A Rare Case of Non-IUD-Related Chronic Endometritis caused by Actinomyces Bacteria in a Postmenopausal Woman: A Case Report

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Pelvic actinomycosis is a rare condition, usually associated with intrauterine device (IUD) use. Its clinical presentation may vary from being asymptomatic to the mimicking of pelvic malignancy; it has been described as one of the most misdiagnosed diseases. A 78-year-old woman without a history of IUD use, arrived at our clinic complaining of chronic and intermittent postmenopausal bleeding associated with lower pelvic pain. An endometrial curettage was performed, and endometritis (caused by Actinomyces) was identified. Treatment with intravenous piperacillin and tazobactam for 7 days, followed by 6 weeks of oral ampicillin, daily, decreased the bleeding and the pain. Although rare, it is important to consider Actinomyces-related endometritis as a differential diagnosis in cases of elderly woman with postmenopausal bleeding and without a history of IUD use. [*P R Health Sci J 2022;41(3):165-167*]

Key words: Actinomyces bacteria, Chronic endometritis, Postmenopause, Intrauterine device, Vaginal bleeding

Endometritis caused by Actinomyces is extremely rare and is usually associated with intrauterine device (IUD) use (1–3). The clinical presentation of this condition may vary from being asymptomatic to the mimicking of pelvic malignancy; it has been described as one of the most misdiagnosed diseases (1). This chronic and slowly progressive granulomatous disease is commonly caused by filamentous gram-positive anaerobic bacteria from the family Actinomycetaceae, Actinomyces israelii, a natural inhabitant of the gastrointestinal tract (2). Clinical manifestations can include cervicofacial (60%), abdominal/pelvic (25%), and/or thoracic (15%) involvement (2). Risk factors for pelvic actinomycosis include IUD use, abdominal surgery, a ruptured viscus, and a tubo-ovarian abscess (3,4).

Using an IUD promotes the colonization of the female reproductive tract by the bacterial species A. israelii, which is one of the most common species found in cases of pelvic actinomycosis (1). We present a case of chronic endometritis caused by Actinomyces in a female without a history of IUD use.

Case Report

A 78-year-old woman with 4 pregnancies and 3 children, last menstrual period at 53 years of age, presented to our clinic at San Juan City Hospital complaining of postmenopausal bleeding (PMB) for the last 7 months. Her past medical history included hypertension, hyperlipidemia, and dilated cardiomyopathy with an implantable cardioverter-defibrillator. She had a past surgical history of a bilateral partial salpingectomy with bladder repair. The patient denied any recent sexual activity and the use of an IUD. A transvaginal sonogram revealed an endometrial lining of 9 mm; endometrial sampling revealed an atrophic endometrium with loose, unremarkable endocervical cells. Due to the benign nature of the findings, she was followed-up as an outpatient and treated for atrophic vaginitis using vaginal conjugated estrogens. After 2 years, the patient returned with recurrent PMB and pelvic pain. She was monitored, and her symptoms persisted.

A hysteroscopy with a fractional dilation and curettage with endometrial sampling was performed. The pathology results revealed pyometra, blood, mucus, necrotic tissue, and bacterial colonies of Actinomyces on endometrial curettage. She was admitted for treatment of endometritis caused by Actinomyces. Cultures from her blood, vagina, urine, and stool were negative. No leukocytosis was found, and an abdominopelvic computed tomographic scan was negative for abscess. After the initial treatment with piperacillin/tazobactam (3.375 g, intravenously, every 6 hours), the patient reported an improvement of her symptoms and that she had been able to reduce her pad use to 1 to 2 pads, daily. The patient completed 7 days of intravenous antibiotics and was discharged home on ampicillin therapy (500 mg, po, daily, for 6 weeks). In the follow-up appointment, the patient reported experiencing significant improvement, with a decrease in pain and only minimal bleeding.

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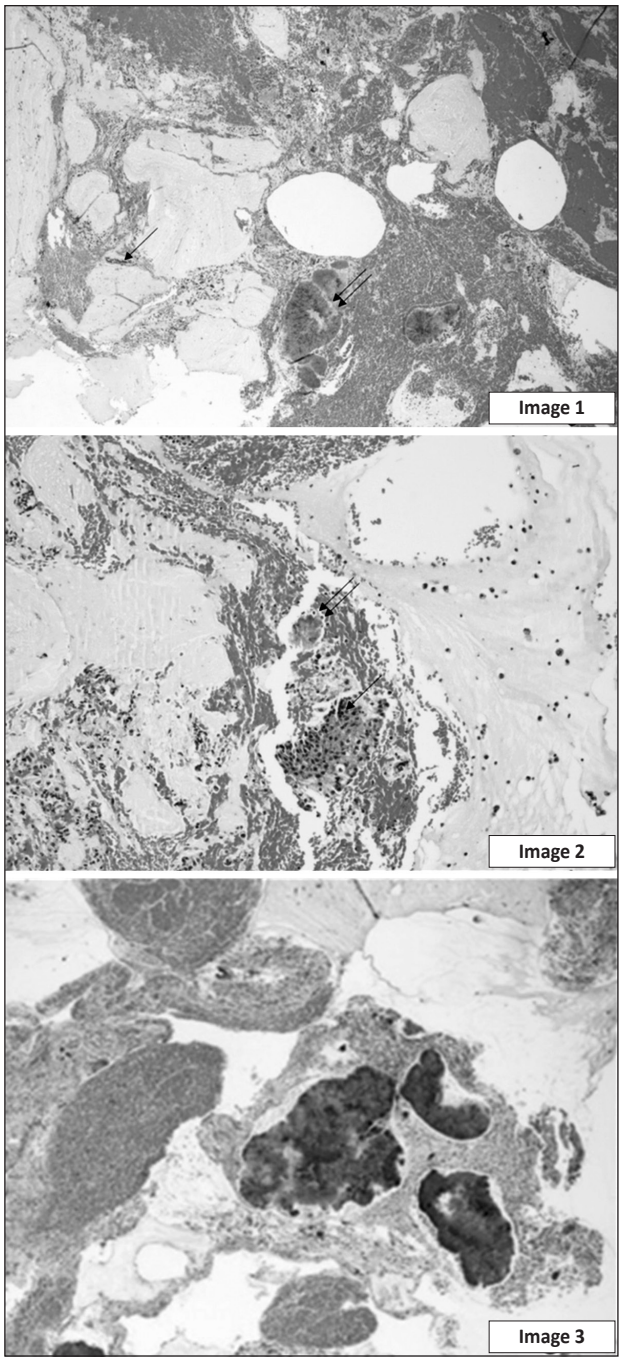

Figures. **Image 1**. Free cells along with mucus. Cuboidal cells from the squamocolumnar junction. Actinomyces colony. **Image 2**. Squamocolumnar epithelium. Actinomyces colonies embedded in tissue. **Image 3**. Actinomyces, a gram-positive bacterium showing a cotton ball pattern, intertangling mycelial fragments, and rosette peripheral clubs.

Discussion

Pelvic Actinomyces infection is a rare pathology that is usually associated with a history of IUD use. Injury to the mucosal membrane of the uterus by an IUD can facilitate the infection process (1,3,5). There have been very few cases of women without a history of IUD use who developed Actinomyces infection of the uterus. We identified 3 cases reported in the literature of 3 women with endometrial actinomycosis who had no history of IUD use, including 2 (52 and 66 years old, respectively) with pelvic pain and PMB and 1 (86 years old) with a uterine perforation (11–13). In addition, we found a case report of a 60-year-old female diagnosed with endometrial actinomycosis who had a past history of IUD removal (10 years prior to the infection) (14). Although, our patient had a pacemaker, which can be a possible focus of Actinomyces infection, this type of infection would have had a hematogenous spread, making it unlikely due to the lack of other systemic symptoms (2,6). Otherwise, our patient presented with no apparent predisposing risk factors for Actinomyces infection.

Actinomyces spp. infections are challenging to diagnose because of their lack of pathognomonic features. They can mimic other pathological processes, such as nocardiosis, chromoblastomycosis, and botryomycosis; malignant lesions; Crohn's disease; and pelvic abscesses, due to their potential to form infiltrative masses, which is why their diagnosis is such a challenge (3,7). This kind of infection is pathologically difficult to identify in media due to the prolonged culture times that are required, as well as the lack of skills in using and access to the equipment needed to make such cultures (1). This infection is most often diagnosed via histopathological reports, which are commonly obtained during a surgical intervention (8,9).

The sample in which pyometra was later identified and that was obtained during the hysteroscopy of our patient was examined by the Department of Pathology at the University of Puerto Rico Medical Science Campus. A hematoxylin and eosin stain was performed on the sample. Images 1 and 2 (below) show free cells along with mucus and cuboidal cells from the squamocolumnar junction, confirming the presence of endocervical cells in the sample. Image 3 (below) shows sulfur granules, which represent colonies of organisms and appear as a round or oval basophilic mass with eosinophilic terminal clubs on staining, with the pathognomonic Actinomyces filamentous colonies at the periphery of the sulfur granules. Although these sulfur granules can be encountered in other pathologies, such as nocardiosis and chronic cervicofacial fungal infections, the filamentous branching bacteria at the periphery of the granule are highly suggestive of Actinomyces (1). Moreover, the Actinomyces colonies embedded in the tissue (Image 2) are suggestive of a chronic infection.

Usually, patients present with non-specific signs and/or symptoms including pain, vaginal discharge, constipation, and/or a pelvic mass, all without fever. Symptoms can be confused with a gynecology malignancy, uterine myoma, or adenomyosis. Our patient presented with PMB and pelvic pain. The differential diagnoses of PMB can include many benign and malignant conditions, the most common of which is atrophy, but the most concerning possible etiology is endometrial cancer (15).

It is uncommon to see PMB due to endometritis. It is even more rare to have PMB due to endometritis that itself has been caused by Actinomyces infection in a patient with no history of IUD usage. After using a transvaginal sonogram and endometrial sampling to rule out several differential diagnoses, we found that our patient was colonized with Actinomyces and that her PMB was most likely due to the infection. Although rare, Actinomyces-related endometritis is a potential differential diagnosis in cases of elderly woman with PMB and without a history of IUD use.

Resumen

La infección uterina causada por actinomicosis es una condición rara, usualmente asociada al uso de algún dispositivo intrauterino hormonal (IUD, por sus siglas en inglés). La presentación clínica puede variar, desde no tener síntomas hasta parecer alguna malignidad pélvica. Esta condición ha sido descrita como una de las enfermedades más mal diagnosticada. Una mujer de 78 años, sin historial de uso de IUD, llegó a la oficina con sangrado postmenopáusico crónico e intermitente asociado con dolor pélvico bajo. Se le realizó un legrado uterino en donde se identificó Actinomyces. La paciente fue tratada con piperacilina/tazobactam 3.375 mg intravenoso por siete días, seguido de ampicilina 500 mg vía oral por seis semanas. La paciente respondió al tratamiento, presentando mejoría clínica y cese del sangrado postmenopáusico. A pesar de que es raro, la endometritis por Actinomyces debe ser un diagnóstico diferencial en casos de pacientes postmenopáusicas con sangrado y sin historial de IUD.

References

1. Valour F, Sénéchal A, Dupieux C, et al. Actinomycosis: etiology, clinical features, diagnosis, treatment, and management. Infect Drug Resist. 2014;7:183-197. Published 2014 Jul 5. doi:10.2147/IDR.S39601
2. Wong VK, Turmezei TD, Weston VC. Actinomycosis. BMJ. 2011;343:d6099. Published 2011 Oct 11. doi:10.1136/bmj.d6099
3. García-García A, Ramírez-Durán N, Sandoval-Trujillo H, Romero-Figueroa MDS. Pelvic Actinomycosis. Can J Infect Dis Med Microbiol. 2017;2017:9428650. doi:10.1155/2017/9428650
4. Schiffer MA, Elguezabal A, Sultana M, Allen AC. Actinomycosis infections associated with intrauterine contraceptive devices. Obstet Gynecol. 1975;45(1):67-72.
5. Luff RD, Gupta PK, Spence MR, Frost JK. Pelvic actinomycosis and the intrauterine contraceptive device. A cyto-histomorphologic study. Am J Clin Pathol. 1978;69(6):581-586. doi:10.1093/ajcp/69.6.581
6. Klaaborg KE, Kronborg O, Olsen H. Enterocutaneous fistulization due to Actinomyces odontolyticus. Report of a case. Dis Colon Rectum. 1985;28(7):526-527. doi:10.1007/BF02554104
7. Moniruddin ABM, Begum H, Nahar K. Actinomycosis: an update. Med Today. 2010;22(1):43-47. doi: https://doi.org/10.3329/medtoday.v22i1.5606
8. Purola E, Paavonen J. Aktinomykoosi ja kohtuehkäisin [Actinomycosis and IUD's]. Duodecim. 1981;97(5):231-234.
9. Perez-Lopez F, Tobajas J, Chedraui P. Female pelvic actinomycosis and intrauterine contraceptive devices. Open Access J Contracept. 2010;1:35-38. https://doi.org/10.2147/OAJC.S7476
10. Choi MM, Baek JH, Lee JN, Park S, Lee WS. Clinical features of abdominopelvic actinomycosis: report of twenty cases and literature review [published correction appears in Yonsei Med J. 2009 Oct 31;50(5):737. Beak, Jeong Heum [corrected to Baek, Jeong Heum]]. Yonsei Med J. 2009;50(4):555-559. doi:10.3349/ymj.2009.50.4.555
11. Sharma S, Valiathan M, Rao L, Pai MV. Endometrial actinomycosis in post menopausal female in the absence of an intrauterine contraceptive device: A rare cause of bleeding per vaginum. J Clin Diagn Res. 2012;6(6):1062-1063.
12. Hagiya H. Pyometra Perforation Caused by Actinomyces without Intrauterine Device Involvement. Case Rep Obstet Gynecol. 2013;2013:658902. doi:10.1155/2013/658902
13. Petronijevic T. Postmenopausal bleeding as a symptom of endometrial actinomycosis in the absence of intrauterine contraceptives and with allergy to penicillin. Presented at: Proceedings from 15th International Conference on Clinical & Medical Case Reports; April 16-17, 2020; Amsterdam, Netherlands. Abstract 221.
14. Mirza E, Jaleel S. Pelvic actinomycosis presenting as a single episode of postmenopausal bleeding in a 60-year-old woman whose intrauterine contraceptive device had been removed 10 years previously: A case report. Case Rep Womens Health. 2020;28:e00267. Published 2020 Oct 24. doi:10.1016/j.crwh.2020.e00267
15. Sung S, Abramovitz A. Postmenopausal Bleeding. In: StatPearls. Treasure Island (FL): StatPearls Publishing; December 12, 2021.