7-YEAR-OLD girl from central Texas had a persistent, slowly growing mass in her right cheek for 3 months. There was no history of fever, and trauma or insect bite at the site was denied. The family had a cat and the girl enjoyed fishing. At her initial presentation 2 months previously, she was treated with 10 days of cephalexin and the mass was injected with a corticosteroid. The mass initially seemed to get smaller but then grew.

On physical examination, the mass, which measured 20 × 13 mm, was visible on the right cheek and palpable in the right upper buccal sulcus (Figure 1 and Figure 2). It was slightly tender and appeared to have a soft center. There was no regional lymphadenopathy. Findings from the rest of the physical examination were normal. An aspiration of the mass was performed and cultures were obtained for aerobic and anaerobic bacteria, acid-fast bacilli, and fungi.

From the Department of Pediatrics, Section of Infectious Diseases, Scott & White Clinic and Memorial Hospital, Texas A&M University Health Science Center, Temple, Tex.
Mycobacterium marinum is a free-living nontuberculous mycobacterium that causes disease in freshwater and saltwater fish. Occasionally, this mycobacterium may cause infection in humans who are involved in aquatic activity (eg, swimming, fishing, boating) or who keep tropical fish. The resulting infection is commonly known as “swimming pool granuloma,” “fish tank granuloma,” or “fish fanciers’ finger.” The organism has been called a “leisure-time pathogen” and the disease has been referred to as a “hobby hazard.”

Mycobacterium marinum is classified as a photochromogen belonging to Runyon group 1 and produces yellow pigment on exposure to light. It grows at an optimal temperature of 30°C to 32°C and seldom grows at 37°C, unlike Mycobacterium kansasi, also a photochromogen that is commonly pathogenic. Mycobacterium marinum colonies are smooth and shiny and generally take 2 to 4 weeks to grow on solid mycobacterial media, which customarily are incubated for 6 weeks.

Skin infection with this bacterium is often preceded by trauma and aquatic exposure to fresh, salt, or brackish water such as unchlorinated swimming pools, lakes, or fish tanks. After 2 to 6 weeks of incubation, a solitary, painless, red to violet, papulonodular, or verrucous lesion begins to appear. It can progress to become ulcerated and/or crusted. A sporotrichoid form often occurs and features a primary inoculum site with similar lesions spreading proximally up the lymphatics to regional lymph nodes. Mycobacterium marinum usually infects the extremities, especially a finger, hand, elbow, knee, or foot. Facial presentation has been reported previously. Deep infections such as tenosynovitis, osteomyelitis, arthritis, and bursitis are rare. Cutaneous or systemic dissemination occurs most commonly in the immunocompromised host.

DIAGNOSIS

The diagnosis of infection is established by performing acid-fast staining and cultures from exudates or tissues, and histopathologic examination of a surgical biopsy specimen. Cultured organisms must be differentiated from M kansasi by growth characteristics and biochemical tests. The histopathologic specimens often show nonspecific chronic inflammation; however, noncaseating granuloma and Langhans giant cells may be seen. Acid-fast bacilli are rarely found on staining. Although antimicrobial susceptibility testing is available, in vitro testing does not necessarily correlate with in vivo response. The purified protein derivative skin test is frequently positive and may offer a clue in distinguishing this infection from other causes of cutaneous masses.

TREATMENT

Mycobacterium marinum infection may be self-limited in the normal host. A superficial infection may be managed by watchful waiting or by single antimicrobial therapy. Surgical debridement alone may suffice in some superficial infections. Deep infections, such as tenosynovitis or arthritis, usually require aggressive surgical debridement in addition to combination medical therapy.

Mycobacterium marinum is typically resistant to isoniazid, aminosalicylic acid, and streptomycin sulfate. It is generally susceptible in vitro to ciprofloxacin, clarithromycin, doxycycline, ethambutol hydrochloride, minocycline, rifampin, tetracycline, and trimethoprim-sulfamethoxazole. Resistance to several of these antibiotics resulting in failure of clinical treatment has been reported; therapy should be guided by susceptibility testing. Antibiotic therapy is continued for 3 to 6 months, since response to treatment is slow. When there is no improvement despite good compliance, impaired intestinal absorption may be suspected. Serum antimicrobial levels may be used to guide optimal dosing.

Poor prognostic factors of M marinum infections include a persistently draining sinus tract after several months of antibiotic therapy, persistent pain in the lesion, and the local administration of steroids. Relapse may occur despite seemingly adequate therapy.

COMMENT

Mycobacterium marinum infection should be considered in a child with a cutaneous lesion that does not respond to standard therapeutic measures including antibiotics, and who has a history of contact with fish tanks, lakes, or nonchlorinated swimming pools.

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Reprints: Manjusha J. Gaglani, MBBS, Department of Pediatrics, Section of Infectious Diseases, Scott & White Clinic, 2401 S 31st St, Temple, TX 76508.