



Treatment of Pythiosis

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Dear Editor: Due to its rising global incidence, I have dedicated years to studying pythiosis, a rare yet deadly infectious disease caused by *Pythium insidiosum*.¹ Pythiosis typically presents with the infection of the artery, eye, gastrointestinal tract, and skin, and if left untreated, it can lead to organ loss or even death. In recent decades, a deeper understanding of *P. insidiosum* has been seen across molecular, serological, and histological studies, enhancing clinical awareness and diagnostic advancements.^{1, 2} Traditionally mistaken for a fungus because of its microscopic appearance, *P. insidiosum* was treated with antifungal medications like terbinafine and amphotericin B.^{3, 4} Molecular research clarifies that *P. insidiosum* is an oomycete, more closely related to algae, with significant biological differences from fungi, impacting drug efficacy.⁵ Since the 1980s, *P. insidiosum* antigen immunotherapy (PIAI) has emerged as a treatment alternative, with ongoing enhancements to increase efficacy.⁶ Surgery often serves as a last resort to limit the disease progression or to save lives.⁷

Current treatment strategies for pythiosis include antimicrobial drugs, PIAI, and surgery. Antimicrobial susceptibility testing reveals a higher sensitivity of

P. insidiosum to antibacterials like macrolides, oxazolidinones, and tetracyclines, reducing the reliance on surgery.⁸ Though less effective, antifungals, sometimes in combination with antibacterials, can treat pythiosis.^{9, 10} PIAI, prepared by crude antigen extract of *P. insidiosum*, is beneficial for humans and animals with pythiosis, potentially reducing surgery needs and increasing survival rates. However, its efficacy varies across different disease manifestations.⁶ Surgical intervention, typically reserved for unresponsive cases, ranges from organ-preserving procedures to more radical approaches like amputation, depending on disease progression.^{2, 3, 7} Additional treatments, including dimethyl sulfoxide, potassium iodide, steroids, ethanol, and mefenoxam, applied singly or combined, have shown promise in treating specific pythiosis forms.^{11, 12}

Treatment is the most challenging aspect of pythiosis, but there is hope. The morbidity and mortality of affected patients remain high. However, with continued attention and basic/clinical research by the medical community, we can gain insight into the disease and find a better way of pythiosis control, potentially improving their clinical outcomes.



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