Thumb Infection Caused by *Streptococcus pseudoporcinus*

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CASE REPORT

A 33-year-old male patient presented to the Primary Care/Internal Medicine Clinic at the Veterans Affairs Puget Sound Health Care System in Seattle, WA, in June 2006 after he caught his right thumb in a car door the day before. The thumb was painful, with a hematoma under the nail plate, but not fractured. A hole was punched into the nail plate to assist reattachment. The thumb wound was taped with gauze, and the patient was discharged. Eight days later, the patient returned to the clinic with increased right thumb nail pain and an exudate that could be expressed from the wound. The patient did not have a fever or other systemic symptoms. The nail was discolored under the nail plate but the infection did not extend beyond the nail plate. The patient did not have a fever or other systemic symptoms. Purulence from the wound was sent to the clinical microbiology laboratory for Gram stain and aerobic culture. The patient was discharged with a 10-day course of a antibiotic for wound purulence. The next day, after incubation at 35°C in a 5% CO₂ atmosphere, there were many (>100) large, wide-zoned beta-hemolytic colonies present as the only isolate. The gram-positive cocci in chains were catalase negative and reacted with the PathoDx Group B reagent (Remel, Lenexa, KS) but not the Streptex group B reagent (Remel). The organism was Voges-Proskauer and pyrrolidonyl arylamidase positive, did not hydrolyze hippurate, and had a slight increase in beta-hemolysis with the CAMP test (using *Staphylococcus aureus* ATCC 29212). The isolate was sensitive to all antibiotics tested except tetracycline. The platelets were transfused to a patient and no transfusion reaction was recorded (14). Analysis of the first 500 bp of the 16S rRNA gene sequence indicated that our isolate was identical at all but one position to the *S. pseudoporcinus* strains identified by Bekal et al. and had a 17-bp difference from *S. porcinus* (1). In the first 500 bp, there are 17 mismatches with *S. porcinus* (1); a difference of over 3% is often considered sufficient to separate genera and thus, of course, species (3).

The phenotypic characteristics of *S. pseudoporcinus*, *S. porcinus*, *S. uberis*, and *Streptococcus agalactiae* (group B streptococcus) are shown in Table 1. Because *S. pseudoporcinus* is a betahemolytic streptococcus and can be CAMP and Lancefield group B positive and is isolated from the human female genitourinary tract, it could be confused with *S. agalactiae*. However *S. agalactiae* has a narrow zone of beta-hemolysis, is hippurate hydrolysis positive, is bile esculin
hydrolysis negative, and does not produce acid from man- 
nitol or sorbitol, unlike both \textit{S. pseudoporcinus} and \textit{S. por-
cinus}. \textit{S. uberis} differs from \textit{S. pseudoporcinus} in that it is 
either nonhemolytic or is alpha-hemolytic and is hippur-
lysis positive (11).

\textit{S. pseudoporcinus} and \textit{S. porcinus} are phenotypically very 
similar. Fourteen of 15 reported strains of \textit{S. pseudoporcinus} 
reacted with group B antibody from the PathoDx Strep typing 
test, and our strain did too (8). \textit{S. porcinus} is nearly always 
 Voges-Proskauer positive, while only about half of the de-
scribed \textit{S. pseudoporcinus} strains have been Voges-Proskauer 
positive (7). 16S rRNA gene sequencing may be required to 
definitively differentiate \textit{S. pseudoporcinus} from \textit{S. porcinus}. 
Isolates that are phenotypically identified as \textit{S. porcinus} should 
be sequenced to determine if the isolate is in fact \textit{S. pseudoporcinus}. 
We have described a rare case of a non-female genitourinary tract 
infection caused by \textit{S. pseudoporcinus}. \textit{S. pseudoporcinus} is an 
organism found in the urogenital tract of women. The thumb 
infection in this patient we think was caused after a trauma to 
the thumb allowed entrance of the organisms, most likely origin-
ating from his wife’s vagina. Once inoculated into the traum-
matized tissue, the organism did elicit an inflammatory re-
ponse, as indicated by the considerable purulence.

**Nucleotide sequence accession number.** The sequence of the 
\textit{S. pseudoporcinus} isolate from this study has been deposited in 
GenBank under accession no. FJ550603.

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### TABLE 1. Phenotypic characteristics of our \textit{S. pseudoporcinus} isolate and \textit{S. porcinus}, \textit{S. dysgalactiae}, \textit{S. agalactiae}, and \textit{S. uberis}

<table>
<thead>
<tr>
<th>Phenotypic characteristic</th>
<th>\textit{S. pseudoporcinus}</th>
<th>\textit{S. porcinus}</th>
<th>\textit{S. dysgalactiae} subsp. \textit{equisimilis}</th>
<th>\textit{S. agalactiae}</th>
<th>\textit{S. uberis}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our isolate</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Isolates described in the literature</td>
<td>–</td>
<td>+</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Data are from references 1, 2, 4–8, and 11–13. +, positive; –, negative; v, variable. ND, not determined. All strains on this table ferment trehalose and are leucine aminopeptidase positive.

\textsuperscript{b} From the literature and four in-house strains.