



European Union Reference Laboratory for Parasites

Unit of Foodborne and Neglected Parasitic Diseases

Department of Infectious Diseases

ISTITUTO SUPERIORE DI SANITÀ

Uncommon findings at the EURL-Parasites in 2025



XX Workshop of National Reference Laboratories for Parasites

28th and 29th October 2025

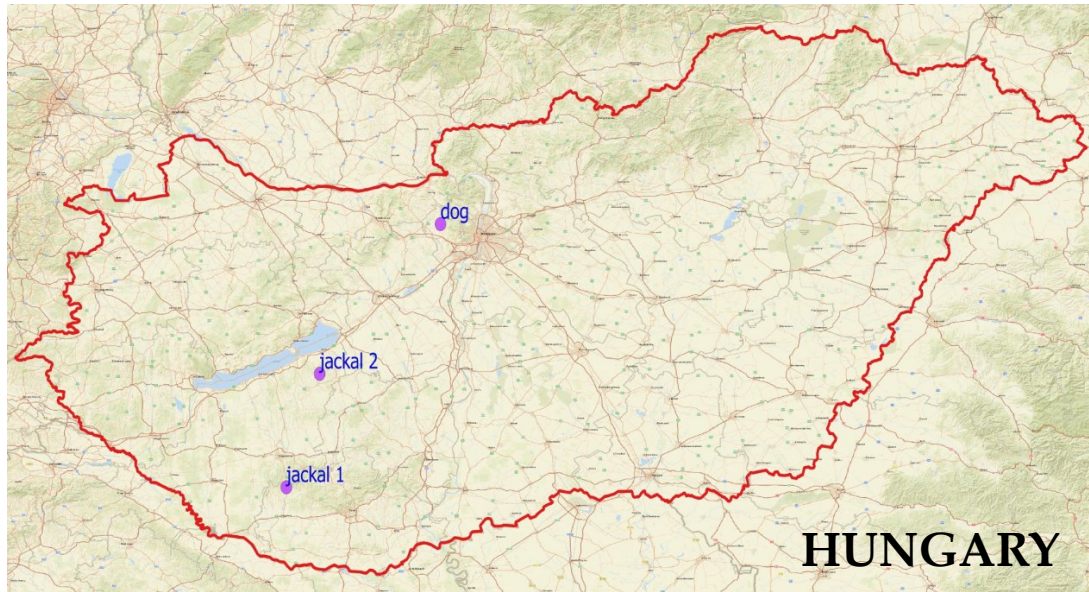
Istituto Superiore di Sanità

European Union Reference Laboratory for Parasites (EURLP);

WHO Collaborating Centre for the Epidemiology, Detection and Control of Cystic and Alveolar Echinococcosis;

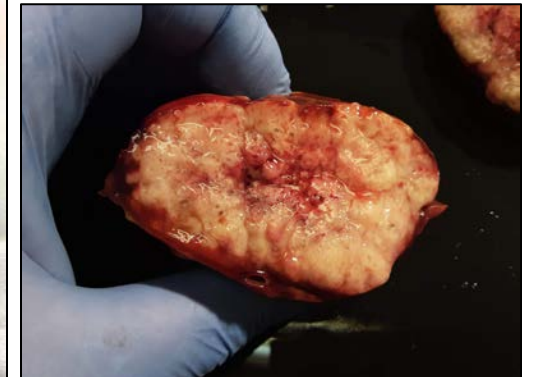
ISTITUTO SUPERIORE DI SANITÀ (Rome, Italy)

1. ALVEOLAR ECHINOCOCCOSIS IN GOLDEN JACKALS



Collections of AE liver lesions, in 2022 and 2025, respectively, from two females of *G. jackals*.

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Institute of Physiology and Animal Nutrition, Kaposvár Campus,
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1.

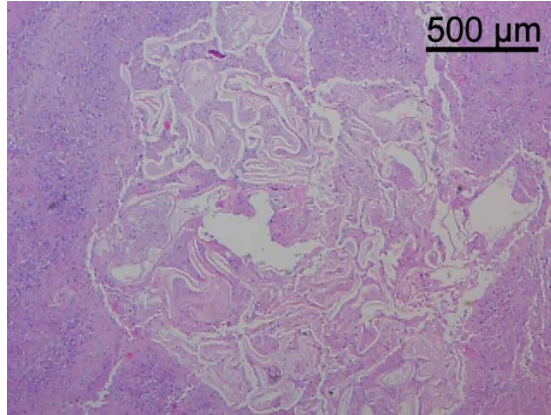
ALVEOLAR ECHINOCOCCOSIS IN GOLDEN JACKALS

- Both animals were lactating
- **jackal1** (3.5 years old) was slightly underweight, but her condition may have been the result of lactation
- **jackal2** (2.5 years old) was in good condition
- no *E. multilocularis* in their small intestines
- localisation: liver (both cases)
 - in jackal1, only one lesion
 - in jackal2, four lesions
- no protoscolices

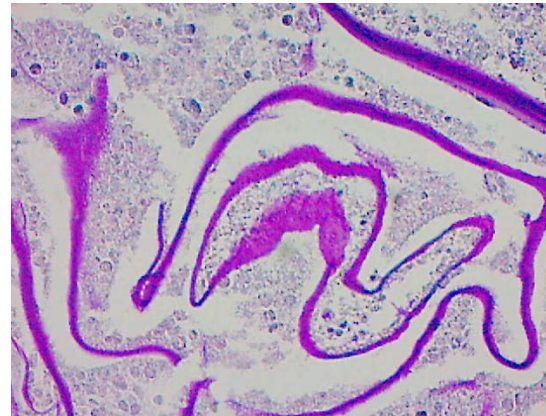
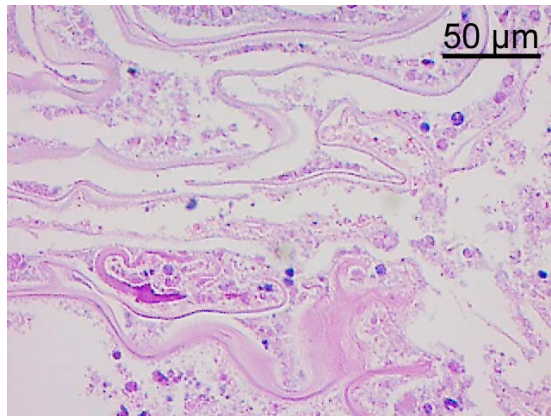
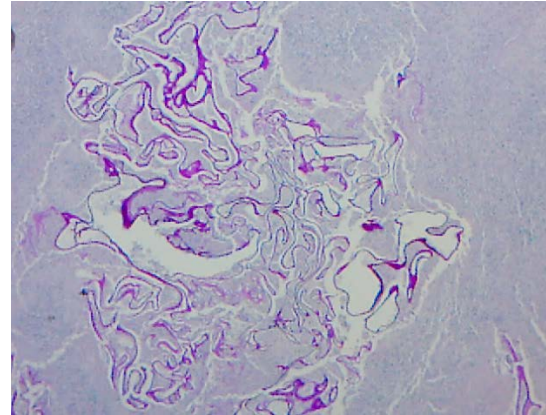


1. ALVEOLAR ECHINOCOCCOSIS IN GOLDEN JACKALS

H&E



PAS



FFPE samples and Ethanol-preserved debris sent to EURLP together with a DNA sample from a dog* for comparison.

*Collected by Tamás Sréter, National Centre for Public Health and Pharmacy, Budapest, Hungary

1.

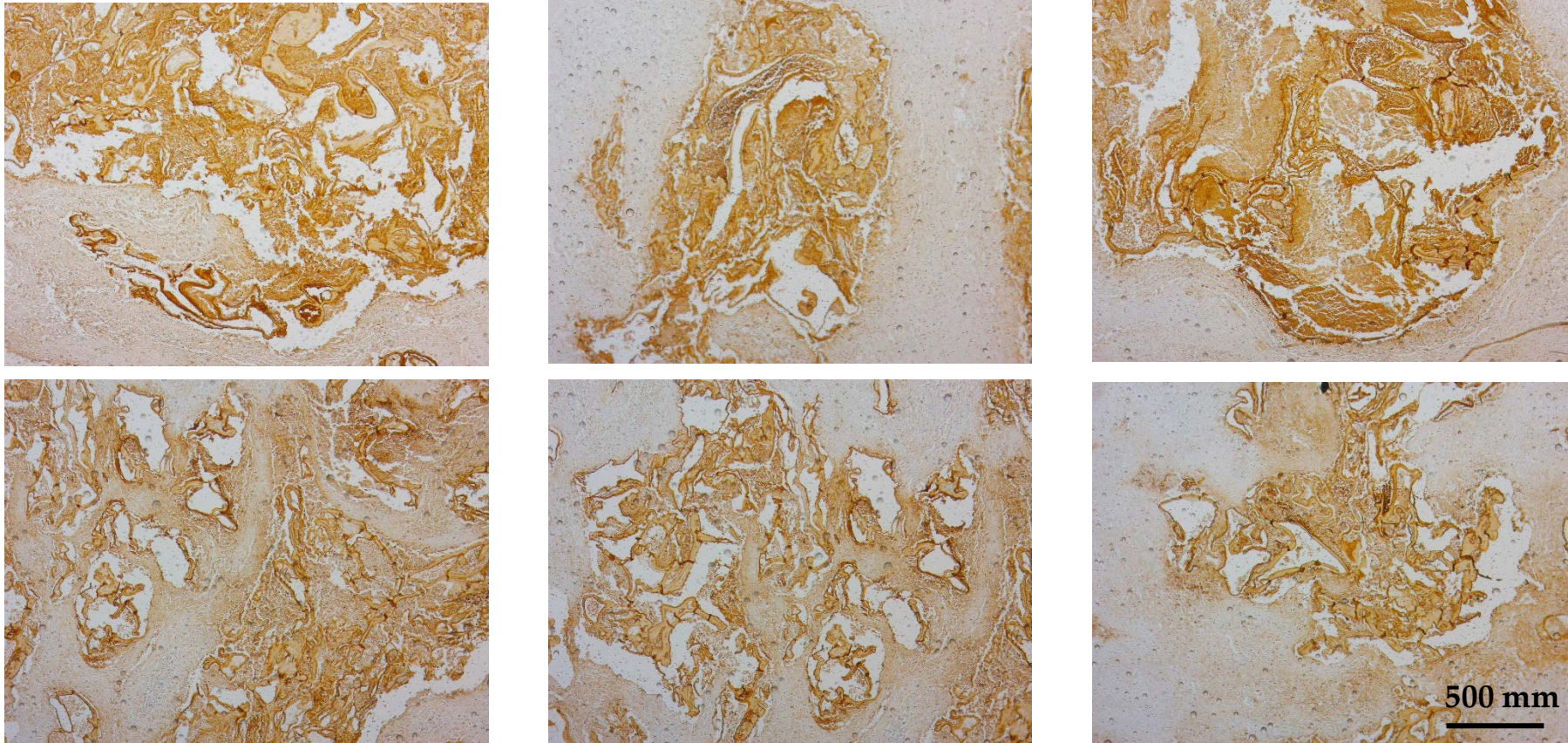
ALVEOLAR ECHINOCOCCOSIS IN A DOG

dog (8 years old female):

- no data on her chronic diseases and body condition
- no data on the presence of *E. multilocularis* in the small intestine
- she was never abroad (autochthonous infection)
- localisation: peritoneum, four lesions
- presence of protoscoleces

1. ALVEOLAR ECHINOCOCCOSIS IN GOLDEN JACKALS

AE-CA



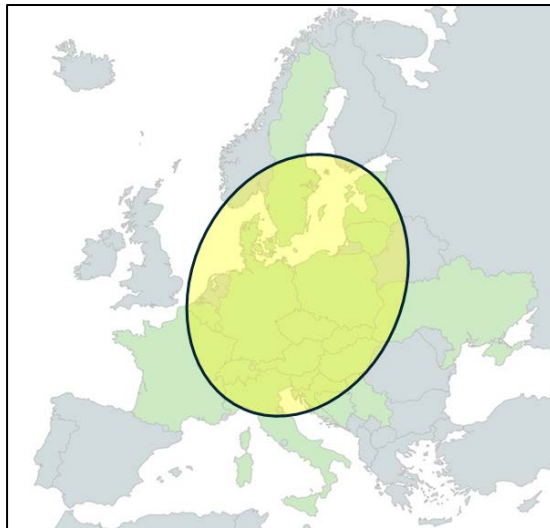
Immunohistochemistry with the monoclonal antibody mAbEm2G11

Test and photos by Antonio Di Grazia

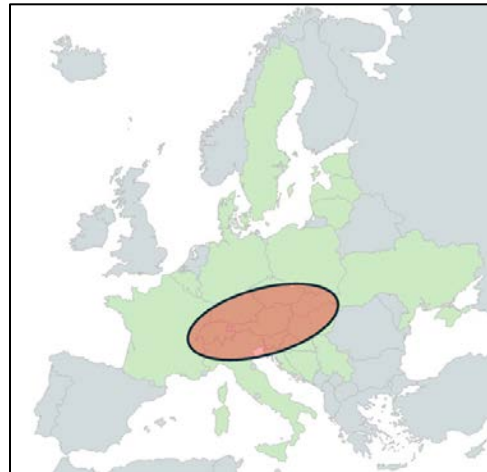
1. ALVEOLAR ECHINOCOCCOSIS IN GOLDEN JACKALS

PCR and sequencing of mitochondrial genes (*cob*, *atp6*, *nad2*, *nad1*, *cox1*, 4968bp)

Common European haplotypes:
For the two jackals H2



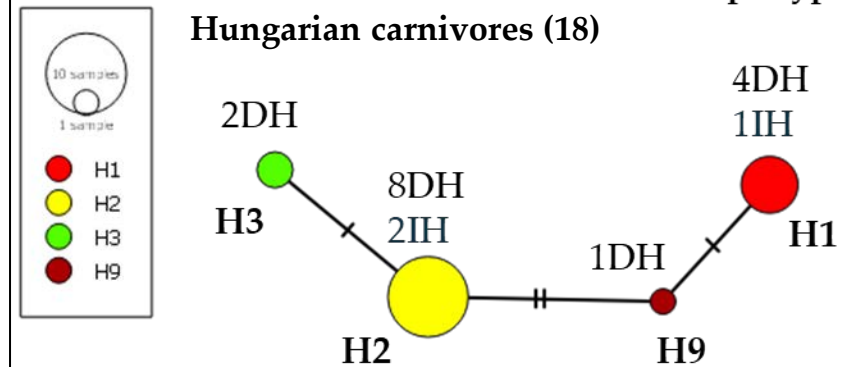
For the domestic dog is H1



Both haplotypes were previously found in Hungary.

The haplotypes identified in the jackals and in the dog, respectively, correspond to those detected in red foxes from the same regions.

Genetic relationship among Em haplotypes in Hungarian carnivores (18)



1.

ALVEOLAR ECHINOCOCCOSIS IN GOLDEN JACKALS

Alveolar echinococcosis is not that uncommon in domestic dogs while it is rarely described for wildlife carnivore. In domestic dogs the progression is thought to be faster than other aberrant host (like humans).

Acta Parasitologica (2022) 67:1401–1406
<https://doi.org/10.1007/s11686-022-00556-y>

CASE REPORT

First Report of Alveolar Hydatid Disease (*Echinococcus multilocularis*) in a Golden Jackal (*Canis aureus*)

Darko Marinković¹ · Pavle Gavrilović²  · Dejan Vidanović³ · Duško Ćirović⁴ · Milica Kuručki⁴ · Nikola Vasković³
Milan Aničić¹

2022 yearling Golden jackal female in Serbia found infected with *E. multilocularis* abdominal mass.

Routes of transimission?:

Hypthesis: 1. eggs, via contaminated food or coprofagia 2. autoinfection secondary to intestinal infection with adult tapeworms (not in these cases).

Golden jackals (*Canis aureus*) exhibit a highly diverse and opportunistic diet, being omnivorous and well adapted to the resources available in their environment.

Jackals, who can easily be exposed due to their dietary habits, are likely to serve as aberrant hosts when encountering high concentrations of *E. multilocularis* eggs in the wild environment. They may therefore serve as indicators of environmental infection pressure.

2.

UNCOMMON HUMAN NEURO-CYSTICERCOSIS

2025: 72 years old woman with frequent headaches was found with cerebral lesion presented at ASST 'Papa Giovanni XXIII', in Bergamo (Northern Italy).

The mass was removed.

Laboratory evaluation included cysticercosis/echinococcosis in the differential diagnosis. Western blot for *T. solium* showed unspecific banding.

Cerebrospinal fluid, serum, and FFPE tissue were sent to EURLP for further analysis.

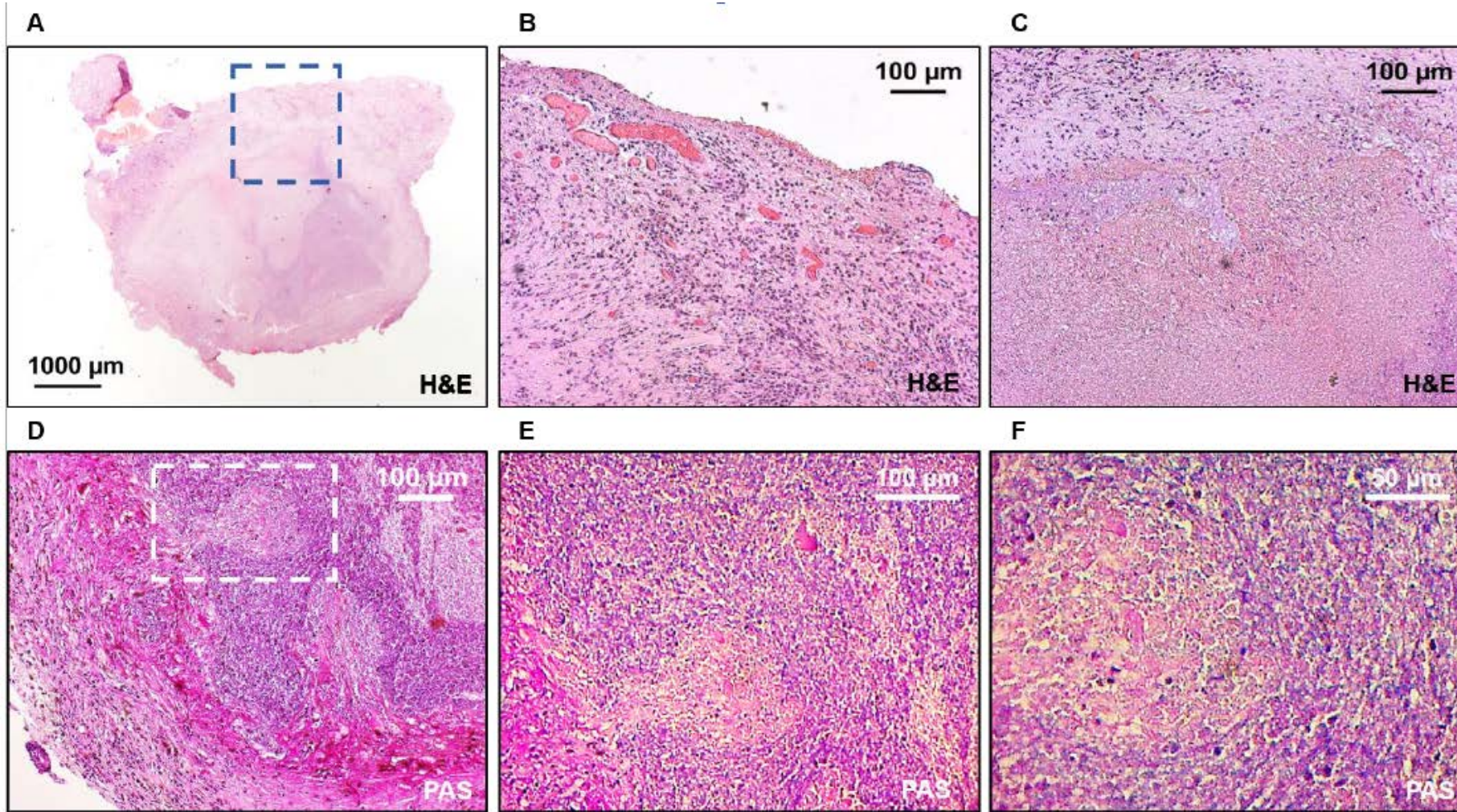
All examinations for *Echinococcus* spp. infection were negative (serology, IHC, molecular biology)

The Western blot for *T. solium* was clearly negative.

coniugato anti-umano 1/3000				
Data: 26/02/2025				
	E1	E2	E3	E4
N . E1 CTR+Kit LDBIO				
N. E2 Bellotti-Maria Liquor ric 25-02-2025				
N.E3 CTR+ Kit LDBIO				
N.E4 Bellotti-Maria siero ric.25-02-2025				
	+ C	25/0355 Neg	+ C	25/0353 Neg

2.

UNCOMMON HUMAN NEURO-CYSTICERCOSIS

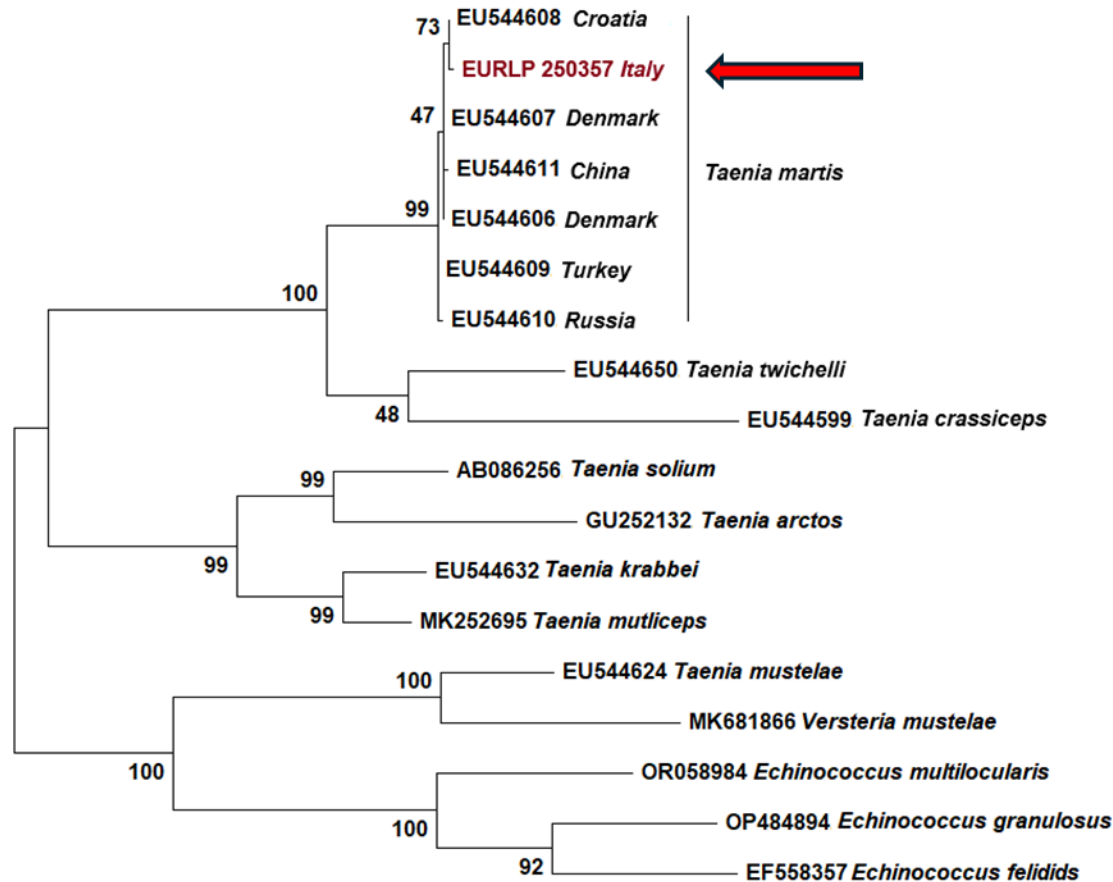


A, B, C: H&E
D, E, F: PAS staining

A strongly PAS-positive rim enclosed a necrotic core with cylindrical structures (~10–15 µm), possibly larval elements of *Taenia* spp. No hooks or rostellum visible.

PRO-CYSTICERCOSIS

PO
A



0,050

NAD1 ML tree

12s.

orthologue sequences of *Taenia martis*.



From the epidemiological questionnaire:

- first residence in an urban area owning a vegetable garden;
- consumption of eggs purchased from a local producer;
- second residence in a mountain area;
- hiking;
- no contact with pets, rodents, or mustelids;
- not collecting/eating berries during excursions;
- drinking spring water during excursions;

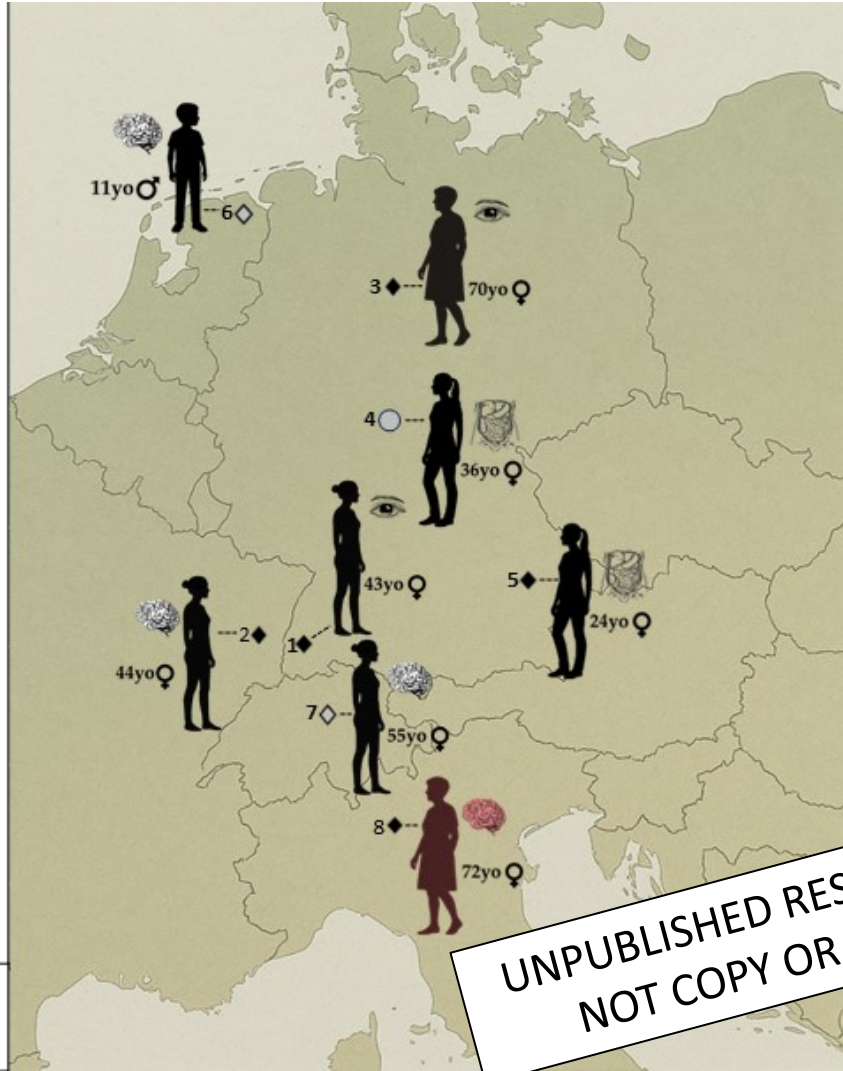
2.

***TAENIA MARTIS* HUMAN NEURO-CYSTICERCOSIS**

Case N., Anatomical location, year, geographical annotation, Reference.

1. Ocular cysticercosis, 2010, Freiburg im Breisgau (Germany), Eberwein et al., 2013.
2. Neurocysticercosis, 2012, French Vosges (France), Brunet et al., 2015.
3. Ocular cysticercosis, 2015, Hannover (Germany), Koch et al., 2016.
4. Peritoneal cysticercosis, unspecified, not mentioned (Germany), Rudelius et al., 2017.
5. Peritoneal cysticercosis, 2019, Regensburg (Germany), Mueller et al., 2020.
6. Neurocysticercosis, 2020, Groningen (The Netherlands), Eggink et al., 2024.
7. Neurocysticercosis, unspecified, Lucerne (Switzerland), Steinsiepe et al., 2023.
8. Neurocysticercosis, 2023, Bergamo (Italy), this study.

- ◆ Patient's geographical origin
- ◇ Patient's referral clinical center
- No information.



8° case documented

7/8 women

Risk factors:

- Living near
- Recreational activities
- F

TAKE HOME MESSAGE



To consider less common *Taenia* species as potential causes of NCC, particularly when serological tests are negative or inconclusive despite a clinically suggestive presentation.

UNPUBLISHED RESULTS, DO NOT COPY OR SHARE

Thanks for your attention



WHO Collaborating Centre: Epidemiology,
Detection and Control of Cystic and
Alveolar Echinococcosis (*One Health*)



European Union Reference Laboratory
for Parasites (EURL-P; food safety)

1.

E. MULTILOCULARIS IN WILD CARNIVORES

- two country-wide monitoring, only foxes were sampled, overall prevalence 10.7% (2008), 7.9% (2012), (Tolnai et al., 2013, doi: 10.1016/j.vetpar.2013.09.004)
- 2016-2020, Somogy County, 173 jackals, prevalence 15.6%, (Balog et al., 2021, doi: 10.1016/j.parint.2020.102214)



- 2021-2022, Somogy and Baranya Counties, 197 red foxes, 194 golden jackals,
 - prevalence 15.5% (fox), 21.1% (jackals)
- (Moloi et al., 2023, doi: 10.1038/s41598-023-46632-9)



1.

E. MULTILOCULARIS IN WILD CARNIVORES

Conclusion:

in the sub-Mediterranean regions, the infection rate of *E. multilocularis* was doubled in the previous decade, which may be due to the intensive expansion of the golden jackal population in South Transdanubia (Somogy and Baranya Counties)

Trend of the golden jackal's hunting bag for Hungary as a whole (green) and the South Transdanubian region (blue).

(Source: Csulak et al., 2024, doi: 10.1038/s41598-024-83119-7)

