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Case Report

Aquarium granuloma: a diagnosis based on history

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ABSTRACT

Mycobacterium marinum infections are rare but well described in literature. It causes an infection known as aquarium granuloma or swimming pool granuloma since its transmitted through contaminated water. We describe a case of aquarium granuloma in a male patient with skin nodules over his dominant hand whose occupational history helped clinch the diagnosis.

Keywords: Mycobacterium, Granuloma, Aquarium, Marinum

INTRODUCTION

Aquarium granuloma is a rare skin infection caused by non tubercular mycobacterium known as *Mycobacterium marinum*. It most commonly presents as nodular lesions on the hands that may break down an ulcerate.

We describe a case of aquarium granuloma in a male patient with skin nodules over his dominant hand whose occupational history helped clinch the diagnosis.

CASE REPORT

A 39 years old male patient came to our surgical outpatient department with complaints of multiple non tender swellings over his right hand and fingers since the past 3 weeks. There was no history of discharge from the swellings. There was no previous history of trauma to the hand and there was no history of fever or weight loss. On further questioning it was found that patient used to clean and design ornamental aquariums.

On examination there were multiple swelling noted over the dorsal aspect of the right-hand largest measuring 3x3 cms in size. They were non tender, no local rise in temperature, mobile, soft to firm in consistency and present in the subcutaneous plane. There were similar swellings noted over his right ring finger measuring about 1×2 cms in size and a single swelling over the right forearm measuring 1×2 cms in size.

Figure 1: Nodular lesion on hand.

Excisional biopsy of the swelling over the hand was performed under local anesthesia and sent for histopathology and tissue culture. Histopathology showed large areas of central necrosis surrounded by Langhans type of giant cells; features consistent with

granulomatous process. Culture in Lowenstein-Jensen medium showed mycobacterium growth.

Figure 2: Nodular lesion on fingers.

Figure 3: Resolving lesion on the forearm.

Figure 4: Excised cutaneous nodule from wrist.

Figure 5: Site of excision on follow up.

Patient was started on oral rifampicin and ciproflacin. On one month follow up the cutaneous nodules had resolved and antibiotic therapy was continued for two more months.

DISCUSSION

Aquarium granuloma also known as swimming pool granuloma is an infection that commonly involves the skin and is caused by pathogen mycobacterium marinum.

This bacterium was first isolated back in 1926 from saltwater fish. It produced a tuberculosis like infection that affected fish.[1,2]

The first human case was reported in 1951 in Sweden.[3] Humans can get accidentally infected following exposure of injured skin to contaminated water. Hence, this is an infection commonly seen in individuals who clean fish tanks, handle ornamental fish and work in wet fields.[4] Previously it was also seen in swimmers but with routine practice of chlorinating swimming pools, it is no longer a risk factor.

For the infection to develop in humans the two main factors required are exposure to contaminated water and abrasion/injury to the skin.

The clinical features can range from superficial skin nodules, as seen in our patient, to deep infection involving regional lymphatic channels, tendons and bones. The superficial nodules can gradually increase in size and can break down to form ulcers. Regional lymphadenitis and systemic symptoms are uncommon. Differential diagnosis may include fungal infections like blastomycosis, cryptococcosis and histoplasmosis.

The definitive diagnosis is to obtain a culture from tissue biopsy. Lowenstein Jensen medium at 30 degrees celsius is most commonly used for culture and it should be

observed for 6-12 weeks.[5] Histopathological analysis of skin nodules show typical tubercular granulomas in only two third of cases which may make diagnosis a difficult task.

Polymerase chain reaction (PCR) is another technique that can be used to detect the bacterium. A biopsy sample itself is sufficient to detect the bacterium by means of PCR.

The definitive treatment is by antibiotic therapy. Duration of antibiotic therapy ranges from 3 to 4 months. It is important to continue treatment for 1-2 months after resolution of skin lesions. Often a dual antibiotic regimen is recommended. Rifampicin is found to be the most effective drug.[6] Mycobacterium marinum shows resistance to pyrazinamide. Other antibiotics that show good results include ciproflacin, levofloxacin, linezolid, isoniazid and ethambutol.

Surgery has limited role in management of mycobacterium marinum. Its main purpose is debridement of deep-seated infection. Most reports have suggested that antibiotic therapy alone can treat majority of cases.

CONCLUSION

In conclusion, a high index of suspicion and a good history from the patient helps in diagnosing uncommon infections like aquarium granuloma.

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