Aeromonas Meningitis Complicating Medicinal Leech Therapy

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Medicinal leeches have an important and expanding role in medicine, but infection can complicate their use. We describe a unique case of Aeromonas meningitis associated with the use of leech therapy to salvage a skin flap after central nervous system surgery.

Aeromonas soft tissue infection is a recognized complication associated with the use of leeches for medicinal purposes. During the past 2 decades, leeches have been used with increasing frequency by many surgical specialists to decrease edema over skin flaps with good arterial flow but poor venous outflow. Aeromonas veronii biovar sobria is a normal component of leech flora that is necessary for aiding leech digestion because it breaks down ingested erythrocytes [1]. Reports have shown that up to 20% of courses of leech therapy will be complicated by gram-negative infection, especially with Aeromonas species [2]. Mild wound infection is the most common presentation; myonecrosis, bacteremia, and sepsis occur less frequently. Prophylactic antibiotic therapy has therefore been recommended for patients undergoing leech treatment [3].

Because Aeromonas species are uniformly resistant to ampicillin and first-generation cephalosporins, the most commonly used classes of antibiotics have been the third-generation cephalosporins, fluoroquinolones, and tetracyclines. Aeromonas meningitis is a rare entity. Only 10 cases have been described to date in the literature, none of which resulted from leech therapy [4, 5]. We describe a unique case of Aeromonas meningitis that was a direct consequence of therapy with leeches.

Case report. A 40-year-old man born in India underwent surgery for removal of a large right temporal glomus jugulare tumor after angiographic embolization. During surgery, abdominal fat was used to prevent CSF leak from a dural opening. A skin flap partially encircling the pinna was used for tumor exposure. Two days after surgery, the skin flap became congested and edematous because of poor venous flow. Leech therapy was initiated to salvage the skin flap.

On the fourth hospital day, the patient had a sudden change in mental status and a temperature of 40°C. Infectious diseases consultation was obtained, and Aeromonas meningitis was suspected. Analysis of fluid drawn via lumbar puncture revealed cloudy fluid, with 1728 leukocytes/mL (100% neutrophils), 150 erythrocytes/mL, a protein level of 1394 mg, and a glucose level of 35 mg. Gram staining revealed a moderate leukocyte count and no organisms. Empirical antibiotic therapy with intravenous gatifloxacin and aztreonam was initiated, and a spinal CSF drain was placed. The next day, cultures of CSF yielded a gram-negative bacillus that was identified as Aeromonas veronii biovar sobria. Cultures of wound specimens grew the same organism, as did cultures of both the broth where the leeches were stored and the body of one of the leeches. Blood cultures did not yield Aeromonas species.

The patient was treated with ceftriaxone followed by cefepime-tobramycin for a total of 21 days, with rapid normalization of CSF findings and good—albeit gradual—clinical response. A pectoralis flap was required to repair the defect at the surgical site. The patient was discharged home in good condition after receiving a course of rehabilitation therapy.

Discussion. Meningitis secondary to Aeromonas infection is a rare event, described previously in only 5 adult and 5 pediatric patients [4, 5]. All of these patients had significant underlying medical conditions. To our knowledge, this is the first reported case of Aeromonas meningitis as a complication of leech therapy. Although leech therapy has a significant role in surgery, this case emphasizes the necessity of prophylactic antibiotic therapy to avoid serious infectious complications associated with this type of treatment. We also advise caution in the use of leeches in close proximity to the CNS.

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References