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Bilateral Abscessed Orchiepididymitis Associated with Sepsis Caused by *Veillonella parvula* and *Clostridium perfringens*: Case Report and Review of the Literature

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Veillonella **species is a gram-negative coccus which is part of the anaerobic normal flora in the oral cavity, small intestine, upper respiratory tract, vagina, and urinary tract. The role that this organism plays in infection is not well known, and it is generally associated with other bacteria. We present a case of bilateral abscessed orchiepididymitis associated with septicemia due to *Veillonella parvula* and, later, to *Clostridium perfringens*, with the development of severe renal insufficiency and septic shock, which resolved favorably with antibiotic therapy, treatment of shock, and hyperbaric oxygen therapy. In reviewing the literature, we have not found any other case of sepsis due to *Veillonella* sp. associated with urological disorders.**

Case report. A 62-year-old vagrant, with a personal history of totally dark urine on some previous occasions and a weight loss of 3 kg in the previous month, was seen at the Emergency Service because of pain in the left testicle radiating to the left groin, scrotal redness, and swelling. A few hours later, he complained of pain in the other testicle with important swelling of both testicles, which were considerably increased in size. He presented with fever of 38.5°C, chills, and profound thirst. Blood tests done at the Emergency Service showed a leukocytosis of 14,600/mm^3, with 75% polymorphonuclear leukocytes, 22% band forms, 2% lymphocytes, and 1% monocytes. Na was 128 meq/liter, K was 3.3 meq/liter, hematocrit was 37%, and hemoglobin was 12 g/dl. There was no evidence of the source of the infection, such as urethral stricture or urethral manipulation.

The man was admitted to the hospital with the diagnosis of bilateral orchiepididymitis and poor general condition. Treatment was initially started with gentamicin (80 mg three times a day, intramuscularly) and oral ampicillin (500 mg twice a day), together with antiinflammatory drugs. Various blood cultures were performed, and *Veillonella parvula*, susceptible to penicillin, was isolated in three of them.

The patient's condition improved initially, and fever disappeared on day 5 of hospital stay. On day 6, however, the patient again had a fever of 39°C. Various other blood cultures were performed, with the isolation of *Clostridium perfringens* in only one of them. Gentamicin and ampicillin were withdrawn, and treatment with clindamycin (600 mg four times a day) and penicillin (4×10^6 U every 4 h), both intravenously, was begun.

On day 10 of his hospital stay, the patient showed scrotal necrosis with the leakage of purulent material. Culture of such material showed *Staphylococcus epidermidis*, probably a contaminant. On the following days, pain increased in the scrotal region and pain, together with great swelling and edema, appeared in the suprapubic and inguinal regions bilaterally. At the same time, the patient's general condition deteriorated, and on day 13 he showed serious impairment of renal function with a creatinine clearance of 18 ml/min, severe anemia with a hematocrit of 23%, and a hemoglobin level of 7.5 g/dl, as well as a systolic blood pressure of 90 mm Hg (previously normotensive: 140 mm Hg). A transfusion of 1,000 ml of whole blood was performed, and treatment was started to combat shock and renal insufficiency. On days 12 and 13, two sessions of hyperbaric oxygen therapy were administered (3.5 atm; ca. 354.5 kPa).

On day 14, the patient was operated on with the diagnosis of scrotal abscess, suprapubic abscess, and septic shock. Both purulent cavities were emptied, and a wide debridement communicating both of them was performed, as well as the excision of all necrotic tissue, cleansing with H_2O_2, and insertion of a Penrose-type drain. Samples were obtained by direct aspiration with a syringe and immediately transported under anaerobic conditions to the laboratory, where they were processed at once.

The pus obtained on hospital days 10 and 14 was cultivated for both anaerobic and aerobic flora. We could not find anaerobic organisms. The technique used for culture was blood agar with vitamin K and hemin supplementation and anaerobic atmosphere incubation (GasPak; BBL Microbiology Systems) in an incubator at 35°C for 48 h. Gram stain showed the presence of leukocytes and gram-positive cocci. The amount of growth of *Staphylococcus aureus* obtained from the second culture was not quantified.

The postoperative course was satisfactory, and antibiotic treatment was continued for 5 more days; six hyperbaric oxygen therapy sessions of 2.5 atm (ca. 253.2 kPa) each were also performed. The patient's renal function progressively recovered, as well as his blood count; fever disappeared completely, and he was discharged 25 days after his admission with a normal renal function (serum creatinine, 1.5 mg/dl; blood urea, 17 mg/dl) and other biochemical tests also normal. A control performed 30 days later was absolutely normal, the patient being asymptomatic.

Discussion. Microbial anaerobic infections were reported as early as 1897 and 1898 (7, 15); Veillon isolated *Veillonella* in 1898, from whence its name. Rogosa (12) described seven different species of *Veillonella*, of which only *V. parvula* has been shown to be pathogenic in humans.

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Veillonella species is part of the normal anaerobic flora of the oral cavity, small intestine, upper respiratory tract, and vagina. In 1946, Loewe reported a case of endocarditis due to "Veillonella gazogenes" (10). In a study done at the Mayo Clinic from June 1970 to March 1971 (16), of 264 patients with 360 blood cultures positive for anaerobic bacteria, *Veillonella* sp. was isolated in only 1 case (0.3%), in a patient with acute myelomonocytic leukemia. Cases of osteomyelitis (2, 3) and pelvic abscesses (4) due to *Veillonella* sp. have also been reported. *Veillonella* sp. has been reported as the sole organism isolated in blood cultures of patients with pneumonia (5), sinusitis (6), and hepatic abscesses (9), as well as the above-mentioned case of endocarditis (10). Of 12,876 antibiotic susceptibility tests done in 56 hospitals with a minimum of 500 beds, and taken from the Spanish bacteriological map of 1982, only 1 case of *Veillonella* sp. can be found.

In reviewing the literature, we have not found any other case of the association of scrotal abscess and sepsis due to *V. parvula*, so we think this is the first such case.

Of the cases described in the literature, the existence in some of a further disease underlying the *Veillonella* sepsis should be noted. Thus, in cases described by Borchardt et al. (3), Bradford (4), Wilson et al. (16), and ourselves, respectively, acute myelocytic leukemia, ovarian carcinoma, diabetes, and severe malnutrition were found. Some relationship, therefore, seems to exist between immunosuppressed patients and the appearance of these bacteria as disease-causing pathogens.

It is important to point out that blood cultures should be performed in these patients, since both in our case and in the others found in the literature the organism was always isolated from blood. It is difficult to isolate it at the original infected site, as in our case the formation of the scrotal abscess was clinically detectable several days after the start of symptoms, when the patient was already under antimicrobial therapy. We, therefore, emphasize the importance of performing blood cultures always at the start of the illness.

Due to the underlying disease, the septic process in these patients is usually severe, requiring polyantimicrobial therapy as well as surgical drainage in the majority of cases. We had a good initial result with the combination of gentamicin and penicillin. The combination of clindamycin and penicillin was utilized later because an associated bacteremia due to *C. perfringens* was found. This organism, however, could represent an incidental transient bacteremia, although it was clinically significant. Studies done by various authors such as Appelbaum and Chaterton (1), Martin et al. (11), Sutter and Finegold (13), and Tally et al. (14) show that penicillin seems to be the treatment of choice in infections due to *Veillonella*. Clindamycin, ampicillin, and metronidazole are alternative drugs.

Hyperbaric oxygen therapy was also used in our case because of the associated bacteremia with *C. perfringens*. Although several authors (8) maintain that this therapy inhibits toxin production by clostridia but does not neutralize the circulating toxin, we had excellent results with it, without any of its inherent complications. The success of this treatment could be associated with the therapeutic use of antimicrobial agents and surgical intervention. However, it was begun 2 days before surgery because of the presence of anaerobic bacteria and the unfortunate clinical evolution.

LITERATURE CITED

1. **Appelbaum, P. C., and S. A. Chaterton.** 1978. Susceptibility of anaerobic bacteria to 10 antimicrobial agents. Antimicrob. Agents Chemother. **14**:371–376.
2. **Barnhart, R., M. P. Weitecamp, and R. Aber.** 1983. Osteomyelitis caused by *Veillonella*. Am. J. Med. **74**:902–904.
3. **Borchardt, K., M. Baker, and R. Gelber.** 1977. *Veillonella parvula* septicemia and osteomyelitis. Ann. Intern. Med. **86**: 63–64.
4. **Bradford, T. W.** 1977. Pelvis abscess associated with repeated recovery of veillonella. Am. J. Obstet. Gynecol. **129**:342–343.
5. **Finegold, S. M.** 1977. Anaerobic bacteria in human disease, p. 162–231. Academic Press, Inc., New York.
6. **Fredrich, J., and A. Brande.** 1974. Anaerobic infections of the paranasal sinuses. N. Engl. J. Med. **290**:135–137.
7. **Halle, J.** 1984. Recherches sur la bacteriologie du canal genitale de la femme (état normal et patologique). G. Steinheil, Paris.
8. **Himal, H. S., and J. H. Duff.** 1967. Endogenous gas gangrene. A report of three cases. Can. Med. Assoc. J. **97**:1541–1545.
9. **Lambe, D. W., D. H. Vroon, and C. W. Rietz.** 1974. Infections due to anaerobic cocci, p. 585–599. *In* A. Balows, R. M. De Haan, V. R. Dowell, and L. B. Guze (ed.), Anaerobic bacteria, role in disease. Charles C Thomas Publisher, Springfield, Ill.
10. **Loewe, L., P. Rosenblatt, and E. Alture-Werber.** 1946. A refractory case of subacute bacterial endocarditis due to *Veillonella gazogenes* clinically arrested by a combination of penicillin, sodium paraaminohippurate, and heparine. Am. Health J. **32**: 327–338.
11. **Martin, W. J., M. Gadner, and J. A. Washington II.** 1972. In vitro antimicrobial susceptibility of anaerobic bacteria isolated from clinical specimens. Antimicrob. Agents Chemother. **1**:148–158.
12. **Rogosa, M.** 1984. Anaerobic gram-negative cocci, p. 680–685. *In* N. R. Krieg and J. G. Holt (ed.), Bergey's manual of systematic bacteriology, vol. 1. The Williams & Wilkins Co., Baltimore.
13. **Sutter, W., and S. M. Finegold.** 1976. Susceptibility of anaerobic bacteria to 23 antimicrobial agents. Antimicrob. Agents Chemother. **10**:736–752.
14. **Tally, F. P., V. Sutter, and S. M. Finegold.** 1972. Metronidazole versus anaerobes, in vitro data and clinical observations. Calif. Med. **117**:27–28.
15. **Veillon, A., and A. Zuber.** 1897. Sur quelques microbes strictement anaerobiques en leur rôle dans la pathologie humaine. C. R. Soc. Biol. (Paris). **49**:253–255.
16. **Wilson, W. R., W. J. Martin, C. J. Wilkowske, and J. A. Washington.** 1972. Anaerobic bacteremia. Mayo Clin. Proc. **47**: 639–646.