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Conservative surgical management of multiple myometrial abscesses; an unusual case with review of the literature

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Summary

Myometrial abscess, especially with multiple foci, is quite rare and previous literature prevalently discusses unique locus of intramyometrial abscesses, usually treated with hysterectomy accompanied with or without bilateral salpingo-oophorectomy. The presented case, to the authors' knowledge, is the first multiple myometrial abscess case treated with conservative surgical approach.

Key words: Intramyometrial; Abscess; Multiple; Conservative.

Introduction

Pelvic inflammatory disease (PID) is an infection of the female upper genital tract that involves any combination of the uterus, endometrium, ovaries, fallopian tubes, pelvic peritoneum, and adjacent tissues. PID is accepted mostly a result of ascending infection from the lower to upper genital tract and usually associated with more than one microorganism [1]. Although there are different guidelines regarding the diagnostic criteria, in case of suspicion of PID, treatment should be immediately commenced and the patient should be followed up, since a short delay in treatment may result in severe cases [2]. For PID, the positive predictive value of clinical diagnosis is 65-90% compared to laparoscopic diagnosis [2]. Although the first choice of treatment is combined regimen of antibiotics, in cases with suspicion of abscess, frequently surgical intervention or ultrasonography-guided drainage is required in the course of the management.

Few cases with myometrial abscess have been reported in literature and differential diagnosis is quite complicated most of the time. A 29-year-old patient with multiple intramyometrial abscesses treated with combined antibiotherapy and conservative surgery is mentioned in this case report with review of the literature.

Case Report

A 29-year-old gravidity 1 parity 1 patient was admitted to Gynecology outpatient clinic with pelvic pain and mucopurulent leucorrhea. She claimed that she had delivered with cesarean section 16 months prior, and three months after the delivery, an intrauterine device (IUD) was applied in another gynecology clinic followed by removal of the IUD one month later due to pelvic pain. Two months after that, she had an operation due to tubo-ovarian abscess in an another medical center.

Gynecological examination revealed mixed type mucopurulent leucorrhea accompanied by cervical tenderness. She did not have fever (36.5°C). Laboratory findings were as follows: Hb: 11.4 g/dL, WBC: $13x10^9$ / L (4-10 x 10^9 / L), hsCRP: 0.2 mg/L (0-0.5 mg/L), sedimentation: 24, βhCG: negative, CA 125: 62 IU/ml (0-35), and liver function and renal function tests were within normal range. Ultrasonographically there were multiple hypoechogenic foci in myometrium with the largest diameter of two cm accompanied by normal appearing ovaries (Figure 1).

The patient was hospitalized with diagnosis of PID and intravenous combined antibiotherapy (ceftriaxone and metronidazole) was started and given for ten days. Urine, vaginal, and blood cultures did not reveal any microorganisms and the infection parameters did not rise, although she had subfebrile periods during the follow up. Ultrasonographic findings did not improve during the medical therapy and Doppler ultrasonography revealed an increased vascularity in a solid five-cm area which could not be distinguished from myometrium, containing non-serous cystic lesions, the largest with a two-cm diameter. Additionally magnetic resonance imaging was done for further evaluation and revealed multiple peripheric contrast positive cystic lesions with dense content, accompanied by minimal fluid in the pelvic area (Figure 2).

Due to incomplete remission in the clinical presentation, surgery was planned. In laparotomy, the uterus was enlarged and there were multiple adhesions among uterus and surrounding intestinal loops. The uterus grossly had multiple cystic areas each full of mucopurulent discharge (Figure 3). All the grossly available cystic areas were drained and all the defects in myometrium were sutured,and a sample of pus was taken from the discharge for culture. Pathological examination of the myometrial pieces were reported as 'dystrophic calcification and severe pus in myometrium'. Escherichia coli and coagulase negative staphylococci were isolated from the pus culture. Postoperatively the patient was discharged after eight-day combined gentamycine + clindamycine therapy.

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Ten days later she was admitted for the second time due to pelvic tenderness and subfebrile fever. Microbiological examination of blood and vaginal and urine cultures did not reveal any microorganisms. Antibiotherapy was begun (ceftriaxone and metronidazole) and continued for 12 days, resulting with a favourable clinical outcome; the patient was discharged from the hospital with full recovery.

Discussion

PID among IUD users is most strongly related to the insertion process and to the background risk of sexually transmitted diseases. Conditions which represent an unacceptable health risk if an IUD is inserted are current PID, current purulent cervicitis, and chlamydial or gonorrheal infection [3]. Studies regarding IUD and PID revealed that the rate of PID within 20 days after insertion was 9.6 per 1,000 women years [4]. Also PID risk was found to be similar with depot medroxyprogesterone (DMPA), hormone releasing IUD or combined oral contraceptive usage even eight years after IUD insertion [4]. Additionally Steenland *et al.* reported that even postabortion insertion of IUD, did not increase PID risk but only resulted in a higher expulsion rate [5]. The mentioned case had IUD inserted three months after the delivery and removed one month after insertion. It seems to be beneficial to routinely control the IUD applied one month after the intervention since the risk for a pelvic infection is highest in the first month and early management in case of any suspicion of infection may prevent further complications.

Removal of the preexisting IUD in PID, is also controversial in the literature. In this case the insertion time after delivery was three months and the device was removed about one month later because of pain possibly due to arising pelvic infection. The present authors, however, did not have adequate data regarding whether medication was given at that time or what the medication consisted of. Tepper e*t al.* in a review reported that retaining IUD after the diagnosis of PID had similar or better outcomes than removal [6]. Also, the timing of the removal of IUD is an important issue. The possible contributing variable for Tepper *et al.*'s results may be the removal of IUDs on admission [7-9].

In differential diagnosis, tubo-ovarian abscess, adenomyosis, degenerated myoma or a pyomyoma were excluded in this case. The previous surgery for tubo-ovarian abscess and subfebrile fever in follow up favored mostly an infectious etiology, such as intramyometrial abscess or pyomyoma instead of other alternative gynecological diagnosis. Secondary infection of an uterine leiomyoma after an abortion or transvaginal instrumentation resulting with pyomyoma is quite rare and there are few case reports in literature [10]. Also a spontaneous conversion of a leiomyoma to pyomyoma in a virgin patient without expected risk factors has been reported. In cases with triad of bacteremia or sepsis, leiomyoma uteri, and no other apparent source of infection the diagnosis of pyomyoma should be included in differential diagnosis [11]. Absence of previous uterine leiomyoma

Figure 1. — Ultrasonographic appearance of one of the intramyometrial loci.

Figure 2. — Magnetic resonance image of multiple myometrial abscesses.

Figure 3. — Intraoperative appearance of abscess drainage and one of the multiple loci.

history excluded the diagnosis of pyomyoma in this case. After all, the suspicion of intramyometrial purulent collection and incomplete remission in clinical presentation of the patient made it mandatory to perform a diagnostic laparotomy.

Abscess formation in myometrium is not a frequent situation accompanying PID. Although it depends on the clinical situation and hemodynamics of the patient, in similar cases, the mostly prefered treatment is surgery consisting of hysterectomy with or without sapingo-oophorectomy. Parsons *et al.* reported a 65-year-old case with ruptured appendicitis which seemed to have perforated into the uterine fundus. The intrauterine lesion was reported by computed tomography scan as an altered density in myometrium [12]. The authors had to perform total abdominal hysterectomy and bilateral sapingo-oophorectomy. Kuah *et al.* in Singapore, also presented another 46-year-old case with an intramyometrial abscess which was treated by total abdominal hysterectomy and bilateral sapingo-oophorectomy [13]. In the presented case, since the patient had desire for preservation of fertility, the operation was conducted in a conservative manner which also resulted in full recovery with the assistance of antibiotherapy against the microorganisms isolated from the myometrial abscess.

Intramyometrial abscess can masquerade as degenerating fibroids, necrotic tumours, and can exist without overt signs or symptoms of an infection [13]. To the present authors' knowledge, the previously reported myometrial abscess cases were of solitary lesions and the present patient seems to be the first multiple myometrial abscess case managed by a conservative surgical approach. Detailed medical history, questioning the possible risk factors and appropriate usage of imaging techniques improves differential diagnosis. In appropriate cases, conservative surgery accompanied by medical interventions may be life-saving and preserve fertility.

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