A limitation of this study is the low number of patients. Still, this series is the largest single-centre series described in the literature. Overall, some 70 cases were described in the literature before this series. The reason why our centre has such a large series to describe is open for debate. The general rate of PVE is no higher than in other centres. Most likely, the attention for this pathogen as a substrate for new paravalvular leakage plays a role. This presumption would imply that *P. acnes* PVE does occur more often, but would be undetected in many cases. This could be attributed to both the latency of this micro-organism in clinical features and the prolonged culture time it needs.

**CONCLUSION**

Patients with prosthetic valve surgery in their medical history are at risk for *P. acnes* endocarditis. Therefore, if such a patient presents with a new paravalvular leak, *P. acnes* PVE should be in the differential diagnosis and it should be checked with the laboratory where the cultures are incubated for an appropriate time of 14 days. Therapy generally consists of redo surgery, combined with antimicrobial therapy consisting of penicillin with or without rifampicin. Follow-up of the patients shows favourable outcomes, with improved ventricular function, no valvular revisions and low mortality. Good cooperation between the cardiologist, surgeon and microbiologist is important to treat these patients appropriately.

**SUPPLEMENTARY MATERIAL**

Supplementary material is available at ICVTS online.

**Conflict of interest:** none declared.

**REFERENCES**


[15] Durupt S, Boibieux A, Ballet-Mechain M, Chaumontin G, Tremgeau, R. van Valen, C. H. P. acnes PVE does occur more often, but would be undetected in many cases. This could be attributed to both the latency of this micro-organism in clinical features and the prolonged culture time it needs.


eComment. Towards better understanding and management of Propionibacterium acnes in cases of prosthetic valve endocarditis

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We read with great interest the paper by van Valen and his colleagues evaluating patients with prosthetic valve endocarditis (PVE) caused by an opportunistic bacterial pathogen: Propionibacterium acnes (P. acnes) [1]. The authors should be congratulated for publishing the largest single-centre series to date on the topic, as thus far the literature was dominated by single case reports. Their work will undoubtedly help increase appreciation for this often-neglected etiology of endocarditis. We would like to add some thoughts on the microbiological aspects of PVE caused by this facultative anaerobic species.

Diagnosis of PVE caused by this micro-organism is often delayed due to oligosymptomatic and non-specific presentation, hence microbiological confirmation is pivotal for directing treatment. Unfortunately, aside for establishing positivity of blood and/or tissue cultures, no further elaboration was given on the microbiological techniques...
employed to diagnose \textit{P. acnes} in this study, probably due to its retrospective design. From a clinical perspective, it would also be interesting to know the incidence of neurological symptoms in this case series of 13 patients, as these are more commonly observed in \textit{P. acnes} PVE than in any other type of infective endocarditis [2].

In the discussion the authors rightfully emphasize that the diagnosis is cumbersome due to the prolonged incubation time of \textit{P. acnes} (up to two weeks). Recently it has been shown that a technique that combines polymerase chain reaction (PCR) with an electrospray ionization mass spectrometry can be applied to heart valves and prosthetic material to diagnose \textit{P. acnes} with increased sensitivity and speed when compared to culture methods [3]. Still, one has to bear in mind the expensive equipment and cost-effectiveness issues of adding such technology to the diagnostic armamentarium.

The authors further state that there is still no clear explanation why cardiac valve infections (but also infections of osteo-articular prostheses) caused by this pathogen are more frequent in men than women. Interestingly, Patel et al. conducted a study of \textit{P. acnes} colonization of the human shoulder, which revealed higher prevalence and bacterial burden of \textit{P. acnes} in men [4]. Although the exact reasons for such disparity are still unknown, we hypothesize that studies of other body sites would yield similar findings, inevitably resulting in more frequent PVE and other infections in the male gender.

Antibiotic therapy of patients in this study primarily consisted of penicillin (with or without rifampicin) for six weeks after surgery, which is a treatment scheme recommended by some other authors as well. Nevertheless, longer treatment periods (up to six months) were also described in the literature - some of them even resulting in a successful treatment of patients with \textit{P. acnes} PVE without surgical approach [5]. Although the rationale for including rifampicin in the therapy regimen is the purported effect on \textit{P. acnes} biofilm, randomized-controlled studies are necessary to confirm its true clinical value (as has been conducted for staphylococcal implant-associated infections).

\textbf{Conflict of interest:} none declared.

\textbf{References}


eReply. Towards better understanding and management of Propionibacterium acnes in cases of prosthetic valve endocarditis

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We would like to thank Dr Mestrovic and colleagues for their comments and kind words [1] regarding our paper on prosthetic valve endocarditis (PVE) caused by \textit{Propionibacterium acnes} [2]. We would like to take this opportunity to further clarify the issues raised in this commentary. We fully agree with Dr Mestrovic and colleagues that the diagnosis of PVE due to \textit{P. acnes} can be challenging in the clinical setting and would like to take this opportunity to provide further information on our microbiological techniques as requested. Bactec aerobic and anaerobic culture bottles were used. The material was incubated for 14 days at 35 degrees Celsius in the Bactec FX blood culture system (Becton Dickinson). Cardiac valve tissue was incubated 14 days at 35 degrees Celsius on, amongst others, Bruella 5% blood agar anaerobic plates. \textit{P. acnes} was identified on the basis of colony morphology and identification was confirmed by mass spectrometry (Maldi Biotyper, Bruker).

Concerning the question on neurological complications due to \textit{P. acnes}. As shown in table 2 of our paper 2 patients presented with neurological deficit. These episodes were transient. The percentage of patients is comparable to the generic cohort of patients presenting with PVE in our institute and did not constitute a higher risk of mortality is this small series.

The PCR technique can indeed be very valuable to confirm the diagnosis, as Dr Mestrovic argues, and can be performed in difficult cases. However, the technique is costly and is not standard of care in most countries. We would advocate proper culturing with a prolonged incubation time in patients with the likelihood of \textit{P. acnes} PVE.

Using the current literature and our own experience we would not advocate longer terms of antibiotic treatment in patients with \textit{P. acnes} PVE or a conservative approach without surgery [3,4]. Six weeks should be sufficient. If a patient is inoperable, the idea of suppression therapy with prolonged antibiotics could be entertained. In our series we used a conservative approach in one patient. This patient did not show a dehiscence of his mechanical valve. This seems to be the pivotal point for a potential successful treatment of PVE due to \textit{P. acnes} without surgery.

Lastly, the importance of more studies, as also argued by Mestrovic, is there. In our article we warn about the possible underdiagnoses of \textit{P. acnes} PVE due to a large differences in incubation durations and the wrongly presumed innocence of \textit{P. acnes}.

\textbf{Conflict of interest:} none declared.

\textbf{References}


