



Letter to the Editor

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Breast abscess due to *Trueperella bernardiae* and *Actinotignum sanguinis*

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Sir,

Trueperella bernardiae is a facultative anaerobic gram-positive coccobacillus which is part of the normal microbiota of human skin and the oropharynx. This microorganism has been reported in only few cases of human infection, especially in wound and prosthetic joint infections [1-3]. On the other hand, *Actinotignum sanguinis* is a small facultative anaerobic gram-positive rod which forms part of the normal urogenital flora. They grow slowly and especially under anaerobic or in atmosphere enriched with CO₂. *Actinotignum* species have been rarely associated with urinary tract infections [4] and bacteremia [5].

We report a rare case of breast abscess caused by these two pathogens. To our best knowledge, this is the first report of breast abscess caused by these two microorganisms together. Table 1 shows all published cases of *T. bernardiae* and/or *A. sanguinis* infections.

A 39-year-old woman refers ten days history of pain and local swelling in her right breast. Her clinical history was unremarkable, and she was in treatment with cloxacillin (1g /8h) for seven days. The abscess was drained by puncture and the fluid obtained sent to the microbiology laboratory for culture. The sample was inoculated in blood agar (both aerobic and anaerobic) (BD Columbia Agar 5% Sheepblood®, Becton Dickinson) chocolate agar (BD Choco Agar, Becton Dickinson), thioglycolate broth (BD™ Fluid Thioglycolate Medium, Becton Dickinson), Mannitol agar (BD Mannitol Salt, Becton Dickinson) and MacConkey (BD Mac Conkey II, Becton Dickinson).

Gram stain of the abscess showed gram positive bacilli, and on the second day of incubation two types of colonies

grew on both aerobic and anaerobic blood agar and chocolate agar. They were identified with MALDI-TOF MS (Bruker Biotyper, Billerica, MA, USA) as *Trueperella bernardiae* (score 2,13) and *Actinotignum sanguinis* (score 2,22). The MIC of different antibiotics was carried out by the E-test method in Brucella agar supplemented with hemin, vitamin K1 and lacked sheep blood incubated at 37°C. As no specific clinical breakpoints have been established for *T. bernardiae* and *A. sanguinis*, we used the EUCAST PK/PD (non-species related) clinical breakpoints. *T. bernardiae* was susceptible to ciprofloxacin (0.5 mg/L), gentamicin (1.5 mg/L), imipenem (0.016 mg/L), linezolid (0.25 mg/L), penicillin (0.032 mg/L), rifampicin (<0.016 mg/L), tetracycline (0.094 mg/L), vancomycin (0.19 mg/L), and resistant to trimethoprim-sulfamethoxazole (>32 mg/L), clindamycin (1 mg/L) and erythromycin (1 mg/L). *A. sanguinis* was susceptible to ciprofloxacin (0.5 mg/L), gentamicin (<0.016 mg/L), linezolid (0.047 mg/L), penicillin (<0.016 mg/L), vancomycin (<0.016 mg/L), and resistant to trimethoprim/sulfamethoxazole (>32 mg/L), clindamycin (>256 mg/L) and erythromycin (>256 mg/L). Antimicrobial treatment was changed to amoxicillin-clavulanic (875/125 mg/8h) for 10 days, and at three months of follow-up the woman was asymptomatic.

The diagnosis of *T. bernardiae* and *A. sanguinis* is based on culture of an adequate sample. Identification using conventional laboratory methods could be difficult and when isolated in clinical samples these microorganisms are usually not identified, especially *T. bernardiae* due to its coryneform aspect. The recent introduction of mass spectrometry for routine analysis in the clinical laboratories may help in the final identification of these pathogens, and can help to know the true incidence of infections with these bacteria. For this reason it is highly recommended to use the MALDI-TOF method for identification.

Overall, drug resistance in *T. bernardiae* and *A. sanguinis* may be not considered still a problem. According to different studies, *T. bernardiae* was susceptible to all antimicrobials tested, except to ciprofloxacin [6, 7]. On the other hand, the genus *Actinotignum* has demonstrated high

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Table 1 Cases with infection caused by *Trueperella bernardiae* and/or *Actinotignum sanguinis*.

Patient (year of publication) Author	Age (years)/sex	Microorganism	Localization of infection	Microbiological diagnosis
1 (1996) Ieven M	69/M	<i>Actinomyces bernardiae</i>	Urinary tract	Urine, perirenal abscess and necrotic tissue cultures Blood culture (+)
2 (1998) Adderson EE	19/F	<i>Arcanobacterium bernardiae</i>	Hip	Synovial fluid culture
3 (1998) Lepargneur JP	75/M	<i>Arcanobacterium bernardiae</i>	Urinary tract	Urine culture
4 (2009) Bemer P	63/M	<i>Arcanobacterium bernardiae</i> <i>Staphylococcus aureus</i>	Knee	Intraoperative specimen
5 (2009) Loiez C	78/M	<i>Arcanobacterium bernardiae</i>	Hip prosthesis	Intraoperative specimen
6 (2010) Sirijatuphat R	60/M	<i>Arcanobacterium bernardiae</i>	Kidney Pleura	Perinephric drainage culture
7 (2010) Clarke TM	62/F	<i>Arcanobacterium bernardiae</i> <i>Morganella morganii</i>	Skin abscess	Abscess and tissue cultures
8 (2011) Weitzel T	72/F	<i>Arcanobacterium bernardiae</i>	Blood	Blood cultures (+)
9 (2013) Otto MP	78/F	<i>Trueperella bernardiae</i> <i>Bacteroides fragilis</i> <i>Enterococcus avium</i>	Wound	Ulcer culture Blood cultures (+)
10 (2015) Parha E	68/F	<i>Trueperella bernardiae</i> <i>Peptoniphilus harei</i>	Brain	Abscess culture
11 (2015) Schneider UV	45/M	<i>Trueperella bernardiae</i> <i>Peptoniphilus lacrimalis</i>	Skin ulcers	Ulcer tissue culture
12 (2016) Rattes ALR	24/F	<i>Trueperella bernardiae</i>	Wound	Umbilical secretion culture
13 (2016) Gilarranz R	73/F	<i>Trueperella bernardiae</i>	Knee prosthesis	Synovial fluid Blood cultures (+)
14 (2016) VanGorder B	77/F	<i>Trueperella bernardiae</i>	Skin	Drainage abscess culture
15 (2017) Cobo F	69/F	<i>Trueperella bernardiae</i>	Wound	Wound secretion culture
16 (2017) Cobo F	70/F	<i>Trueperella bernardiae</i> <i>Escherichia coli</i>	Inguinal granuloma	Wound secretion culture
17 (2017) Pedersen H.	NR	<i>Actinotignum sanguinis</i>	Blood	Blood cultures (+)
18 (PR/2018) Calatrava E	39/F	<i>Trueperella bernardiae</i> <i>Actinotignum sanguinis</i>	Breast abscess	Drainage abscess culture

M: male; F: female; NR: not reported; PR: present report

susceptibility to β -lactams and vancomycin [5]. In other study, 12 isolates of *Actinotignum* spp. were susceptible to penicillin [8]. However, treatment of choice for these microorganisms has not been clearly established due to the scarcity of data and the absence of breakpoints for these bacteria. Further studies are necessary in order to establish the best therapeutic option.

In summary, it is still unknown the true clinical implications of *T. bernardiae* and *A. sanguinis*, but with the gener-

alized use of MALDI-TOF in the majority of laboratories, the diagnosis of these pathogens implicated in human infections probably will increase. Microbiologists should be aware of these microorganisms especially if the new diagnostic techniques area applied.

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None to declare

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest

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