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Case Report

Pelvic Actinomycosis Mimicking Malignancy: A Case Report

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Abstract: Female genital Actinomyces infection is relatively rare, although strongly related to long-lasting intrauterine contraceptive device (IUD) usage. The traumatic effect of the device and a prior infection may contribute to the Actinomyces infection in the female genitalia. The infection spreads by contiguity often mimicking the characteristics of a malignant neoplastic process. We have come across a case of acinomycosis in a 55 yr old female, with h/o foul smelling discharge per vagina, for a long time.
Keywords: Pelvic actinomycosis, intrauterine contraceptive device.

INRODUCTION

The association between IUDs and pelvic actinomycosis was first described around 1970 [1, 2]. Actinomycosis is an infection caused by the bacterium *Actinomyces israelii*, which normally is a harmless inhabitant of the gums, teeth, and tonsils. The bacterium is also present in lesser numbers in the membranes lining the gastrointestinal and female genital tracts. Actinomyces bacteria can be harmful, however, if they are moved into other body tissues through trauma, infection in which the soft tissues are broken or inflamed, abdominal surgery, or dental surgery, ruptured viscus, tubo-ovarian abscess and intrauterine contraceptive devices (IUD) are recognized as risk factors for abdominal/pelvic Actinomycosis [3].

Actinomyces can cause infection resulting in accumulations of pus, which can develop fistulae that allow pus to drain through the skin or that extend into other body spaces and internal organs [3]. The most common form of actinomycosis (about 50% to 70%) occurs in the head and neck (cervicofacial actinomycosis or "lumpy jaw"). Thoracic or pulmonary actinomycosis is a less common form (about 15% to 20%). It starts in the lungs after inhaling secretions containing the bacterium or spreads to the lungs from untreated actinomycosis in the head or neck. Abdominal or pelvic actinomycosis (10% to 20% of cases) spreads throughout the abdomen from a trauma such as a recent bowel surgery or prolonged placement of an intrauterine contraceptive device (IUD). The infection also can spread via the bloodstream to other organs, including the skin, liver, kidneys, ureters, ovaries, uterus, spinal vertebrae, and brain (generalized actinomycosis)[4].

CASE REPORT

A 55 years old lady presented to Gynae OPD with foul smelling discharge per vagina since few months. Laboratory findings included an elevated C-reactive protein level of 160 mg/L (normal range, < 10 mg/L), an elevated erythrocyte sedimentation rate of 108 mm/h (normal range, < 20 mm/h), and a high white blood cell count of 17.9 × 10^9/L (normal range, [4 –11.0]× 10^9/L). On curettage, the exudate was removed and the IUD which was inserted 30 yrs. back was removed. The curetted material was sent for histopathological examination.

Gross Appearance

The specimen consisted of exudate with grey brown endometrial tissue fragments. Entire tissue was processed.

MICROSCOPY

The multiple sections studied showed an abscess with central eosinophilic filamentous colonies fig.-1 and fig-2.

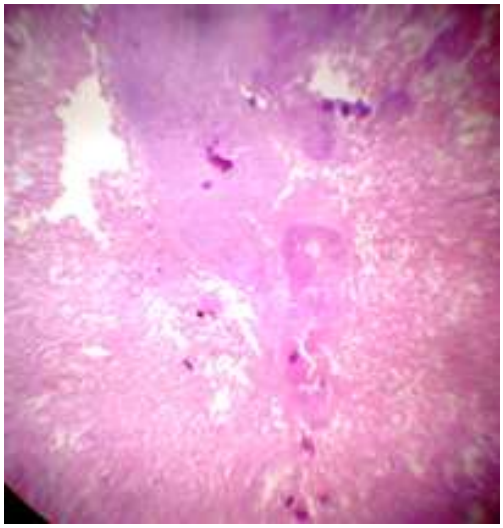

Fig.1: (scanner view) Showing Actinomyces colonies amidst exudates

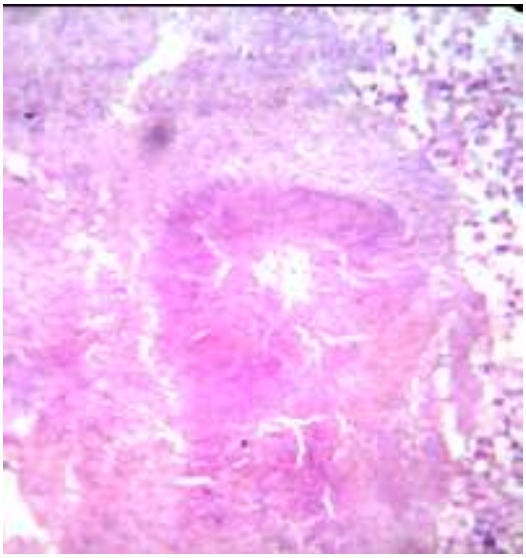

Fig. 2: (10x) Showing Actinomyces colonies amids-exudate

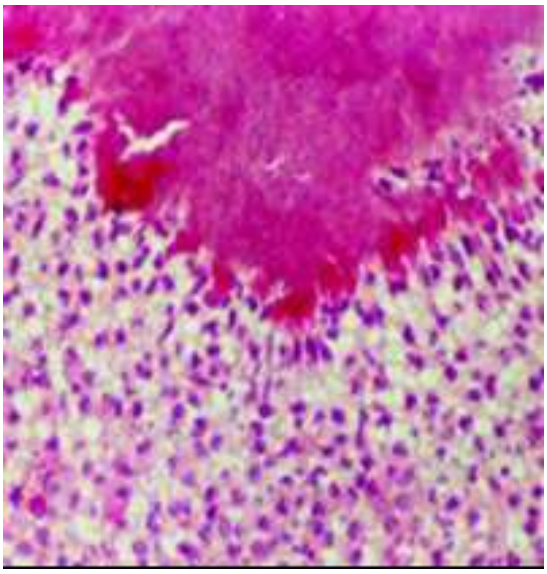

Fig 3: (40x) Presence of sulfur granules

The characteristic colonies of Actinomyces and a nonspecific inflammatory response composed predominantly of neutrophils, histiocytes, lymphocytes, and plasma cells composing the abscess in which Actinomycotic "sulfur" granules were visible as fig.3.

DISCUSSION

Actinomycosis is a chronic infection characterized by the presence of exudate and Actinomycotic colonies. This infection does not invade intact mucous membranes, and commonly requires tissue trauma or with chronic inflammation and mucosal breakdown associated with IUDs appears to favour colonization, and subsequent development of suppuration. The disease has a low prevalence and its different anatomical locations impose a diagnostic challenge to the various medical specialities [8-10]. The genus Actinomyces includes *A. israelii, A. naeslundii, A. viscosus, A. meyeri, A. odontolyticus* and *A. gerencseriae. A. israelii* is the most common subtype in humans and is even considered as a common occasional commensal of the oropharynx, the gastrointestinal tract, and the vagina [4-8] .Usually, the symptoms include lower abdominal pain, cachexia, vaginal discharge, and nausea [12,14]. As the disease progresses, it can become severe, with tubo-ovarian abscess formation leading to a "frozen pelvis" and mimicking pelvic cancer [12]. Infections of the female genital tract with actinomyces can be caused by surgery, perforation of the bowel, or foreign bodies, such as IUDs [12]. The differential diagnosis of pelvic actinomycosis forming a pelvic mass includes benign and malignant tumours of all pelvic organs, metastatic cancers, lymphoproliferative disorders, retroperitoneal fibrosis, endometriosis, and inflammatory processes, such as a diverticular abscess, Crohn disease, or tuberculosis [14,15].

Diagnosis by traditional culture techniques is considered insensitive as Actinomyces is oxygen-sensitive and slow-growing, when compared to concomitant faster-growing anaerobes. Actinomyces may culture in an anaerobic transport device. Despite this, culture is difficult and definitive identification may require 2–3 weeks. Immunofluorescence technique with direct smears may be a faster diagnostic method. Using a Gram stained smear it is possible to demonstrate beaded, branched, positive stained filamentous rods. Micro-organism diagnosis may be obtained by microscopic examination and the presence of sulphur granules stained with a 1% methylene blue solution [16]

Antibiograms are not needed due to known sensitivity to specific antibiotics. Pap smears may help in detection. Tissue histologic studies show suppurative and granulomatous inflammatory changes, connective tissue proliferation, and sulphur granules which have also been found in infections caused by *Nocardia brasiliensis, Streptomyces madurae, and Staphylococcus aureus*. These granules are yellowish particles when seen by the naked eye and are formed by clumps of filamentous Actinomyces surrounded by neutrophils [17].

Complications

- Oral cervico-facial: characteristic "lumpy jaw," loss of temporo mandibular angle of jaw by swelling.
- Pelvic infection: classically IUD-associated.
- Thoracic: pneumonia or mass lesion (may be confused with malignancy).
- Intra-abdominal: abscess or mass lesion.
- Musculoskeletal: lesions in either muscle, bone or (rarely) joint.
- Osteonecrosis of jaw: post chemotherapy, radiation therapy or post-bisphosphonate (controversial)

- Cardiac: endocarditis (The "A" of HACEK, Actinobacillus actinomycetemcomitans [Aggregatibacter actinomycetemcomitans]
- CNS: meningitis (rare), encephalitis (rare), brain abscess.
- Disseminated: rare

CONCLUSION

Actinomycosis is a rare chronic infectious disease. The symptoms of pelvic Actinomycosis may mimic malignancy. Thus the patient should be well educated regarding the life of IUD and its complications. When a mass or an abscess is found in the pelvis in patients with an IUD, a fever and laboratory findings that indicate the presence of an infection, pelvic actinomycosis should be considered [12].

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