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FATAL COWPOX VIRUS INFECTION IN COTTON-TOP TAMARINS (*SAGUINUS OEDIPUS*) IN GERMANY

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Purpose

A group of cotton-top tamarins in a zoological garden in Germany died rapidly, and an infectious disease was suspected. The preliminary investigation including gross pathology resulted in the suspicion of an orthopox virus (OPV) infection.

Methods

Virus isolation (vero cells, embryonating chicken eggs) and molecular analyses (real-time PCR, sequencing) was performed with samples from one of the deceased animals.

Results

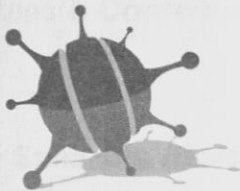
Cowpox virus (CPXV) could be identified as the etiological pathogen. Oropharyngeal swab samples revealed a high genome load with a Cq-value of 17 (about $10^{7.5}$ OPV-genome copies). Interestingly, oropharyngeal swab samples from healthy common marmosets living next door to the diseased tamarins were also OPV-genome positive but with markedly lower genome loads (Cq 29 to 36). Rodents trapped one month later in the vicinity of the zoo were all negative for OPV-genome and -CPXV-specific antibodies. The CPXV isolated from the PCR-positive samples exhibited a unique hemagglutinin sequence and clustered with a database sequence from a human isolate. Determination of the pathogenicity in a wistar rat model characterized the isolate as avirulent and there was no transmission to wistar rats in contact.

Conclusions

Our case report indicates a very high vulnerability of cotton-top tamarins to CPXV-infection and also proves the efficiency of OPV diagnostics. While the introduction of CPXV to the tamarins could not be directly connected with any rodents, alternative routes, e.g. via the subclinically infected marmosets, have to be considered. The missing transmission between wistar rats under experimental conditions further supports this suggestion.

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