Case Report

Fine needle aspiration cytology of vulvar actinomycosis masquerading clinically as malignancy

ABSTRACT
Actinomycosis is a chronic infection caused by *Actinomyces israelii*, usually seen in immunocompromised patients or in the background of tissue injury. Vulvar actinomycosis presenting as a fixed swelling in an elderly individual can mimic malignancy and pose a diagnostic dilemma. We report here a case of vulvar actinomycosis diagnosed by fine needle aspiration (FNA). A 60-year-old postmenopausal female presented with a gradually increasing 15 cm × 10 cm vulvar swelling involving the right mons and right labia majora. The swelling was nodular, fixed, and nonulcerated, with multiple healed and few active discharging sinus tracts draining serosanguineous fluid and yellowish sulfur granules. FNA was diagnostic, as it revealed colonies of *Actinomyces* surrounded by polymorphs. Histopathology of excised specimen confirmed the cytological findings. FNA is an effective tool in the diagnosis of actinomycosis, although, its documentation is rare. Difficulties in the management can be avoided by early diagnosis using the FNA technique.

Key words: Actinomycosis; fine needle aspiration (FNA); malignancy, vulvar

Introduction
Actinomycosis is a chronic suppurative disease caused by *Actinomyces israelii* in human beings.[1] *Actinomyces* is a gram-positive, nonspore-forming anaerobic or microaerophilic rod-shaped bacteria.[2] Fine needle aspiration (FNA) diagnosis of actinomycosis is rare, although, the infection is well-documented in exfoliative cytology in relation to intrauterine device users.[3] We report here, a case of vulvar actinomycosis masquerading clinically as malignancy and diagnosed by FNA cytology.

Case Report
A 60-year-old female presented to the gynecologist, complaining of gradual enlargement of a right-sided tender vulvar mass. The mass was of 15 cm × 10 cm size, firm-to-hard, and fixed to the underlying soft tissue. Considering the age of the patient, the presence of a hard, fixed mass raised the suspicion of a malignancy. She had an unremarkable gynecologic history, including normal Pap smear; no intrauterine contraceptive device (IUCD) was used. On local examination, the skin was found to be smooth and showed as though healed and few active discharging sinus with yellowish granules. The whole right leg was tense and edematous. FNA yielded a purulent aspirate. The slides were stained with hematoxylin and eosin (H and E), Papanicolaou stain, May-Grunwald-Giemsa (MGG) stain, and Ziehl-Neelsen stain was done to rule out tuberculosis. The smears showed colonies

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Wanjari RP, Patil SB, Khade MG, Sarate DS. Fine needle aspiration cytology of vulvar actinomycosis masquerading clinically as malignancy. J Cytol 2015;32:273-4.
of *Actinomyces* with radiating filaments showing an intense basophilic staining. The colonies showed branching, and were surrounded by radiating, hyaline, eosinophilic material representing the Splendore-Hoeppli phenomenon and exudates of neutrophils [Figure 1]. The Ziehl-Neelsen stain was negative for acid-fast bacilli. Gram staining revealed gram-positive branching filaments. A diagnosis of actinomycosis was made and excisional biopsy was advised. The excisional biopsy also revealed abscesses with actinomycotic colonies surrounded by neutrophils and chronic granulation tissue. The patient responded very well to a course of penicillin, and edema over the right leg markedly reduced in 15 days.

**Discussion**

*Actinomyces* organisms are commensals in the oral cavity alimentary canal and urogenital tract.[4] The common clinical presentations are cervicofacial, thoracic, and abdominal.[1] Actinomycosis is seen as a genital infection in females as well, particularly those with a history of IUCD usage.[3] Our case illustrates an atypical presentation of *Actinomyces israelii* as a large vulvar mass in a postmenopausal patient mimicking vulvar carcinoma. *Actinomyces israelii* of the vulva is a rare occurrence, represented by limited reports.[5] It is thought that infection occurs after disruption of the mucosal barrier. The lesion appears as single or multiple indurated mass; these lesions are often mistaken for neoplasms. Progression is slow, often with the development of draining sinus tracts. The disease starts as a suppurative, inflammatory process, and then proceeds on to become a chronic inflammatory lesion. These abscesses discharge multiple pinhead-sized, yellowish sulfur granules that are actually aggregates of microorganism, which is a characteristic feature of this disease. They can be visible macroscopically and/or microscopically.

Cytologically, H and E stained sections show colonies of filamentous *Actinomyces* bacteria with peripherally situated, radiating, hyaline eosinophilic material representing the Splendore-Hoeppli phenomenon. There is dense polymorphonuclear infiltration around each colony, surrounded by chronic granulation tissue. Other stains that can be used to identify the organisms are Gram and silver stains. Polymerase chain reaction using the 16 svedberg (S) ribosomal RNA gene amplification has been developed for the diagnosis of actinomycosis.[6]

Diagnosis of *Actinomyces israelii* is difficult, as even one dose of antibiotics prior to culture can obscure results. Culture requires 5-7 days but may take 2-4 weeks. Because our patient was postmenopausal, with no evidence of IUCD, *Actinomyces israelii* was not suspected.

Treatment classically begins with intravenous (IV) penicillin for 2-6 weeks, followed by oral therapy with penicillin or amoxicillin for 6-12 months. Pelvic infections involving *Actinomyces* in association with the use of IUCDs are well established. In conclusion, *Actinomyces israelii* may produce vulvar lesions that are suspicious for malignancy. Thus, biopsies and cultures are both mandatory while evaluating vulvar masses suspicious for malignancy. Therefore, an early diagnosis by FNA cytology is warranted for effective antibiotic therapy and surgical resection.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

**References**

1. McNeil MM, Brown JM. The medically important aerobic actinomycetes: Epidemiology and microbiology. Clin Microbiol Rev 1994;7:357-417.
2. Russo TA. Agents of actinomycosis. In: Mandell GL, Bennett JE, Dolin R, editors. Principles and Practice of Infectious Diseases. 4th ed. New York, NY: Churchill Livingstone; 1995. p. 2280-8.
3. Hager WD, Majmudar B. Pelvic actinomycosis in women using intrauterine contraceptive devices. Am J Obstet Gynecol 1979;133:60-3.
4. Ramos MI, Carneiro JA, Poswar Fde O, Nassau DC, Colares FA. Actinomycosis affecting the spinal cord: A case report. Rev Soc Bras Med Trop 2012;45:535-7.
5. Hansen T, Kunkel M, Kirkpatrick CJ, Weber A. Actinomycoses in infected osteoradionecrosis-underestimated? Hum Pathol 2006;37:61-7.