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Strigea robusta (Digenea: Strigeidae) infection effects on the gonadal structure and limb malformation in toad early development

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Аннотация

The anomaly P is a mass morphological anomaly reported in some water frog populations across Europe. It was found that polydactyly is only a mild attenuated form of heavy cases of the anomaly P syndrome, which have strong deformations of the hindlimbs and, partly, forelimbs. It was shown that the anomaly P is caused by the trematode *Strigea robusta* and this syndrome can be considered as a special case of strigeosis in amphibians. The anomaly P for a long time considered to be specific for water frogs of the genus *Pelophylax*. Herein, we describe polydactyly and heavy forms of the anomaly P syndrome in toads of the genera *Bufo* and *Bufotes*, as a result of exposure to *S. robusta* cercariae. A total of 150 tadpoles of *Bufo bufo*, 60 tadpoles of *Bufotes viridis*, and 60 tadpoles of *Bufotes baturae* were divided into five experimental and four control groups (30 tadpoles in each group). All anomalies in the toads were similar to those observed in water frogs. The survival of tadpoles in the experimental groups was 76%. The anomaly P was observed in 57.9% of toad tadpoles (51.8% of mild forms and 6.1% of heavy forms). The occurrence of the anomaly P varied among groups from 19% to 78%. Heavy forms of the anomaly P were found in all experimental groups. We described rare asymmetrical cases of the anomaly P. According to severe modification of limb morphology, we supposed changes of gonadal morphology (any modifications of the germ and somatic cells). The gonadal development of infected tadpoles was however the same as in uninfected toad tadpoles, and heterochromatin distribution within gonocytes had no differences as well. It seems like the parasite doesn't have any effect on the gonadal development of the toads. The lack of heavy forms in natural populations of toads, as well as a development of gonads were discussed.

Ключевые слова

Ключевые слова автора: anomaly P; *Bufo*; *Bufotes*; host-parasite interactions; limb deformities; morphology; palaearctic toads; *Strigea robusta*; trematode; trematode-induced malformations

Keywords Plus: TREMATODE INFECTION; DISEASE RISK; HOST; POPULATION; INFESTATION; DIVERSITY; EVOLUTION; GASTROPOD; PATTERNS; DECLINES

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