



## RESEARCH ARTICLE

### BOTRYOMYCOSIS IN A YOUNG MALE: A CASE REPORT AND REVIEW OF LITERATURE

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#### ABSTRACT

Botryomycosis also known as bacterial pseudo mycosis is a rare chronic granulomatous bacterial infection that affects the skin and sometimes the viscera. The lesions are characterized by tumefaction, deformity, multiple sinus formation and fistulous tract with deep abscess and ulcerated area of skin. Common organisms include staphylococcus, pseudomonas, E.coli, proteus and streptococcus species. Botryomycosis has been known to affect humans as well as other mammals. We report a case of anaerobic Botryomycosis occurring in a young male patient who presented with atypical skin lesions at two different anatomical sites with a previous history of trauma. Complete excision of the lesion with primary closure of skin was done with excellent results. The final histopathological report of excised lesion was suggestive of botryomycosis with Hoepli- Splendore reaction. We report this case as only few cases occurring in human beings are described in literature.

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## INTRODUCTION

Botryomycosis also known as bacterial pseudo mycosis is a rare chronic granulomatous bacterial infection that affects the skin and sometimes the viscera (James, William *et al.*, 2006; Inamadar and Naglotinath, 1994; Aronstain, 1936). The name refers to its grape-like granules (Gr. Botryo = grapes) and mistakenly implied fungal etiology (Gr. Mykes = fungus). In 1919, the bacterial origin of the infection was discovered (Inamadar and Naglotinath, 1994; Aronstain, 1936). Lesions are characterized by tumefaction, deformity, multiple sinus formation and fistulous tract with deep abscess and ulcerated area of skin (Inamadar and Naglotinath, 1994). Common organisms include staphylococcus, pseudomonas, E.coli, proteus and streptococcus species (Bishop *et al.*, 1976; Reberts and Highet, 1988). Botryomycosis has been known to affect humans, horses, cattle, swine, dogs and cats (Bishop *et al.*, 1976; Reberts and Highet, 1988).

### Case report

A 15 year old young boy presented in surgical outpatient department with history of multiple skin lesions with discharge

over left lower anterior chest wall (Figure 1) and left forearm just below elbow (Figure 2) since two months. He had history of trauma to that area 2 months back. There was no history of diabetes mellitus or any other disease with immunocompression. The onset was boil like lesion, slowly progress to present size. Cutaneous examination shows nodulo-cystic discharging mass over left side of chest and forearm. No grains could be seen. No regional lymph nodes were enlarged. X-ray scan of Chest and left forearm region revealed radio opaque lesion in subcutaneous plane (Figure 3a and 3b).

Routine blood investigations revealed normal values. With a history of trauma and radio-opaque lesion on X-ray findings, a diagnosis of foreign body granuloma with superadded infection was kept. A plan of excision of these lesions was made and the lesions were excised by elliptical incisions by blunt and sharp dissection. There were many particles with metallic sheen which coalesced with each other like mercury granules. Patient recovered well from surgery and was discharged after 4 days (Figure 4). On follow-up after 14<sup>th</sup> day and 1 month, there were satisfactorily healed wounds. The histopathological report suggested botryomycosis with Hoepli- Splendore reaction.

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Figure 1. Skin lesions on anterior chest wall



Figure 2. Skin lesions on Left Forearm



Figure 3a. Radio opacity seen in X ray Chest



Figure 3b. Radio opacity seen in subcutaneous plane in X ray Left forearm



Figure 4. Post operative healed lesion

## DISCUSSION

Botryomycosis also known as bacterial pseudo mycosis is a rare chronic granulomatous bacterial infection that affects the skin and sometimes the viscera (James, William *et al.*, 2006; Inamadar and Naglotinath, 1994; Aronstain, 1936). Botryomycosis has been known to affect humans, cattle, horses, swine, dogs & cats. The disease was originally discovered by Otto Bollinger (1843-1909) in 1870, and its name was coined by Sebastiano Rivolta (1832-1893) in 1884 (Aronstain, 1936; Bishop *et al.*, 1976; Reberts and Highet, 1988). The name refers to its grape-like granules (Gr. Botryo = grapes) and mistakenly implied fungal etiology (Gr. Mykes = fungus). In 1919, the bacterial origin of the infection was discovered. The most characteristic feature of the disease is that bacteria, instead of spreading throughout the infected tissue, group together to form conglomerates resembling the sulfur granules of actinomycotic infection (Inamadar and Naglotinath, 1994; Kadyan, 1996; Ingole *et al.*, 1995). The resultant inflammatory reaction is chronic and granulomatous and usually involves skin and subcutaneous tissues. Primary cutaneous form of botryomycosis is more common than its pulmonary form which is associated with cystic fibrosis and reaches the skin forming sinuses and irregular masses (Ingole *et al.*, 1995; David Schlossberg *et al.*, 1980). Majority of

patients of the cutaneous form have no predisposing factors like diabetes mellitus, post surgical lacerations, chronic mucocutaneous candidiasis, T- cell abnormality or steroid therapy. A history of local trauma must be inquired and deep fungal infection must be ruled out as both conditions present with similar clinical features. Treatment necessitates prolong course of antibiotics and choice is determined by tissue culture and sensitivity pattern. Surgical excision is helpful in smaller lesion. Medical treatment is complicated by lack of adequate penetration of antibiotics in the sequestered grain and granulomas (Reberts and Highet, 1988; Ingole *et al.*, 1995). *Staphylococcus aureus* is usually the organism that causes the infection, however it can also be caused by *Pseudomonas aeruginosa* or several other species of bacteria. The anatomic structure of its lesion is similar to that of actinomycosis and mycetoma, and its granules resemble the sulfur granules of actinomycosis (Inamadar and Naglotinath, 1994; Reberts and Highet, 1988; David Schlossberg *et al.*, 1980). Hoeffli-Splendore phenomenon (asteroid bodies) is the in vivo formation of intensely eosinophilic material (radiate, star-like, asteroid or club-shaped configurations) around microorganisms (fungi, bacteria and parasites) or biologically inert substances (Hussein, 2008). The Hoeffli- Splendore reaction material comprises antigen- antibody complex, tissue debris and fibrin. Although the exact nature of this reaction is unknown, it is thought to be a localized immunological response to an antigen- antibody precipitate related to fungi, parasites, bacteria or inert materials. The characteristic formation of the peribacterial Hoeffli- Splendore reaction probably prevents phagocytosis and intracellular killing of the insulting agent leading to chronicity of infection.

## Conclusion

We conclude that, in a patient with a chronic nodular swelling with discharging sinuses and irrespective of the history of previous trauma and radiological features suggestive of subcutaneous radio opacity, a diagnosis of Botryomycosis must be kept in mind. The treatment is surgical excision along with penicillin based antibiotics to give excellent treatment results.

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