Botryomycosis is a rare, chronic, supplicative, granulomatous infectious disease that affects the skin and occasionally the viscera. Tissue cultures were obtained and showed to be negative for acid-fast mycobacteria and fungal elements however did grow heavy amounts of Staphylococcus aureus. Deep shave skin biopsies displayed pseudomycotic hypertrophy with sinus tract formation, focal supplicative inflammation and focal granuloma formation with gram-positive cocci within the pseudomycotic hypertrophy of the hypodermis and subcutaneous tissue. (Figure 3) PAS staining was negative. On higher power radiating deposits of amorphous, eosinophilic, basophilic material around colonies of cocci bacteria were noted, characterizing the Sphondilospori phenome. (Figure 2.4) A diagnosis of localized cutaneous botryomycosis was established and the patient was treated with oral cephalexin 500mg and topical mupirocin ointment twice daily for two weeks. His follow up physical exam two weeks after treatment revealed a significant improvement in all skin lesions. (Figure 9)

DISCUSSION: Botryomycosis is a rare, chronic, supplicative, granulomatous infectious disease that affects the skin and occasionally the viscera. Staphylococcus aureus (40%) is the most common causative organism however it can also be caused by Pseudomonas aeruginosa (20%), coagulase-negative staphylococci, Streptococcus spp., Escherichia coli, and Proteus spp. (1-3). There are few cases reported in literature and it occurs in areas of the skin that are exposed and subject to repeated trauma. The pathogenesis of the disease has not been well established. It is thought to be related to low virulence of agents, large local bacterial inoculum, change in specific cellular immunity (clonally expanded number of T lymphocytes), like in agammaglobulinemia, aplastic anemia, agranulocytosis and AIDS, or in humoral immune response (reduced IgA or increased IgE levels). (2).

CONCLUSION: Cutaneous botryomycosis is a relatively rare infectious disease process. Most patients will present with localized disease on the extremities that may be preceded by trauma. (2,3). Cutaneous botryomycosis is the most common form of botryomycosis and usually occurs following cutaneous inoculation of bacteria due to trauma, surgery, or in conjunction with the presence of a foreign body. Lesions characteristically develop slowly and may evolve and enlarge for several months and, rarely, even years.

INTRODUCTION

- Botryomycosis is a rare, chronic, supplicative, granulomatous infectious disease that affects the skin and occasionally the viscera.
- Staphylococcus aureus (40%) is the most common causative organism however it can also be caused by Pseudomonas aeruginosa (20%), coagulase-negative staphylococci, Streptococcus spp., Escherichia coli, and Proteus spp. (1-3).
- Skin lesions can be single or multiple and present as cysts, accesses, fistulas, nodules, plaques or gargets. (3)

CASE DESCRIPTION

- A healthy 52 year-old Caucasian male with a past medical history of hypertension presented to our clinic complaining of growths on bilateral forearms that developed two months prior.
- The lesions began as small pink papules that grew over the course of a few weeks, ulcerated and developed a crusty scab. He initially associated the growths with occasional mild pruritus but denied any associated pain, tenderness or burning sensation of involved skin. Of note, he worked as a HVAC (heating, ventilation and air conditioning) repairman with a history of repeated trauma to his forearms due to reaching through confined spaces of larger industrial units.
- On physical exam patient presented with 4cm pink exophytic vegetative plaque with central ulceration, surrounding erythema and focal granuloma formation with gram-positive cocci within the pseudomycotic hypertrophy of the hypodermis and subcutaneous tissue. (Figure 3) PAS staining was negative. On higher power radiating deposits of amorphous, eosinophilic, basophilic material around colonies of cocci bacteria were noted, characterizing the Sphondilospori phenome. (Figure 2.4) A diagnosis of localized cutaneous botryomycosis was established and the patient was treated with oral cephalexin 500mg and topical mupirocin ointment twice daily for two weeks. His follow up physical exam two weeks after treatment revealed a significant improvement in all skin lesions. (Figure 9)

DISCUSSION

- The term botryomycosis is derived from the Greek word botrys (meaning “bunch of grapes”) and mycosis (a mycosis, due to the presumed fungal etiology in early descriptions). (1). Other terms used to describe botryomycosis include bacterial pseudomycosis, staphylococcal actinophytosis, granular bacteriosis, and actinobacillosis. The most frequent etiological agent is Staphylococcus aureus (40%), followed by Pseudomonas spp. (20%). Other microorganisms reported include Escherichia coli, Proteus vulgaris, Bacillus spp. Actinomycetes species (2.2).
- The pathogenesis of the disease has not been well established. It is thought to be related to low virulence of agents, large local bacterial inoculum, change in specific cellular immunity (clonally expanded number of T lymphocytes), like in agammaglobulinemia, aplastic anemia, agranulocytosis and AIDS, or in humoral immune response (reduced IgA or increased IgE levels). (2).
- Most patients will present with localized disease on the extremities that may be preceded by trauma. (2,3). Cutaneous botryomycosis is the most common form of botryomycosis and usually occurs following cutaneous inoculation of bacteria due to trauma, surgery, or in conjunction with the presence of a foreign body. Lesions characteristically develop slowly and may evolve and enlarge for several months and, rarely, even years.
- The histopathologic appearance of botryomycosis is characterized by a central focus of necrosis surrounded by a chronic inflammatory reaction containing histiocytes, epithelioid cells, multinucleated giant cells, and fibrosis (4). Unlike the sulfur granules seen in actinomycosis (which contain filamentous branching organisms), the granules seen in botryomycosis contain bacteria surrounded by an eosinophilic matrix containing club shaped projections. This histologic appearance is commonly referred to as the Sphondilospori phenomenon, although it may not be present (4).
- Diagnosing botryomycosis includes clinical suspicion and microbiologic studies. In general, patients should receive antibiotic therapy until signs and symptoms of infection have resolved. Antibiotics for cutaneous disease include oral mupirocin (500mg QID, mupirocin (100mg BID), cephalexin (500mg BID), clindamycin (300mg BID), azithromycin (500mg QD), and erythromycin (500mg QD). (6).

PATHOLOGY

- Skin biopsies showed a central focus of necrosis surrounded by an eosinophilic matrix containing club shaped projections. This histologic appearance is commonly referred to as the Sphondilospori phenomenon. (Figure 2, 4, 5)
- On higher power (HE, 40X) radiating deposits of amorphous, eosinophilic, basophilic material around colonies of cocci bacteria were noted, characterizing the Sphondilospori phenome. (Figure 2.4)
- The histopathologic appearance of botryomycosis is characterized by a central focus of necrosis surrounded by a chronic inflammatory reaction containing histiocytes, epithelioid cells, multinucleated giant cells, and fibrosis (4). Unlike the sulfur granules seen in actinomycosis (which contain filamentous branching organisms), the granules seen in botryomycosis contain bacteria surrounded by an eosinophilic matrix containing club shaped projections. This histologic appearance is commonly referred to as the Sphondilospori phenomenon, although it may not be present (4).

MANAGEMENT / OUTCOME

- Tissue cultures were obtained and showed to be negative for acid-fast mycobacteria and fungal elements however did grow heavy amounts of Staphylococcus aureus.
- Deep shave biopsy of lesion on left forearm is characteristic of botryomycosis and grown heavy amounts of Staphylococcus aureus.
- Patient was treated with oral cephalexin 500mg and topical mupirocin ointment twice daily for two weeks.

BIBLIOGRAPHY