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Incidental actinomycosis in a 44-year-old female during total abdominal hysterectomy for abnormal uterine bleeding: A case report

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Abstract

Actinomycosis, a rare chronic bacterial infection caused by Actinomyces species, presents diagnostic challenges due to diverse clinical presentations. This report presents a case of peritoneal actinomycosis incidentally discovered during a total abdominal hysterectomy in a 44-year-old female with refractory abnormal uterine bleeding and a history of long-term intrauterine contraceptive device use. The patient presented with persistent abnormal uterine bleeding despite conservative management. Intraoperative findings during total abdominal hysterectomy revealed peritoneal involvement, prompting histopathological evaluation confirming actinomycosis. This case highlights diagnostic complexities associated with actinomycosis, emphasizing the significance of histopathological confirmation. Postoperative management with antibiotics demonstrated favorable outcomes, supporting their efficacy in treating actinomycosis. The case underscores the importance of considering uncommon infections in pelvic pathology, particularly in patients with prolonged intrauterine contraceptive device usage. It prompts further exploration of actinomycosis in relation to intrauterine contraceptive device use and highlights the need for timely intervention and histopathological confirmation for optimal patient care.

Keywords

Actinomycosis, total abdominal hysterectomy, abnormal uterine bleeding, intrauterine contraceptive device, histopathology, antibiotic therapy

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Introduction

Actinomycosis, primarily caused by *Actinomyces israelii*, is a chronic bacterial infection characterized by a slow and indolent invasion of tissues.[1] These Gram-positive, anaerobic, or microaerophilic filamentous bacteria commonly inhabit the oral, gastrointestinal, and female genital tracts as commensals. Disruption of mucosal barriers or tissue trauma can lead to invasive infection, with risk factors including microtrauma post-surgical procedures, dental work, or gastrointestinal surgery, as well as immunosuppression seen in conditions like HIV/AIDS or due to medications. Long-term intrauterine contraceptive device (IUCD) usage has also been associated with pelvic actinomycosis due to local tissue irritation and inflammation.[2,3]

Actinomycosis presents with diverse manifestations depending on the anatomical site involved. In the pelvic region, symptoms may include abdominal pain, pelvic masses, or abnormal vaginal bleeding. Actinomycotic pelvic abscesses can mimic malignancies due to their invasive nature, with characteristic sulfur granules observed in draining sinus tracts.[4,5]

Although rare, pelvic actinomycosis involving organs such as the uterus, peritoneum, fallopian tubes, and ovaries has been reported, particularly in association with long-term IUCD use.[6] Complications include local spread, abscess

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formation, and sinus tract development, with potential for mimicking malignancies and resulting in unnecessary surgical interventions. Systemic dissemination leading to distant site infections can also occur.[7,8]

This case highlights the atypical discovery of actinomycosis involving the peritoneum, an infrequent manifestation. The correlation between prolonged IUCD use and peritoneal actinomycosis underscores the importance of considering uncommon infections in pelvic pathology. Increased awareness among healthcare professionals is essential for prompt recognition and management of such presentations to prevent complications and ensure favorable outcomes for affected patients.

Case presentation

A 44-year-old gravida 2, para 2 female presented to the gynecology clinic with a chief complaint of abnormal uterine bleeding persisting for 6 months. Her medical history included the insertion of a copper IUCD 5 years prior, following the birth of her second child. The patient reported regular menstrual cycles until 6 months ago when she began experiencing irregular and prolonged episodes of vaginal bleeding, which were unresponsive to various medical treatments, including oral contraceptive pills and hormonal therapies. She denied any significant medical or surgical history apart from the uncomplicated pregnancies and deliveries of her two children. Since the patient had refractory bleeding, the IUCD was removed during her first visit to the clinic.

Upon detailed exploration of her symptoms, she described the bleeding as heavy, occurring intermittently between menstrual cycles, and accompanied by lower abdominal discomfort. She denied any associated symptoms of fever, chills, dysuria, or changes in bowel habits. There were no reported episodes of pelvic pain, unusual vaginal discharge, or weight loss.

The patient's social and gynecological history revealed consistent monogamous sexual activity with her husband and no history of sexually transmitted infections. On general examination, it was unremarkable, and the gynecological examination was normal apart from minimal vaginal bleeding.

The routine blood tests revealed an elevation in white blood cell count (14.2×10^9/L) and neutrophil levels (85.9%), along with a decrease in hemoglobin levels (8.4 g/dL). However, the C-reactive protein value fell within the normal range. The remaining laboratory investigations, including blood and urine cultures, HIV screening, tuberculosis acid-fast bacilli staining of sputum samples, and *Mycobacterium tuberculosis* polymerase chain reaction using the GeneXpert platform, all returned negative results. Other components of the laboratory work-up were within normal ranges.

The abdominal and pelvic computed tomography with intravenous contrast revealed heterogeneous enhancement of the soft tissue in the left anterior abdominal wall, specifically involving the left rectus abdominis muscle at the level of the umbilicus. Multiple prominent lymph nodes were visualized adjacent to the transverse colon, with the largest lymph node measuring 1.1 cm × 0.7 cm.

Given the persistence and refractoriness of the abnormal uterine bleeding despite conservative management, a decision was made to proceed with a comprehensive evaluation, which included diagnostic imaging and subsequent total abdominal hysterectomy (TAH) as the definitive therapeutic intervention. The potential differential diagnoses considered included endometrial carcinoma or other uterine malignancies, as well as endometrial hyperplasia and endometrial tuberculosis.

Intraoperatively, while conducting the TAH procedure intended to address the refractory abnormal uterine bleeding, unexpected findings were noted upon inspection of the peritoneum. Abnormal tissue involvement was observed in the peritoneal cavity adjacent to the uterus, prompting the surgical team to collect biopsies for further examination. The fallopian tubes and ovaries appeared normal.

Histopathological evaluation of the peritoneal tissue specimens revealed characteristic sulfur granules and filamentous structures consistent with actinomyces infection. This unexpected discovery of Actinomycosis involving the peritoneum during the TAH procedure was a distinctive and unusual finding, divergent from the anticipated uterine pathology. The uterus appeared to have endometrial hyperplasia.

The incidental identification of peritoneal actinomycosis brought attention to a rare presentation of this infection in the pelvic region, further underscoring the potential association between long-term IUCD usage and atypical pelvic pathologies.

Following the TAH procedure and the histopathological confirmation of actinomycosis involving the peritoneum, the patient received postoperative care consisting of a course of intravenous ceftriaxone and metronidazole antibiotics to target actinomyces species for 7 days. Pain management was provided with appropriate analgesics to ensure comfort and optimal recovery.

Subsequent follow-up visits in the outpatient clinic revealed an unremarkable postoperative course. The patient demonstrated satisfactory recovery, with no signs or symptoms suggestive of ongoing infection or postoperative complications. Physical examinations and laboratory investigations during the follow-up visits showed no concerning findings. The patient tolerated the antibiotic regimen well, with no reported adverse effects or complications related to the treatment.

Discussion

Actinomycosis, caused predominantly by *Actinomyces israelii*, is an infrequent bacterial infection known for its indolent nature and diverse clinical presentations.[4,7] In this unique case, actinomycosis involving the peritoneum was

incidentally discovered during a TAH in a 44-year-old female with a history of long-term IUCD use.

The clinical presentation of refractory abnormal uterine bleeding in the context of actinomycosis is noteworthy. Abnormal uterine bleeding, a common gynecological concern, led to the initial evaluation and eventual decision for a TAH.[9,10] The prolonged IUCD usage introduced a crucial element to the case, aligning with previous literature associating actinomycosis with IUCD placement.[2,3] This underscores the importance of considering unusual infections in patients with a history of prolonged IUCD use, even when presenting with seemingly common gynecological symptoms.

The unexpected intraoperative findings of peritoneal actinomycosis added complexity to the case. Typically associated with cervicofacial, thoracic, and abdominopelvic regions, peritoneal involvement is rare and poses diagnostic challenges.[11,12] The mimicking of malignancy by actinomycosis, noted in this case, emphasizes the need for thorough histopathological examination to differentiate it from neoplastic conditions, preventing unnecessary extensive surgeries.[8]

The utilization of ceftriaxone and metronidazole in the postoperative period aligns with established antibiotic regimens effective against actinomyces species.[1] The unremarkable postoperative course, marked by the absence of complications and resolution of symptoms, supports the efficacy of the chosen antibiotic therapy. This underscores the significance of prompt diagnosis and appropriate antibiotic management in achieving positive patient outcomes.[1,9]

The association between actinomycosis and IUCD usage warrants further exploration. While the exact mechanism remains unclear, the local irritation and inflammation caused by the IUCD may create a conducive environment for actinomyces infection. This case underscores the importance of heightened clinical suspicion, especially in patients with a history of prolonged IUCD use, leading to timely intervention and appropriate management.

Conclusion

In conclusion, this case highlights the rare occurrence of peritoneal actinomycosis in the context of abnormal uterine bleeding and long-term IUCD use. The unexpected intraoperative discovery emphasizes the importance of a comprehensive diagnostic approach, incorporating histopathological examination, to guide appropriate management decisions. Further research is warranted to better understand the intricacies of actinomycosis in relation to IUCD use and to refine diagnostic and treatment approaches for this uncommon yet clinically significant infection.

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Authorship

All authors contributed to the conceptualization, writing, and critical review of this case report.

Author contributions

W.K. contributed to the study conception, production of the initial manuscript, and collection of data; A.I. contributed to the production of the initial manuscript, revision of the manuscript, and proofreading; A.K. and B.M. contributed to the revision of the manuscript and proofreading; G.N. and B.M. contributed to the revision of the manuscript and proofreading; B.M. contributed to the revision of the manuscript and proofreading; M.K. contributed to the production of the initial manuscript and collection of data; A.M. contributed to the study conception, revision of the manuscript, and proofreading.

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Ethics approval

Our institution does not require ethical approval for reporting individual cases or case series.

Informed consent

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