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Pelvic inflammatory disease in postmenopausal women: Diagnostic difficulties and management in an underprivileged environment, a case report from the University Hospital of Yaoundé – Cameroon (Update)

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Abstract

Pelvic Inflammatory Disease (PID), or more specifically upper genital infections, includes uterine and adnexal infections. These are infections secondary to the ascent of germs from the vagina through the cervix. Their particularity is their paucisymptomatic or even asymptomatic character. Although quite common in women of childbearing age, they remain exceptional in postmenopausal women. We report a case of PID in an elderly postmenopausal patient who responded favourably to probabilistic antibiotic therapy. Our aim is to explain its epidemiological, clinical and therapeutic particularities

Keywords: Pelvic inflammatory disease; Diagnostic difficulties; Management; Menopause; Cameroon

1. Introduction

Although upper genital infection is a common and serious complication of sexually transmitted diseases in young women, it is a rare entity in postmenopausal women. The true incidence of this entity is not well known but one study reported a series of less than 2% cases of tubo-ovarian abscess (TOA) in postmenopausal women [1]. We report a case of pelvic inflammatory disease (PID) in an elderly postmenopausal patient who responded favourably to probabilistic antibiotic therapy.

2. Patient and observation

The patient was 70 years old, married, G6P6 004, postmenopausal for 15 years, with a history of 6 normal full-term vaginal deliveries. She had never taken hormone replacement therapy for this purpose. Her first intercourse was at the age of 16. She claimed to have had 1 cumulative sexual partner. She also said she had not been sexually active for 10 years. She had never been screened for cervical cancer and sexually transmitted infections. She had never used contraception. Referred from a faith-based health centre for better management of suspected utero-ovarian neoplasia.

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The history revealed that the patient had consulted ~~the said centre~~ 2 weeks earlier for an uncalculated fever without hourly predominance, associated with generalized headache and chills. The diagnosis made that day was that of malaria with associated salmonellosis. The case management consisted of parenteral administration of a triple antibiotic therapy ; Ceftriaxone 1g/12h, Ampicillin 1g/8h and Metronidazole 500mg/8h for 2 days. This was followed by oral asministration Ciprofolxacin 1g/24h for 10 days. The patient had also received a combination of Artemether+Lumefantrine for 3 days. The evolution, 5 days after the beginning of the treatment was marked by the installation of a permanent pelvic pain associated with constipation and pollakyuria. This required an abdomino-pelvic ultrasound scan by an internist. The clinical exam revealed that The spleen was enlarged and the uterus was limited and blurred, with an anechoic ovarian mass, which led to the conclusion of a utero-ovarian neoplasia. It was in this context that the patient was referred to us. When we received the patient, she was complaining of headaches, generalized abdominal and pelvic pain, and reported to have vomited the previous day. The initial clinical examination of the patient revealed an altered general condition, a temperature of 38.5°C, obesity with a BMI of 33 kg/m^2, and other vital parameters were normal. The abdomen was undistended, mobile with respiration. We noted a generalized abdominopelvic tusk marked in the iliac fossa and left flank, hepatomegaly, and a declive submatitis. Peristaltic noises were present. Upon gynaecological examination, we observed on speculum, an erythema at the cervix, a non-fetid yellowish discharge from the endocervix (Figure 1). Upon vaginal examination, the vaginal cavity was narrow, the cervix was posteriorly indurated at 4 and 6 o'clock, mobilisation of the cervix was very painful, the size of the uterus and the adnexa were difficult to appreciate because of the pain. On the other hand, the rectal examination was normal and the parameters were not infiltrated. The rest of the general examination was normal. In view of this picture we evoked the diagnosis of acute pelvic inflammatory disease, with a suspected ovarian tumour and endometrial cancer as differential diagnoses. The paraclinical examinations requested urgently were : A blood count which showed a hyperleukocytosis of 14780/µL with a predominance of neutrophils, a haemoglobin level of 10.1 g/dl and platelets of 347,000/µL; CRP was high at 192 mg/l; Cervico-Vaginal swab showed the presence of Gardnerella vaginalis; Normal tumour markers CA125 and CA19-9 (respectively 28.55 IU/ml and less than 3 IU/ml; Normal cervico-vaginal smear; Abdomino-pelvic ultrasound showed homogeneous hepatomegaly, thickened endometrium at 20mm, 35cc haematometry slide, echogenic tubal collection, right adnexal, giving a cogwheel appearance in favour of a pyosalpynx.

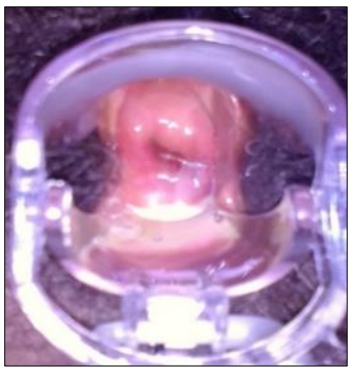

Figure 1 Speculum appearance of the cervix

The initial management consisted of the patient hospitalization , followed by the initiation of a parenteral bi-antibiotic therapy based on Ofloxacin 200mg/12h and metronidazole 500mg/08h for 5 days. We also associated an anti-inflammatory based on Ketoprofen 100mg/12h.

The clinical course on the ward was marked by a significant regression of symptoms from day 3. We proceeded to an oral relay with Ofloxacin 200mg/12h and on metronidazole 500mg/08h for 10 days. A follow-up pelvic ultrasound performed on day 4 did not reveal any pyosalpynx, however an endometrial thickening was still noted at 19mm suggestive of endometrial neoplasia. An endometrial biopsy with histological analysis showed no malignancy or atypical hyperplasia. Cervical biopsy showed mild dysplasia.

3. Discussion

The most common aetiological agents are Neisseria gonorrhoea and sexually transmitted *Chlamydia trachomatis* in 60-75% of pre-menopausal women with PID [2]. Postmenopausal women are less likely to harbour sexually transmitted infections: *Esherichia coli* (76%) and *klebsiella pneumoniae* (43%) or in combination in 50-67%; other bacteria such as *pseudomonas aeruginosa* (14%), Staphylococcus aureus (< 5%), *enterococci, Bacteroides fragilis, Haemophilus influenzae* and *group B streptococcus* were recovered in several cases [1,3-8]. Unfortunately, our patient was unable to undergo all

the requested infectious tests due to lack of financial resources, hence the need for probabilistic treatment in her case. Cervical factors play an important role in the occurrence of PID. The columnar epithelium of the endocervix is usually everted in women of childbearing age. *Chlamydia* and *gonococcus* preferentially attach to this epithelium. However, in postmenopausal women the transition zone is located in the endocervix and has a smaller surface area, thus reducing the attachment of Chlamydia and gonococcus. This largely explains the low susceptibility of postmenopausal women to these infections. The endocervical canal is made up of cervical mucus which acts as a functional barrier to the ascent of these germs. This mucus is weakened during menstruation. Since the menopausal woman no longer has a menstrual period, her mucus will remain tonic and will expose her less to infections. Studies have shown an association of an infectious process of the neighbouring intra-abdominal viscera by extension in older women such as: Diverticulitis, Chron's disease, colon cancer. These pathologies will spread directly to the ovaries, then to the fallopian tubes to reach the uterus. The clinical presentation is then that of a unilateral or bilateral OAT [9-11]. Fistulisation of the abscess into the genital tract has also been described [12,13].

In terms of risk factors, the occurrence of PID suggests a high frequency of sexual intercourse and/or a large number of sexual partners, given that dissemination is by sexual means. However, this is not the case for post-menopausal women who have a significantly reduced sex life. The risk factors found in the latté are endo-uterine manipulation. In one case series, 45% of postmenopausal women had undergone endo-uterine manipulation in the 2 weeks prior to diagnosis. These included cervical dilatation, biopsy curettage of the endometrium, biopsy aspirations of the endometrium with a cornice pipelle, uterine perforations linked to aggressive curettage favouring the colonisation of micro-organisms in the peritoneal cavity [14,15]. Cervical conisation, cryotherapy and excisional loops are also risk factors for cervical stenosis. Other conditions such as submucosal myomas or endometrial polyps can lead to haematometra and then pyometra due to microbial overgrowth, which can lead to reflux of germs into the tubes and uterine cavity. The vaginal flora of postmenopausal women is colonised by aerobic gram-negative bacteria such as *E. coli*, particularly if they are not taking estrogen-based hormone replacement therapy (HRT) [16]. If these potentially pathogenic bacteria reach the upper genital tract, it will promote suppurative infection. Most of these factors were not found in our patient, however she was not taking HRT.

Common clinical manifestations in postmenopausal women are metrorrhagia, spotting, nausea, vomiting, abdominal pain, and bowel disorder [1,10,11,14,17]. Our patient presented with an episode of vomiting, abdominopelvic pain and constipation. The gynaecological examination should start with the presence of vaginal secretions and signs of lower genital tract inflammation. It may show mucopurulent endocervicitis with cervical erythema and yellow-green secretions. A bi-manual examination should look for the presence or absence of tenderness on mobilisation of the cervix or the whole uterus. It should also look for the presence or absence of an adnexal mass and/or tenderness. Finally, he should look for the presence or absence of signs of peritoneal irritation. Our patient presented with cervical erythema with an endo-uterine purulent discharge, we also noted sensitivity to cervical mobilisation and adnexal sensitivity. Paraclinical examinations provide additional information to facilitate the diagnosis: the CBC will show a predominantly neutrophilic hyperleukocytosis, an elevated C-reactive protein (CRP) may be noted, a cervico-vaginal swab may reveal a germ, an endometrial biopsy should be systematically carried out, as well as a pelvic ultrasound scan, which most often reveals an OAT [1-19,10,17]. Our patient had the same biological profile and the pelvic ultrasound suggested a pyosalpynx. In postmenopausal women, the positive diagnosis is made in the presence of pelvic organ tenderness, leucorrhoea or mucopurulent endocervicitis.

The literature review indicates that the majority of postmenopausal women with PID have an associated OAT [1,7,8,13,18,19]. Complications developed by these women are Colo-cutaneous fistulas, sepsis, renal failure, pulmonary embolism and death (25% of cases). The pathologies often associated with PID in postmenopausal women are: leiomyoma, squamous cell carcinoma, adenocarcinoma of the cervix, endometrial polyps, endometrial hyperplasia, adenocarcinoma, and carcinoma of the ovary. Our patient did not have any of the above complications.

The most important differential diagnosis to consider in a postmenopausal woman with PID is Diverticulitis as it manifests as a digestive symptomatology. It may or may not be associated with PID [20]. Diverticulitis affects 5-10% of the general population over 45 years of age and 80% of the population over 85 years. The sigmoid and descending colon are the main sites of its development [21]. Another differential diagnosis is acute appendicitis, although this occurs in younger people. It is diagnosed by clinical examination, ultrasound or abdominal CT scan. The sensitivity and specificity of abdominal ultrasound in the diagnosis of appendicitis is 76% and 91% respectively. The sensitivity and specificity of abdominal ultrasound in the diagnosis of appendicitis are 76% and 91% respectively, while those of CT are 96% and 89% respectively [22]. We did not mention these differentials in our patient.

Regarding management, the majority of postmenopausal women with PID present complicated forms. Therefore, they must be hospitalized with parenteral antibiotic therapy. Several antibiotic protocols can be proposed, but they should

have a broad spectrum of activity and be active on the germs regularly found at this age (**Table 1)**, namely *E. coli* and *klebsiella sp*. In case of OAT, surgery should be considered after excluding cervical cancer. We initiated protocol B in our patient. The clinical course was favourable under this protocol.

Table 1 Antibiotic protocols proposed by the CDC for SID[a,b] in postmenopausal women

Protocol A	**Protocol B**
Clindamycin 900 mg i.v/8h	Ofloxacin 400 mg i.v/12h
+	+
Ampicillin 1 g i.v/4h	Clindamycin 900 mg i.v/8h
+	or
Gentamicin i.v Loading dose: 2 mg/kg Maintenance dose 8h after : 1.5 mg/kg/8h	Metronidazole 500 mg i.v/8h

[a]Modified from Centers for Disease Control and Prevention. 1998 Guidelines for treatment of sexually transmitted diseases. MMWR Morb Mortal Wkly Rep 1998; 47(RR-I): 79-86.

[b]Other options include the extended spectrum penicillins with beta-lactamase inhibitors (ticarcillin/clavulanate, ampicillin/sulbactam, and piperacillin/tazobactam), extended spectrum cephalosporins (cefotetan and cefoxitin), and the carbapenems (imipenem/cilastatin and meropenem)

4. Conclusion

Pelvic inflammatory disease still poses diagnostic difficulties in our context and its pathophysiological mechanism is different from that of women of childbearing age. However, when the diagnosis is made, prompt management can avoid complications and improve the patient's prognosis.

Compliance with ethical standards

Acknowledgments

We thank the patient who kindly gave us her consent for this study.

Authors' contributions

Kamga received, managed and initiated the manuscript, Foueliefack and Meukem participated in writing the manuscript, Mve supervised and participated in writing the manuscript

Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of ethical approval

Prior to her hospitalisation we expressed our desire to publish the case and obtained verbal permission from the patient to take the images and write the manuscript for publication, on condition that anonymity was maintained.

Statement of informed consent

The information received was treated in the strictest confidence.

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