

Endometriosis: An “Unexplored”, “Neglected” or “Forgotten” Condition in Africa?

John J. K. Annan¹, Roderick E. Larsen-Reindorf¹, George A. A. Frimpong², Osei Owusu-Afriyie³

¹Department of Obstetrics and Gynaecology, School of Medical Sciences, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

²Department of Radiology, School of Medical Sciences, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

³Department of Pathology, Komfo Anokye Teaching Hospital, Kumasi, Ghana
Email: judedoc2003@yahoo.co.uk, jannan.chs@knust.edu.gh, larsdorf@yahoo.com

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Abstract

Endometriosis is a condition that is commonly encountered in gynaecological practice. Endometriosis has varied, non-specific clinical presentations and its diagnosis sometimes poses a challenge to the clinician. We have encountered various women with clinical presentation highly suggestive of endometriosis. Further diagnosis using imaging and biopsy confirmed endometriosis. This paper presents our experience of endometriosis in our care of African women and a review of the literature on endometriosis. We want to highlight the various clinical presentations of endometriosis, appraise the various methods for diagnosis, discuss the treatment modalities available and evaluate the impact of this condition on women. We want to emphasize the fact that African women also suffer from this condition, and impress upon clinicians, the necessity for closer look for the condition, stimulate discussion and research into endometriosis in Africa as it seems this condition is “neglected or forgotten” in Africa.

Keywords

Endometriosis, Endometrioma, Laparoscopy, Pelvic Pain

1. Introduction

Endometriosis, a chronic debilitating condition, is known to be a cause of significant morbidity in women of the reproductive age. One woman affected by this condition described it as “a woman’s nightmare”. The developed world has extensive data and research about this condition. However, in Africa, especially sub-Saharan Africa, this information is deficient or non-existent. Interestingly,

in African populations in North America and Europe, the presence of endometriosis is not uncommon. Is it a situation of a condition neglected or not looked for in Africa?

This paper presents our experience of endometriosis in our care of African women and a literature review on endometriosis. It discusses the clinical presentation, highlights the various diagnostic arsenal and treatment modalities available.

Finally, it is our aim to emphasize the fact that African women also suffer from this condition, highlight the necessity for closer look for the condition, stimulate discussion and research into endometriosis in Africa as it seems this condition is “neglected or forgotten” in Africa. This review is a prelude to a research into endometriosis. This would ultimately translate into improvement in the quality of care offered to our women.

2. Methodology

The aim of this review was to highlight our experience in the management endometriosis, confirm the fact that African women also suffer from this condition, and provide information on the clinical presentation, diagnosis and the various treatment modalities for endometriosis. Two of the investigators (both Consultant Obstetricians and Gynaecologists) have managed several women who presented clinically with signs and symptoms of endometriosis. The case records of these clients were retrieved and reviewed by the Gynaecologists. This involved a summary of these clients’ clinical presentation, results of investigations (radiology and histopathology) and treatments done and the outcomes of these treatments. One of the investigators who is a Consultant Radiologist reviewed all the radiological investigations these clients underwent. Another investigator, a Senior Specialist in the Department of Pathology, reviewed all the histological slides to obtain the complete diagnosis of the conditions these clients presented to confirm that they were endometriosis.

To minimise the potential break in confidentiality, only a named staff at the records department retrieved the case notes, all the case notes summaries were stored on a computer with password only accessible by the principal investigator, the data collected did not include patient identifiable information and only the principal and other investigators had access to the data. No patient contact was required. Since participants were not contacted, the consenting process involved consent from the Department of Obstetrics and Gynaecology to use the patient clinical information and consent from The Committee for Human Research, Publications and Ethics of the Kwame Nkrumah University of Science and Technology.

The two Gynaecologists then conducted a review of the literature on endometriosis using appropriate search engines to obtain the current evidence-based management of endometriosis. Published works on endometriosis from Africa were searched for. The search was conducted in PUBMED and the Cochrane library using the key words (endometriosis, endometrioma). The literature search

included studies published from the developed world and Africa. No date limits were set. Language was restricted to English Language. Papers included were systematic reviews, meta-analyses, randomized controlled trials, cohort studies and case reports.

The outcome of the literature search is being published to highlight the fact that African women also suffer from this condition, and provide information on the clinical presentation, diagnosis and the various treatment modalities for endometriosis. This will serve as a prelude to a study on endometriosis we intend to conduct.

3. Historical Background

It is unclear who first described endometriosis [1]. In their medical history article titled “Endometriosis: Ancient Disease, Ancient Treatments”, Nezhat C., *et al.* (2012) traced the history of endometriosis from pre-modern times dating back to nearly 4000 years [2]. The authors intimated that some pre-modern conditions, described then as: (disease of virgins, love sickness, furor uterinus (uterine fury), strangulation of the womb, suffocation of the womb, catamenial hematoceles, and many more) had similar symptoms as endometriosis. Additionally, they found evidence of women with endometriosis-like symptoms being subjected to ghastly treatments involving leeches, straight-jackets, bloodletting, caustic chemical douches, genital mutilation, being hung upside down, surgical fatalities, and even accused of demonic possession and killed—because pre-modern medicine and society misunderstood the cause of their invisible pain. “By the Middle Ages, women with chronic pelvic pain were accused of being mad, immoral, or imagining it all. Teenage girls with endometriosis-like symptoms were viewed as simply misbehaving cranks. They were accused of faking their symptoms in order to malingering, manipulate, or shirk work.” [2]

One of the paper’s most significant impression was that many cases of the condition hysteria, presumed for centuries to be psychological in origin, may well have been endometriosis. The authors found that this centuries-old notion linking chronic pelvic pain to mental illness exerted tremendous influence on attitudes about women with endometriosis in modern times, contributing to diagnostic delays and indifference to their pain for most of the 20th century [2]. Additionally, the authors stated that such mistreatment constituted one of the most colossal mass misdiagnoses in human history, one that over the centuries has subjected women to murder, madhouses, and lives of unremitting physical, social, and psychological pain. Faced with such injustices, historical records indicate that women with endometriosis have been contemplating on committing suicide for centuries [2].

4. Discussion: Endometriosis—“Unexplored”, “Neglected” or “Forgotten”

In our clinical practice, we have encountered several cases of endometriosis in its

various presentations during laparotomies and laparoscopic procedures: ovarian endometriomas, tubal, peritoneal disease with significant ascites, umbilical and caesarean section scar endometriosis.

Additionally, in about 40% - 50% of cases of diagnostic laparoscopies we performed for tubal and pelvic assessment for investigation of subfertility, we encountered endometriosis at its various stages. These women suffer significant physical, financial and psychological morbidities.

Women's health practitioners who ply their trade in sub-Saharan Africa must rise and respond to the call to help ameliorate the morbidity women with endometriosis face.

Endometriosis is the presence of functional endometrial tissue at sites other than the uterus, which induces a chronic, inflammatory reaction [3]. Its exact prevalence is unknown. Prevalence rates vary from different studies. Eskenazi and Warner (1997) and later, Meuleman *et al.* (2009), gave estimates that ranged from 2% to 10% within the general female population but up to 50% in infertile women [4] [5]. Surprisingly, there is paucity of information on the prevalence of this condition in Africa. This fact was previously corroborated in a review by Kyama, Mwenda, Makochi *et al.*, (2007), that stated that 'studies on prevalence of endometriosis in Africa is still wanting' [6]. A retrospective study by Osefo N.J. and Okeke B.C. (1989), gave an incidence of 4.3% among Igbo of Nigeria. This study also found that 90.8% of their cases of endometriosis were not diagnosed before operation, demonstrating the lack of awareness of this condition [7]. Undoubtedly, endometriosis, a chronic debilitating condition, is under diagnosed, under-reported and under-researched in Africa.

5. Clinical Presentation

The clinical presentation of endometriosis has been evaluated by several studies: whilst some patients are completely asymptomatic (and detection of endometriosis may be an incidental finding during pelvic ultrasound scan, diagnostic laparoscopy or laparotomy for a different indication), others are symptomatic. The symptomatology is based on the site of the condition. Endometriosis-associated pelvic symptoms include dysmenorrhea, chronic pelvic pain, deep dyspareunia, cyclical intestinal complaints and infertility [8] [9] [10] [11]. Patients with extra-pelvic endometriosis present with symptoms depending on the site of the lesions. Most of these studies into the symptomatology of endometriosis had retrospective design and have not shown that these symptoms, when present, are pathognomonic or predictive of the presence of endometriosis.

Endometriotic lesions can be found at various sites. In the pelvis; on the ovaries (the most common site), ovarian fossae, fallopian tubes, posterior aspect of the uterus and the posterior cul-de-sac, anterior aspect of the uterus and the anterior cul-de-sac, uterosacral ligaments, the intestines, most commonly the recto-sigmoid, urinary bladder and ureters. Other sites include the cervix, vagina and at episiotomy sites. Extra-pelvic presentations include cutaneous manifesta-

tions at the umbilicus and abdominal surgical incision sites (scar endometriosis) [12]. Less commonly, lesions can be found on the diaphragm. Thacher *et al.* (1997) published five case series of extra-pelvic endometriosis in Nigeria [13]. Rarely, endometriosis can occur extra-peritoneally in the lungs—Thoracic Endometriosis Syndrome. Tettey M, *et al.* (2013) published 12 case reports of Thoracic Endometriosis Syndrome seen in their centre in Ghana between 2004 to 2012 and indicated that it may be more prevalent in West Africa than previously believed [14]. Endometriosis can also present with intestinal symptoms such as periodic bloating, diarrhoea or constipation [8] There is a poor correlation between the degree or severity of endometriosis and the severity of pain.

Thus, the clinical presentation of endometriosis can be very challenging and practitioners may experience difficulties in establishing a final diagnosis due to this wide variation in presentation. The resultant effect of this could be either significant diagnostic delays, challenges or suboptimal care [3].

Interestingly, several European studies have reported significant delays in diagnosis of endometriosis: an overall diagnostic delay of 10.4 years in Germany and Austria [15], 8 years in the United Kingdom and Spain [16] [17], 6.7 years in Norway [16], 7 - 10 years in Italy and 4 - 5 years in Ireland and Belgium [17]. These studies suggested several causes for this delay: intermittent use of contraceptives causing hormonal suppression of symptoms, the use of non-discriminatory examinations, misdiagnosis, attitude towards menstruation and normalisation of pain by the women, their mothers, family doctors, gynecologists or other “specialists” [15] [16] [17].

Thus, basing a diagnosis of endometriosis on symptoms alone is weak. The clinical work-up involves putting together information obtained from the woman’s history, physical examination and investigations. Tissue biopsy for histology gives the definite diagnosis.

6. Clinical Examination

Clinical examination is paramount in the diagnosis of endometriosis. It involves inspection and palpation of the abdomen, vaginal speculum examination and bimanual pelvic examination. Bimanual examination enables the practitioner to assess the size and orientation of the uterus, its mobility or fixity, tenderness and consistency of the uterosacral ligaments, adnexal masses and tenderness. It is necessary to perform a recto-vaginal digital examination in these patients. This aids in the detection of infiltrative disease or mass involving the recto-sigmoidal colon or adnexal masses [18]. Some authorities have recommended performing this clinical examination during menstruation as a prospective study had demonstrated that reliability of clinical examination in detecting pelvic endometriosis is improved during menstruation [19]. However most women detest this invasive clinical examination whilst they are menstruating.

One significant limitation of clinical examination is the skill and experience of the clinician performing the examination. Vaginal examination may however, be inappropriate in: adolescents, women who are virgointacta, women with history

of sexual abuse and for religious reasons. Under these circumstances, other investigative modalities need to be employed.

7. Investigation

Clinical investigation serves to augment the information already obtained from the clinical history and examination. Several modalities, ranging from serum analytes, imaging and tissue biopsy for histology are employed. Transvaginal (TVS) and transabdominal (TAS) ultrasound scanning (with or without Doppler) has been evaluated as an investigative tool for pelvic endometriosis. Ovarian endometrioma can be diagnosed and excluded by TVS and TAS. The lesion appears as diffuse homogeneous echoes, unilocular or multilocular, usually described as having a 'Ground-glass appearance' due to the haemorrhagic debris.

One limitation of TVS/TAS is that small endometrioma can easily be missed and it is not useful in diagnosing peritoneal disease. Magnetic resonance Imaging (MRI) can diagnose ovarian endometriosis but it is not useful to diagnose or exclude peritoneal endometriosis. While TVS /TAS is cheap and easy to be done, MRI is not a cost-effective diagnostic tool especially in low-resourced settings [20]. Serum CA-125 have been evaluated in the diagnosis of endometriosis and its estimation has not been helpful in the diagnosis of endometriosis. It is non-specific and any condition that results in peritoneal irritation can lead to elevation of CA-125.

Diagnostic laparoscopy, with or without biopsy, has gradually gained roots in our sub-region and this modality provides extensive information about endometriosis. It provides the advantage of direct visualization of the lesions in their various stages and grading the degree of endometriosis using the American Fertility Society (AFS) classification system. Laparoscopy also gives the added advantage of targeted biopsy of lesions and suspicious areas for histological diagnosis.

The sensitivity of laparoscopy in diagnosing endometriosis is highly dependent on the competence, experience, skill and knowledge of the surgeon performing the procedure. The assessment must involve systematic checking of: the uterus and adnexa, the peritoneum of ovarian fossae, vesico-uterine fold, Pouch of Douglas, pararectal spaces, rectum, sigmoid, appendix, caecum and the diaphragm. With the aid of a probe, the pelvic structures are also palpated to assess how deeply infiltrating the lesions are.

At laparoscopy, the lesions can be seen in their various forms in peritoneal endometriosis: red flame lesions, white lesions, powder burn lesions and peritoneal pockets.

Obvious ovarian endometriomas and recto-vaginal disease can also be visualized. The ovaries could be enlarged and adhered to each other in the Pouch of Douglas, described as "kissing ovaries". A negative diagnostic laparoscopy in women with symptoms and signs of the disease is highly reliable for the exclusion of the diagnosis of endometriosis [21]. Centres without facilities for lapa-

roscopy, or in the presence of a large endometrioma, laparotomy has become the accepted method of surgical intervention.

8. Treatment

Treatment of endometriosis depends on the clinical presentation and patient wishes. The options are treatment of pelvic pain, dysmenorrhoea and/or infertility. Treatment options are categorized as medical, surgical or a combination of these two.

Medical therapy includes hormonal manipulation and administration of analgesia. Pain is a cardinal symptom of endometriosis. Studies have demonstrated elevated prostaglandin levels in peritoneal fluid and endometriotic tissue in women with endometriosis [22]. As a result, non-steroidal anti-inflammatory drugs (NSAIDs) are widely used analgesics in clinical practice. Good evidence exists to support the use of NSAIDs for primary dysmenorrhea [22]. Endometriosis is a chronic condition and pain management with NSAIDs can take a long course with potential side effects associated with frequent use of NSAIDs. These risks, such as, gastric ulceration and cardiovascular disease [23] must be discussed with patients.

Endometriosis is a predominantly estrogen-dependent disease. Therefore, hormonal suppression of ovarian activity can be employed to treat the disease and its symptoms. The combined hormonal oral contraceptives have been shown to reduce endometriosis-associated symptoms. Other hormonal contraceptives such as progestagens, anti-progestagens, Gonadotropin releasing hormone (GnRH) agonists and aromatase inhibitors (AIs) are also effective. Important factors worth considering with the hormonal contraceptives include side effect profile, tolerability, cost, patient compliance and dymystifying myths associated with their usage. These also have contraceptive effects, and this needs to be discussed with the client. Individualisation of care using these hormonal therapies is paramount. Hormonal treatments can offer relief of pain symptoms, but symptoms often recur after discontinuation of therapy. In clinical practice, some surgeons prescribe preoperative medical treatment with GnRH analogues. It is believed this can facilitate surgery due to reduced inflammation, de-vascularisation of endometriosis lesions and adhesions. However, there are no controlled studies supporting this.

8.1. Surgical Treatment

Laparotomy and operative laparoscopy are equally effective in the treatment of endometriosis-associated pain. In recent times, operative laparoscopy has dominated laparotomy in the surgical treatment of endometriosis. Surgery may be achieved by excision, diathermy or ablation of the lesions and adhesiolysis to restore pelvic anatomy.

Laparoscopy has advantages of less pain, shorter hospital stay, quicker recovery and better cosmesis, hence it is usually preferred to open surgery [24] [25].

In the absence of relevant experience and expertise with laparoscopy, the patient should either be referred to a centre of expertise or a laparotomy can be performed.

At surgery, cystectomy is recommended for endometrioma because studies have demonstrated that cystectomy is associated with lower recurrence of dysmenorrhea and dyspareunia, fewer cyst recurrences, lower need for further surgery and recurrence of non-menstrual pain. Cystectomy can be achieved by direct stripping. This can sometimes be challenging due to lack of a clear surgical plane and there is a 2.4% risk of ovarian failure after bilateral ovarian endometrioma removal [26]. Deep endometriosis extends beneath the peritoneum and may affect the uterosacral ligaments, pelvic side walls, rectovaginal septum, vagina, bowel, bladder or ureter. Excision of these nodules is usually performed when surgical treatment is chosen. Colorectal involvement is not rare with deep endometriosis, and the treatment approaches for this condition include superficial shaving, discoid resection and segmental resection of the bowel to remove the deep endometriosis nodules. Multidisciplinary team care involving the gynaecologist, colorectal surgeon and urogynaecologist is a “sine qua non” for the best surgical outcome.

A systematic review by De Cicco *et al.* (2011) found excellent pain relief and quality of life improvement in most studies [27]. Surgery for deep endometriosis is associated with significant complication rates, particularly when rectal surgery is required. The reported total intraoperative complication rate was 2.1%, and the total postoperative complication rate was 13.9% (9.5% minor, 4.6% major) [28].

Overall, it can be concluded that surgery improves pain and quality of life in women with deep endometriosis. However, surgery in women with deep endometriosis is associated with substantial intraoperative and postoperative complication rates.

8.2. Treatment of Extra-Genital Endometriosis

When endometriosis occurs at sites other than the female reproductive tract and complete excision is possible, this is the treatment of choice. When this is not possible, long-term medical treatment is recommended [29]. Appendicular endometriosis is usually treated by appendectomy. Bladder endometriosis is usually by excision of the lesion and primary closure of the bladder wall. Ureteral lesions may be excised after stenting the ureter; however, in the presence of intrinsic lesions or significant obstruction segmental excision with end-to-end anastomosis or re-implantation may be necessary. Abdominal wall and perineal endometriosis is usually treated by complete excision of the nodules [30] [31] [32]. For thoracic endometriosis, medical, surgical or combination treatment options are used. Immediate treatment of pneumothorax or haemothorax is by insertion of a chest tube drain. Hormonal treatment is known to be effective in a significant proportion of patients.

8.3. Complementary Therapies

There is anecdotal evidence that most women in Africa, resort to non-medical therapies to manage chronic pelvic pain (most likely from endometriosis). Most resort to behavioural therapy, nutritional supplements, traditional Chinese medicine, traditional African herbal remedies and prayer camps. Complementary therapies are patronized but there is general lack of well-designed studies to evaluate their effectiveness to reduce endometriosis-associated pain.

9. Endometriosis Burden

9.1. Physical Morbidity

The significant physical morbidity associated with endometriosis cannot be overemphasized: it is a cause of chronic pelvic pain, deep dyspareunia and sub-fertility. It gives rise to gastrointestinal symptoms and has significant adverse effect on the woman's social and sexual relationships, profession or occupation and study [16] [33] [34].

9.2. Psycho-Social Morbidity

A woman with chronic pelvic pain is psychologically unstable. Those with sub-fertility have worse morbidities due to stigma from society. Treatment of the condition is also psychologically burdensome. Additionally, endometriosis, as a chronic condition, is likely to adversely affect the woman's partner/husband: potential adverse impact on coital activity, fertility and marital harmony, work and occupation and relationships.

9.3. Employment Burden

Time off work due to physical and psychological morbidity can be significant. Quality of work is also adversely affected due to the psychological morbidity.

9.4. Economic Burden

The burden of endometriosis extends to the health delivery system: the developed world has been able to assess the adverse effect of endometriosis on the health care system. Several European studies have demonstrated this. The World Endometriosis Research Foundation (WERF) EndoCost study (2013) showed substantial costs arising from treatment of women with endometriosis. According to this study, the cost is an economic burden that is at least comparable to the burden associated with other chronic diseases, like diabetes mellitus [33]. The total annual societal burden of endometriosis-associated symptoms for Europe was estimated to be between 0.8 million and 12.5 billion euros [17] [34]. As can be deduced, data on the economic burden of endometriosis in Africa is non-existent.

10. Conclusion

Endometriosis is not uncommon in Africa. Women continue to pay a staggering

price for this chronic debilitating condition. Even today, endometriosis is, for the most part, still an enigma, and treatments have remained essentially the same for centuries, with only minor variations. It cannot be overemphasized that there is a significant need to optimize care offered to women with endometriosis. There is paucity of data on endometriosis in Africa and this review is aimed at raising the awareness among practitioners that the condition should not be forgotten. There is the need to increase awareness of this debilitating chronic condition, sharpen our diagnostic acumen to improve diagnosis, endometriosis care and reduce both the personal and societal costs of this disease. It will serve as a prelude to research into endometriosis that we hope to conduct. Clearly, something has to change! The time has come to end the empire of endometriosis.

Ethical Clearance

This was approved by CHRPE, KNUST SMS with reference number: CHRPE/AP/471/17.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Abbreviations

TVS: Transvaginal ultrasound

TAS: Trans-abdominal ultrasound

MRI: Magnetic Resonance Imaging

GnRH: Gonadotropin Releasing Hormone

AIs: Aromatase Inhibitors