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CASE REPORT

## ACINETOBACTER INFECTION DEVELOPED AFTER LEECH THERAPY IN A PATIENT WITH GONARTHROSIS: A CASE REPORT

### ABSTRACT

Osteoarthritis is the main cause of pain and loss of function in elderly patients. Various treatments are available to control pain and to prevent progression of the disease. In our country, some patients who do not benefit from these therapies or cannot access certain treatments readily undergo hirudotherapy (leech therapy), which is regarded to be beneficial in rheumatic diseases. In this case report, 68-year-old woman who had been receiving medical treatments and physical therapy for osteoarthritis for 15 years was presented.. She had been undergoing hirudotherapy for 6 years due to intractable pain in both knees. Following hirudotherapy, she developed a severe skin infection due to Acinetobacter sp. To the knowledge of the authors, this is the first case of infection with Acinetobacter following hirudotherapy.

**Key Words:** Leeching; Osteoarthritis, Knee; Acinetobacter.



OLGU SUNUMU

## GONARTROZLU BİR HASTADA SÜLÜK TEDAVİSİ SONRASI GELİŞEN ACINETOBACTER İNFEKSİYONU: BİR OLGU SUNUMU

### Öz

Osteoartrit yaşlı hastalarda ağrı ve fonksiyon kaybının başlıca nedenidir. Ağrıyı kontrol etmek ve hastalığın ilerlemesini engellemeye yönelik değişik tedavi seçenekleri mevcuttur. Ülkemizde bu tedavilerden fayda göremeyen veya bu tedavilere ulaşamayan bazı hastalar yaygın olarak romatizmal hastalıklara iyi geldiğine inanılan sülük tedavisine başvurabilmektedir. Bu yazıda 68 yaşında yaklaşık 15 yıldır osteoartrit tanısıyla medikal tedavi ve fizik tedavi gören bir olgu sunulmaktadır. Yakınmaları gerilemediği için 6 yıldır her iki dizindeki ağrılarına yönelik sülük tedavisi uygulamaya başlayan olguda; yine bir sülük tedavisi sonrası Acinetobacter spp. ye bağlı şiddetli cilt enfeksiyonu gelişmiştir. Bu araştırmacıların bilgisi dahilinde hirudotherapy sonrası Acinetobacter ile gelişen ilk enfeksiyon vakasıdır.

**Anahtar Sözcükler:** Sülük Tedavisi; Diz osteoartriti; Acinetobacter.



## INTRODUCTION

Osteoarthritis, which is the main reason for pain and loss of function in elderly patients, is the most common joint disorder. The frequency of osteoarthritis is increasing with the prolongation of average life expectancy, increase in obesity and the rising prevalence of a sedentary lifestyle.

Effective treatment is important as it causes serious socio-economic losses due to high treatment costs and loss of workforce. Various treatment options are available to control pain and to prevent progression of the disease. Some patients who cannot benefit from these treatments or cannot reach these therapies apply for leech therapy, which is believed to be beneficial in rheumatic diseases. It should be used in consultation with a physician of relevant specialization, with the guidance of his/her knowledge, and if possible, under his/her supervision. When applied in ignorance, it can lead to a variety of unintended results. Recently, the number of articles outlining the complications of leech therapy has increased (1,2).

The present case is a 68-year-old patient, who was receiving medical treatment and physical therapy with the diagnosis of osteoarthritis for the last 15 years. She had been applying leech therapy for six years for persistent pain in both knees, and he had a severe skin infection that developed due to *Acinetobacter* spp. after applying leech therapy.

## CASE REPORT

A 68-year-old female patient applied to the emergency department with the complaint of severe pain, rash, swelling and partly draining lesions, extending from below the left knee to the ankle. The patient was accepted to the infectious diseases department with the diagnosis of soft tissue infection.

The symptoms of the patient started two days after self leech administration due to the pain in her left knee joint. First a mild rash with pain began on the left calf and her complaints accelerated by time consequently surrounding the calf entirely. Ciprofloxacin 500mg 2x1 (po) and cefuroxime axetil 500 mg 2x1 (po) treatment was initiated by the family physician. She started this therapy, however she was admitted to our hospital on the second day of antibiotic treatment due to lack of regression in her complaints. History revealed that the pain complaints which the patient had suffered were related to osteoarthritis for approximately 15 years. She had been using various pain killers and anti-inflammatory drugs, and had received physical therapy several times up to date.

However, she considered that the medical treatment and physical therapy was unbeneficial. She relieved her pain by placing leeches collected from the pond near her residence during periods of intense complaints. She had applied hirudotherapy almost once a year during the last six years, because there was a progressive increase in her complaints. She put the leeches in a jar filled with water for three days, and then applied five to six leeches on both knees and waited for two or three hours for their spontaneous release. She reported alleviation of her pain up to five to six months after these applications. Furthermore, the patient used less analgesic medications, regained the ability to walk, and there were improvements in the activities of daily living after these applications. Finally, due to excessive increase in the pain in her left knee, she applied approximately 15 leeches between the left knee and ankle, more than the normal amount that she had previously used, one week prior to her admission. Her medical history also revealed that she had hypertension.

Physical examination revealed a body temperature of 38.9°C. There was a rash, swelling and partly draining and eroded lesions, which were extending from the left knee to the ankle. Laboratory studies showed a leukocyte count of 23.700/mm<sup>3</sup> (85% PNL), CRP of 25 mg/dL, sedimentation rate of 99 mm/hour.

Samples of blood and swabs of draining lesions were taken for culture, and deep tissue sample cultures were performed by true-cut biopsy needle. An ampicillin-sulbactam (4x2g IV) treatment was initiated first replaced by tigecycline (50 mg 2x1) treatment following the detection of progression in the lesions after three days of treatment. The patient's blood cultures were negative, but the cultures of deep tissue and draining lesions were positive for *Acinetobacter* spp. This bacteria was resistant to ampicillin-sulbactam, but sensitive to tigecycline. The patient's antimicrobial therapy was completed in 21 days. At the end of this period, lesions regressed completely, and the patient recovered entirely.

## DISCUSSION

The medicinal leech or *hirudo medicinalis* has been used for therapeutic purposes for thousands of years. This method of treatment has gained currency in modern medicine in recent years, and is used for various indications in patients of plastic and reconstructive surgery, in particular (1). Although several recently published studies have suggested its use in different medical problems such as osteoarthritis and lateral epicondylitis, the issue is still controversial (3,4).



**Figure 1**— Rash, swelling and partly draining and eroded lesions of the patient extending from the left knee to the ankle.

Hirudotherapy has some complications including infections in particular, bleeding, anemia, and allergic reactions (1,5). Soft tissue infections and surgical site infection were detected due to leech therapy that is mostly used for revascularization after plastic and reconstructive surgery (1). The incidence of infections may virtually be higher because of the application of leeches in inappropriate conditions without attention to hygiene and prophylactic antibiotics, and because of vomiting of the leeches on the wounds due to being traumatized (1,2,5). In addition, the risk of infection is also probably increased in association with the number of leeches used, as in the present case.

In our country, leech therapy is used by the populace as it is considered beneficial in the treatment of many different diseases, such as diseases of the circulatory system in particular, and both degenerative and inflammatory joint diseases, headache, myalgia, varicose veins and obesity. Production farms appeared in many countries for the therapeutic use of leeches; whereas in our country, leech traders and non-trader public are prone to keep the leeches in ponds near their homes, and even in the puddles, as *hirudo medicinalis* is abundant in water sources. Therapies that use leeches obtained in this way, that is, used without the use of the knowledge or supervision of any physician, carry a greater risk of known and unknown infections.

*Aeromonas hydrophila* has been isolated as an agent in the majority of skin and soft tissue infections occurring after hirudotherapy (1, 2). This gram-negative bacteria is present in the intestinal flora of the leeches. *Ochrobactrum anthropi* of non-

fermentative gram-negative bacilli, *Acinetobacter* species, and other *Aeromonas* species can be found in the intestinal and superficial flora of the leeches except for *A. Hydrophila* (6). After hirudotherapy, *A. hydrophila* may also cause more serious infections, such as sepsis and meningitis, as well as soft-tissue infections (7,8). Soft tissue infections have also been reported due to factors other than *A. hydrophila*, such as *Vibrio fluvialis* (9). In this case, *Acinetobacter* spp. has been isolated, and these bacteria are also present in the superficial flora of the leech. According to our knowledge, this is the first case of infection that has been reported after hirudotherapy and in which *Acinetobacter* has been isolated. In this present case, the causative bacterium was grown from the needle aspiration biopsy material. However, punch biopsy is more useful in terms of the isolation of bacterium, in such cases (10).

In conclusion, hirudotherapy which has gained popularity in the last few decades has important drawbacks. The use of this therapy with excessive amounts of leeches obtained from the nature without attention to sterility conditions and without antibiotic prophylaxis in inappropriate conditions outside the medical centers can lead to frequent and severe complications. The most common complications are skin and soft tissue infections, including surgical site infections. In such infections, tigecycline may be a good option for antimicrobial therapy. It is effective in *Acinetobacter* species and has a better penetration to skin and soft tissues. In addition, we also think that these bacteria, which are usually resistant to many antibiotics, should be taken into consideration when choosing the prophylactic agent.

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