo estas líneas de acción se capacita al veterinario residente en diferentes áreas de la salud pública incluyendo diagnóstico laboratorial de zoonosis, técnicas quirúrgicas de esterilización, desarrollo de proyectos comunitarios y de investigación, epidemiología, y diagnóstico y seguimiento de zoonosis urbanas.

Durante el proceso de formación se espera la sensibilización social del profesional, logrando que aspectos sociales no explorados en la formación de grado, sean abordados de manera interdisciplinaria y desde la visión de la salud como un proceso complejo y no sólo como la ausencia de enfermedad. Por otra parte, se promueve la integración de los residentes a equipos interdisciplinarios, articulando con distintos profesionales de la salud (médicos, enfermeras, nutricionistas, trabajadoras sociales, entre otros) y con la comunidad. El trabajo compartido con otras disciplinas requiere que el residente aprenda a trabajar de otro modo, redefiniendo problemáticas desde perspectivas que desde nuestra disciplina no se suelen plantear.

Se espera que, al completar su formación, el egresado de la RVSP cuente con un nivel de capacitación que le permita formar parte de centros o departamentos de zoonosis, de vigilancia epidemiológica o de programas específicos de temáticas sanitarias, ya sea en el ámbito oficial como en el privado.

El objetivo del presente trabajo fue describir la RVSP respecto a los ejes de acción y la inserción laboral al finalizar la residencia, relevando la capacidad formadora del mismo a través de 15 años de historia.