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Bilateral Tubo-Ovarian Actinomycosis in Perimenopausal Woman with Neglected Intrauterine Device: A Case Report and Review of Literature

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Case Report

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Abstract

Pelvic actinomycosis is a rare condition mostly affecting sexually active old women. It affects the upper female reproductive system and is commonly encountered in those who have an IUD inserted. It could lead to pelvic inflammatory disease and subsequent complications that may mimic malignancy in serious sequelae. In this article, we report a case of tubo-ovarian actinomycosis in a perimenopausal women with neglected IUD. She presented with a tubo-ovarian abscess with adhesions.

Keywords: IUD, Acute abdomen, Pelvic inflammatory disease, Adnexal mass.

Introduction

Pelvic inflammatory disease (PID) is an inflammatory condition affecting the upper genital parts such as uterine tubes, ovaries and other pelvic adnexa. It occurs due to infection existing mainly in sexually active women (Curry et al., 2019). The most common cause is ascending infection through the genital tract to reach the uterine tubes and the peritoneal cavity causing PID, then progresses to form a tubo-ovarian abscess (TOA). The inflammatory condition may involve other pelvic organs such as the intestine and urinary bladder. Introduction of intra-uterine devices give a soil for Pelvic inflammatory disease (PID). It has been reported that PID occurs in patients with IUDs much more than non-IUDs users by three to nine folds ratio (Beerthuizen, 1996). Such increased incidence might be attributed to potential contamination of the uterine cavity with cervical microorganisms at the time of IUD insertion (Hubacher, 2014). Other authors stated that PID associated with IUD insertion occurs particularly in older women aged 35 years or older (Viberga et al., 2005).

Pelvic actinomycosis (PAM) is a rare infection, and found with association of the introduction of intrauterine device (IUD). Tubo-ovarian abscess (TOA) is a serious complication of untreated pelvic inflammatory disease (PID). TOA carries a high morbidity and mortality. The diagnosis depends on the clinical findings, raised inflammatory markers, radiological findings, and the definitive diagnosis is based on tissue biopsy (Moustafa, 2015; Munro et al., 2018). The PAM is caused by microorganisms that are commonly inhabitants of the genital tract. The causative microorganism is not fungi but is taxonomically closer to anaerobic bacteria. It is called Actinomyces israelii (Lippes, 1999). It accounts about 20% of human cases of PID. It most commonly presents with acute appendicitis, especially associated with perforation and occasionally presents with a pelvic mass (Wong et al., 2011). It may mimic malignancies in presentation. Furthermore, preoperative diagnosis of such cases is mostly difficult and its detection is retrospectively depending on investigation of excised tissues after extensive surgery (Wan et al, 2014; Laios et al., 2014).

In this article, we report a case of tubo-ovarian actinomycosis in a perimenopausal women with inserted IUD.

Case report

A 51-year-old female patient attended the obstetrics and gynaecology outpatient clinic, Zagazig University Hospitals. The patient was suffering from irregular uterine bleeding and severe lower abdominal pain exacerbated by a chronic condition. Her past history was taken, then general and pelvic examination was conducted. The patient was perimenopausal aged 51 years, with a history of insertion of intra uterine device (IUD) continuously for about 12 years. Menstrual cycles were irregular in the last 2 years. She showed a slight increase in temperature “37.5o C”, rapid, regular, full bound pulse 85/minute, and blood pressure 100/65 mm Hg.

Local examination showed pelvic tenderness and adnexal masses. Ultrasonography showed pelvi-abdominal lesions suggestive tubo-ovarian abscess. The patient underwent emergent surgical exploration. At surgery, the tubo-ovarian mass was showing an abscess with adhesions on both sides mimicking malignancy. The uterine wall was irregular by a swelling, in addition to the adhesions with tubes. Modified panhysterectomy was performed including hysterectomy and salpingo-oophorectomy.

Specimens taken from the resected uterus and tubo-ovarian masses were subjected to gross examination and then histopathological examination after cutting sections from each part of tissues. Then, tissue processing utilizing Hegazy method (Hegazy & Hegazy, 2015) was performed. Then, the sections were investigated using microscopic examination utilizing binuclear light microscopy (LM) (Olympus CX 31,).

Gross examination of uterine specimen showed that the uterus was globoid and firm consistency. Cut section showed intrauterine device and one nodule of interstitial fibroid. The endometrium was thin; and the cervix was firm. Microscopic examination showed atrophic endometrium. Sections of the uterine fibroid showed interlacing bundles of smooth muscle cells, fibroblasts and collagen bundles without atypia. Sections of the cervix showed papillary endocervicitis.

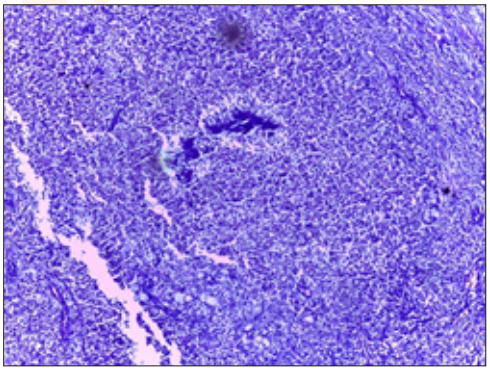

Figure 1: Section of fallopian tube showing actinomycosis colony on the right adnexa. (H&E staining, x,300)

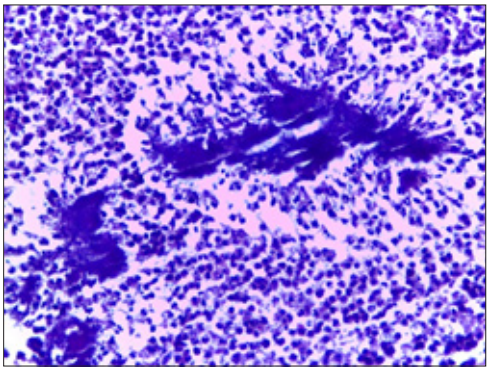

Figure 2: Section showing actinomycosis colony on the right adnexa. (H&E staining, x,400)

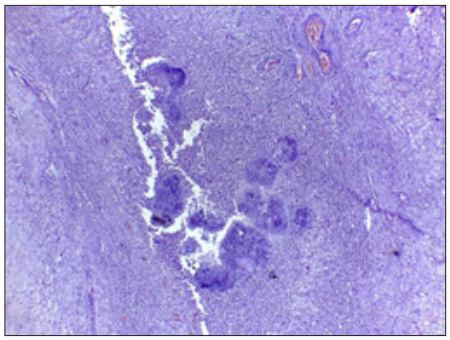

Figure 3: Section showing multiple actinomycosis colonies on the left adnexa. (H&E staining, x,100)

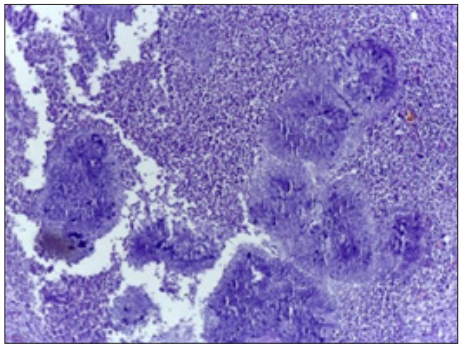

Figure 4: Section of showing multiple actinomycosis colonies on the left adnexa. (H&E staining, x,200)

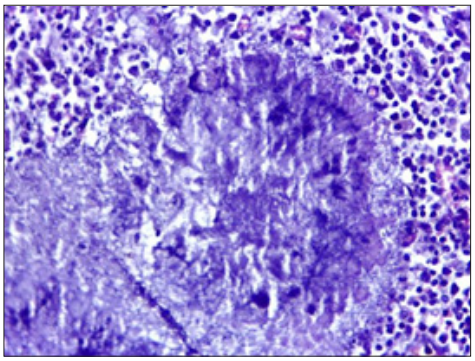

Figure 5: Section of fallopian tube showing an actinomycosis colony. (H&E staining, x,400)

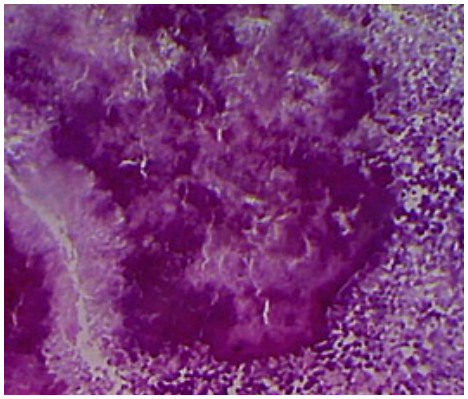

Figure 6: Gram positive colonies of actinomycosis of fallopian tube. (Gram-stained sections x, 400)

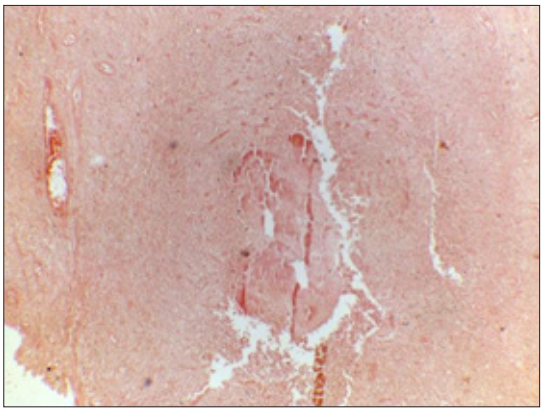

Figure 7: Section of fallopian tube showing an actinomycosis colony. (PAP staining, x,100)

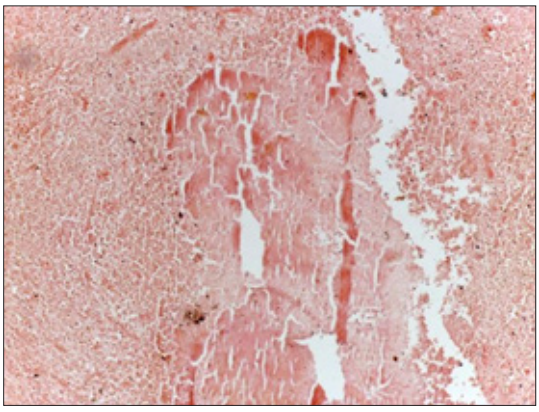

Figure 8: Section of fallopian tube showing an actinomycosis colony. (PAP staining, x,300)

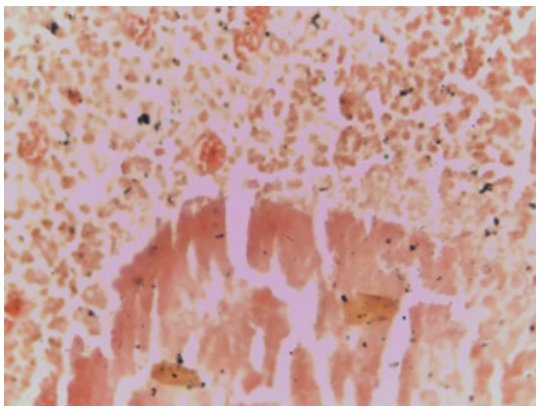

Figure 9: Section of fallopian tube showing an actinomycosis colony. (PAP staining, x,400)

Gross examination of the tubo-ovarian adnexa showed an irregular mass of tissue on both sides. It was soft to firm in consistency, grayish-white in color and measuring 2x3x3cm on left and 1x2x3cm on the right side. Cut section showed soft friable tissue with scattered small yellowish nodules. Microscopic examination showed heavy polymorphonuclear leukocytes infiltrate, tissue edema, and colonies of actinomycosis, with long condenses bluish hyphae and peripheral club (actinomycosis colonies) (Figures 1-5). Paraffin sections of the tubal mass were stained with gram stain and PAP stain for further investigation of the colonies. Gram-stained sections showed gram positive colonies (Figure 6), while PAP-stained sections showed homogenous pink colonies (Figures 7-9). The patient was treated postoperatively with appropriate antibiotics, in addition to non-steroidal anti-inflammatory tablets/12 hour. The patient underwent follow up every 3 months clinically and ultrasonography for one year.

Discussion

Tubo-ovarian actinomycosis is a rare lesion. Actinomycosis is often caused by disruption of the mucosa of genital ducts; and most often occurs in patients following pelvic surgery such as colporrhaphy or in those with poor hygiene as well as in those with an IUD (Davick et al., 2021). Our patient was perimenopausal. Menopause causes atrophic changes in the female genital ducts' lining promoting increased incidence of infections (Hegazy, 2020).

This lesion may occur as a progress of PID. Cases of PID usually occur in a sexually active females in the reproductive age, especially those with an IUD. PID may start soon after installation of IUD. At first, PID passes asymptomatic particularly with patients with low threshold pain. With long-term placing of IUD, such as 12-years long of our case study, the possibility of occurrence of actinomycosis increased. In agreement with our finding, (Sehouli et al., 2006) stated that increased duration of IUD increases the risk of occurrence of cervicovaginal actinomycosis by approximately 11.4%. The same agreement was also reported by (Onal et al., (2009) and Laios et al., (2014). However, (Marwah et al., (2005) and Moustafa (2015) presented unusual cases of ovarian actinomycosis without evidence of IUD insertion. As an agreement by some authors, the history of prolonged introduction of IUD, is important in the diagnosis of tubo-ovarian actinomycosis (Dharmadhikari et al., 2007).

We suggest that IUD might provide an ascending route for infection from vagina and cervix into the tubes. The tube has a peristaltic movement and ciliary movement that directs the fluids towards the uterine cavity (Hegazy & Hegazy, 2015). The IUD hinders these mechanisms, facilitating its contraceptive role. On the other hand, this action also facilitates the escalation of infection from the cervix to the fallopian tubes. This action may interpret the occurrence of actinomycosis in the tubes of patients with long-term duration of IUD. Furthermore, minimal trauma from the presence of an IUD may damage the integrity of the mucosal lining of the genitals causing invasive actinomycosis. Moreover, the presence of the IUD inside the female genitalia can represent a foreign body that promotes further inflammation. In our case study, we found papillary endocervicitis, a finding that augments the ascending infection from the cervix to the tube. In this case study, the patient mainly had irregular uterine bleeding and some pelvic pain. The patient ignores pelvic symptoms until she develops severe abdominal pain. Once the patient was diagnosed clinically radiologically and serologically, as tubo-ovarian abscess, she was surgically explored. Adhesions in the lesion and the uterine wall have raised suspicions of malignancy. The female

genitals are also more susceptible to infection than the male genital tracts due to the proximity of the vaginal vestibule to the anus (Hegazy, 2021). The vagina usually resists such infection through its acidity, which is hostile to the microorganisms that may be transmitted to it. However, the presence of the IUD is suggested to alter the internal environment of the female reproductive ducts including the vagina, and thus may increase the potential for actinomycosis colonization.

Sehouli et al. (2006) reported suspected ovarian cancer with ovarian actinomycosis. Srinivas et al. (2013) reported a case of bilateral ovarian actinomycosis not associated with IUD placing but with suspicious of ovarian cancer. The suspect was based on the presence of adhesions and fibrosis during surgery; however, radiographs, ultrasound and other serological data did not match this possibility. Similarly in our case, the examined paraffin sections showed actinomycosis colonies confirmed by Gram stain and PAP stain. We agree other suggestion of other authors that actinomycosis diagnosis should be suspected in patients with acute pelvic pain who have worn the IUD for prolonged periods over 5 years (Najib et al., 2021). Regular follow-up of the patient was carried out every 3 months for a year to ensure complete relief.

Conclusion

Prolonged use of IUD might be a cause for actinomycosis. The case may mimic malignancy in initial diagnosis. Actinomycosis diagnosis is suggested to be taken into consideration in cases of lower abdominal pain in women with IUD. Furthermore, prolonged wearing of IUD must be avoided in order to by-pass the ascending infection to fallopian tubes and the possibility of occurrence of actinomycosis.

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