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CASE REPORT

Prosthetic Valve Endocarditis Caused by a Pasteurella dagmatis-Like Isolate Originating from a Patient’s Cat

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Pasteurella species are part of the oral flora of cats and dogs. In humans, they are frequently found in infected animal bite wounds, but invasive infections are rare. This is the first report of prosthetic-valve endocarditis with a Pasteurella dagmatis-like species, which originated from the patient’s cat.

Human infections with Pasteurella species are most often caused by dog and cat bites resulting in locoregional infections. Pasteurella multocida is the most frequently isolated species; P. dagmatis has been isolated in only 4 to 7% of cases (1, 15). Systemic disease is uncommon and mostly occurs in patients with underlying comorbidities (17). Association of P. dagmatis with invasive human infection is exceedingly rare. We found 10 published cases to date, including two cases of native valve and one case of prosthetic valve endocarditis (2, 3, 5–8, 10, 12, 14, 16). In 8 out of 10 cases, direct contact with cats or dogs was confirmed. Ways of contact were bites, scratches, licking, or simply close animal contact. In all three cases of endocarditis, P. dagmatis was identified by conventional biochemical methods that do not differentiate between other, closely related Pasteurella species. The common risk factors for invasive infections or endocarditis were either a predisposing heart disease or an immunocompromised host. It can be concluded that detailed patient interviewing with

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regard to animal contacts and knowledge of the association of *Pasteurella* species and endocarditis are the clues to diagnosis.

*Pasteurella* species of animal origin are often misidentified using commercial phenotypic identification systems since these focus on clinically relevant species. For exact identification, additional molecular diagnostic tests may be necessary (9). Nevertheless, as seen in our case, even 16S rRNA gene-based identification can be misleading if GenBank entries are associated with wrong species designations. Besides a high similarity of our clinical isolate with *P. dagmatis*-like species, a 100% match was seen with the 16S rRNA GenBank entry AF224296 of *P. pneumotropica* NCTC 10827. However, this strain is wrongly assigned to the species *P. pneumotropica*, since its 16S rRNA gene shows only 93.6% similarity to that of the *P. pneumotropica* type strain (GenBank accession no. AY362924). In fact, Selley et al. (13) showed that *P. pneumotropica* NCTC 10827 is part of the same taxonomic group as the *P. dagmatis*-like isolates they described. *P. dagmatis*-like strains, including our human isolate, form a monophyletic group closely related to—but still distinct from—*P. dagmatis* and might define a new *Pasteurella* species (13). Similar observations were made by Krol et al. (11), who postulate that *P. dagmatis* is a genetically heterogeneous species with at least two host-specific lineages. Our case further supports the existence of a *P. dagmatis*-like species associated with cats.

In conclusion, this is the first report of a *Pasteurella dagmatis*-like species isolated from a human. This putative new species is part of the oral flora of cats, and infections may develop in patients with close contact to pet animals, even without a history of bites or scratches. In our patient, it caused severe invasive disease with prosthetic-valve endocarditis, leading to aortic valve and aorta ascendens replacement. The species was misidentified by commercial phenotypic systems. The case also highlights that genetic identification based on 16S rRNA gene sequences has to be assessed carefully due to possible wrong species designations associated with GenBank entries.

**Nucleotide sequence accession number.** The 16S rRNA gene sequence of isolate 400127/2011 was deposited in GenBank under accession no. JF706218.

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**REFERENCES**


![FIG 1 Pulsed-field gel electrophoresis after DNA digestion with XbaI, demonstrating identity of the *Pasteurella dagmatis*-like isolates from the human patient and the cat’s oral cavity (two morphotypes). The independent *P. dagmatis*-like strain JF5098 and the *Pasteurella pneumotropica* type strain DSM 21403T were used as controls.](jcm.asm.org/2819)