



# Endometriosis in Saudi Arabia; Prevalence, Presentation, Complications, and Updated Management: Simple systematic review

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## ABSTRACT

**Background:** Endometriosis is a benign disease of the female genital system characterized by a chronic growth of endometrial-like tissue, consisting of glands and/or stroma, found outside the uterine cavity in sites other than the uterine cavity like the pelvic cavity, ovaries, pouch of Douglas, and uterosacral ligaments. The commonest symptom that women present to health services is pelvic pain, which usually begins before menses and continues along the duration of menstrual flow. **Objectives:** This study aims to review the recent updates in prevalence, presentation, complications, and updated management of endometriosis in Saudi Arabia. **Methods:** PubMed database and EBSCO Information Services were used for articles Screening. All Saudi papers concerning the prevalence, presentation, complications, and updated management of endometriosis and other articles have been used in making the article. We excluded additional papers that are not relevant to this topic. The data were collected as per the particular manner in which the group members would study it. **Conclusion:** Endometriosis significantly affects the quality of life and health of the patient and may lead to infertility. Effective surgical treatment should be used with a clinical diagnosis of endometriosis. Furthermore, knowledge of the different atypical presentations and imaging methods used to diagnose endometriosis is the responsibility of the clinician, and the importance of awareness cannot be ignored.

**Key Words:** endometriosis, management of endometriosis, prevalence of endometriosis in Saudi Arabia

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## INTRODUCTION

Endometriosis is a benign disease of the female genital system characterized by a chronic growth of endometrial-like tissue, consisting of stroma and/or glands, found outside the uterine cavity in sites other than the uterine cavity like the pelvic cavity, ovaries, pouch of Douglas, and uterosacral ligaments [1]. Childbearing age is the most predominantly affected age by endometriosis with the mean age of 25–29 years at diagnosis [2]. It is mostly diagnosed in women with infertility more than pelvic pain. About 50% of women younger than 20 years with chronic pelvic pain or dyspareunia have endometriosis [3]. The overall prevalence for both symptomatic and

asymptomatic females in reproductive age is found to be 10–15%, 70% of women with chronic pelvic pain, and 38% (range 20-40%) among infertile women [4]. The commonest symptom that women present to health services is pelvic pain, which usually begins before menses and continues along with the duration of menstrual flow. Dysmenorrhea and deep dyspareunia are also the main pain complaints with 80% and 30% prevalence [5]. The disease has several etiological factors including environmental and genetic factors. The certain mechanism for the development of endometriosis is not clear. Various pathogenesis mechanisms have been suggested for the formation of endometriosis. This involves retrograde menstruation leading to the implantation of gizzard

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endometrial tissue, development of endometrial tissue from coelomic mesothelial cells undergo metaplasia and hematogenous or lymphatic distribution of endometrial cells [6].

The onset of pain is usually reported during adolescence, so, early referral, identification, and management may ease the pain, inhibit disease progress, and preserve fertility [7]. Physical examination must be done during early menses when the implants are expected to be the largest and tender. The doctor should also palpate for defined, retroverted uterus, nodules along the uterosacral ligaments pelvic masses, or uterine and adnexal tenderness [8]. A rectovaginal checkup is necessary to identify cul-de-sac, septal, or uterosacral nodules, [9]. Occasionally, computed tomography, pelvic magnetic resonance imaging, and ultrasonography are used to locate actual lesions, although these techniques are not useful to determine the endometriosis severity [10]. Blood tests could show a change in analytes, proteins, microRNAs, and other markers' levels matching to a disease state, which could be the base for identifying novel biomarkers [11].

Management of endometriosis may be medical or surgical, based on the severity of the symptoms and the patient's desire to keep or restore fertility. Symptomatic endometriosis is usually treated by medical or surgical treatment both equally effective [12]. Drugs available for medicinal therapies include oral contraception, progestin, androgens, and gonadotrophin-releasing hormone (GnRH) analogs. Medical treatment choice is done based on side effect profile, cost, and personal preference [13]. Endometriosis surgery can be carried out laparoscopically or as an open operation. Surgical removal of endometriosis results in significant pain relief and improvement in the quality of life after just six months compared to diagnostic laparoscopy, but about 20% of patients show no progress following surgery [14].

The recurrence of pain after six months of therapy could be 50% of cases during the 12-24 months after completion of treatment. Recurrence can be partially attributed to large lesions that respond poorly to medical care [15].

Infertility management in females with endometriosis needs further care. Surgery and advanced reproductive techniques (ARTs) cross over due to the various stages of the disorder and the age of the recipient. Minimal and minor diseases also benefit from specialist surgery. Advanced intermediate and extreme phases typically require in vitro fertilization (IVF) [16].

This study aimed to review the recent updates in prevalence, presentation, complications, and updated management of endometriosis in Saudi Arabia.

## **METHODS AND MATERIALS:**

PubMed and EBSCO Information Services were chosen as the search databases for the publications used within the study, as they are high-quality sources. PubMed is one of the largest digital libraries on the internet developed by the National Center for Biotechnology Information (NCBI), which is a part of the United States National Library of Medicine. Topics concerning the prevalence, presentation, complications, and updated management of endometriosis and other articles have been used in making the article. Restriction to the last 20 years, Saudi Arabia country and English language due to unavailable resources for translation were used. The articles were screened by titles, and reviewing the abstracts yielded 10 articles, which were enrolled.

### **Inclusion criteria:**

Articles were selected based on the relevance to the project, which should include one of the following topics; 'endometriosis, management of endometriosis, prevalence of endometriosis in Saudi Arabia'.

### **Exclusion criteria:**

All other publications, which did not have either of these subjects as their main end, or repetitive research, and analyses of reviews were omitted.

### **Statistical Analysis:**

No software has been utilized to analyze the data. The data were extracted based on a specific form that contains (Author's name, publication year, country, study type, and results). These data were reviewed by the group members to determine the initial findings and the modalities of performing the surgical procedure. A double revision of each member's outcomes was applied to ensure the validity and minimize the mistakes.

## **RESULTS:**

The search of the aforementioned databases returned 52 studies that were included for title screening. 21 of them were included for abstract screening, which led to the exclusion of 8 articles. The remaining 13 publications' full-texts were reviewed. The full-text revision led to the exclusion of 3 studies, and 10 studies were enrolled for final data extraction (Table 1)

The included studies had different study designs and population types.

Ragab et al. (2015) conducted a study to determine the prevalence of endometriosis among adolescent school girls with severe dysmenorrhea. 654 adolescents participated; the mean age of girls was  $15.2 \pm 3.53$  years, age of menarche in years was  $13 \pm 1.2$  SD, 48.9% (n=320) had varying degrees of menstrual pain. Severe dysmenorrhea was reported in 68.8% (n=220/320) of them, 56 (25.5%) had ultrasound findings indicated

endometriosis. Endometriosis was proposed in 77.3% of them.

Mostafa, et al. (2012) reported that all patients had abdominal pain but only 3 had a palpable mass. Histopathological confirmation was done in each case. In conclusion, the study reported that endometriosis is not as rare as thought, and should be included in the differential diagnosis of abdominal wall masses in reproductive-age females.

Isbister et al. (2002) reported a case referred to an infertility clinic. She was admitted for laparoscopy. The perineal lump had recurred and became more severe, and after analysis, it was discovered to have a diffuse mass of 5 × 5 cm at the back of its episiotomy scar. She was admitted for laparoscopy and perineal mass excision and, on that date, endometriosis was detected in the Douglas pouch.

Alsinan et al. (2019) case study indicated that hormone therapy treatment resulted in a successful outcome compared to the surgical resection method mentioned in several papers.

Sameer et al. (2017) reported the prevalence of endometriosis 14.3%. The prevalence of endometriosis is distributed over all age groups, suggesting that it should still be preserved as a differential diagnosis in our day-to-day practice, particularly in the reproductive age group extremes, preventing an unnecessary delay in diagnosis and adequate timely treatment.

Rouzi et al. (2013) conducted a study to evaluate the prevalence of endometriosis in women who had

gynecologic laparoscopy at a university hospital in the KSA and found that 190 gynecologic laparoscopies were done. The laparoscopy indications included ectopic pregnancy, infertility, chronic pelvic pain, infertility and chronic pelvic pain, pelvic mass, removal of a missing intrauterine contraceptive device. Endometriosis was diagnosed in (11.1%). In women with endometriosis, the complaints included pelvic pain, infertility, pelvic pain and infertility, and pelvic mass; One patient (4.8%) had an unknown complaint.

Al-Talib et al. (2013) studied on a 31-year-old woman with appendicular implantation in the lining of the back of the uterus. And that the appendix fused with the front wall of the abdomen. When performing surgery for chronic pelvic pain, surgeons should expect that endometriosis may contribute to pain in patients with endometriosis.

Khairy (2005) reported a woman with vague abdominal pain and ultimately was found to have endometriosis of the appendix at King Khalid University Hospital Riyadh, KSA. The histological result showed endometriosis of the appendicular apex.

Aladin et al. (2019) evaluated the prevalence of infertility among women attending the outpatient and inpatient department in Maternity and Children. The reported causes of infertility included endometriosis in 18 (3.2%).

Khadawardi, et al. (2020) found that while lots of women with endometriosis become pregnant and give birth to healthy babies, endometriosis is highly associated with infertility. More investigations are required to investigate the pathobiology of this condition.

**Table 1: Author, publication year, study design, country, outcome, and reference number of the included studies**

| Author's Name   | Publication Year          | Region  | Study Type                  | Outcomes   | Ref. |
|-----------------|---------------------------|---|-----------------------------|--|------|
| Ragab et al.    | 2015                      | Saudi Arabia  | cross-sectional prospective | The study reported that endometriosis prevalence in adolescents 12.3% associated with severe dysmenorrhea was despite some declined laparoscopy. Severe dysmenorrhea has been identified in 68.8% of the cases. 25.5% had ultrasound results indicative of endometriosis.  | [17] |
| Mostafa, et al. | 5-year period (2007-2012) | Najran Armed Forces Hospital, Najran, Saudi Arabia and Sohag University Hospital, Sohag, Egypt. | Descriptive analysis        | This study found that all patients had abdominal pain but only three patients had a palpable mass. Histopathological confirmation was done in each case. No recurrence or complications were observed on follow-up (6-24 months; mean 13.2 months). In conclusion, study reported that endometriosis is not as rare as thought, and should be included in the differential diagnosis of abdominal wall masses in reproductive-age females. | [18] |

|                         |  |   |                                      |   |      |
|-------------------------|--|---|--------------------------------------|---|------|
| <b>Isbister, et al.</b> | 2002                                   | Saudi Arabia  | Case report                          | Case reported two-month history of painful defecation, which eventually became continuous and kept her awake at night. The case was admitted for laparoscopy. She then presented again complaining that for the entire period she had been infertile. She had gone at an infertility clinic. The perineal lump had recurred and became more severe, and after analysis, she was discovered to have a diffuse mass of 5 × 5 cm at the back of its episiotomy scar. She was admitted for laparoscopy and perineal mass excision and, on that date, endometriosis was detected in the Douglas pouch. | [19] |
| <b>Alsinan, et al.</b>  | 2019                                   | Saudi Arabia  | Case Report                          | The study described a 25-year-old woman presented with obstructive urinary tract symptoms. It was shown that contrary to the surgical resection approach discussed in many studies, hormone therapy led to a satisfactory outcome. Effective comprehensive determination of the exact cause and treatment plan of this disorder is important to ensure optimal evaluation and development of patient care, including a coordinated and multidisciplinary team strategy including both urologists and gynecologists.   | [20] |
| <b>Sameer, et al.</b>   | 2017                                   | Women Specialized Hospital, King Fahad Medical City, Riyadh, Saudi Arabia | Hospital based cross sectional study | The study found that; prevalence of endometriosis was 14.3%. Pelvic pain was the major symptom. The prevalence of endometriosis is distributed over all age groups, suggesting that it should still be preserved as a differential diagnosis in our day-to-day practice, particularly in the reproductive age group extremes, preventing unnecessary delay in diagnosis and adequate timely treatment.  | [21] |
| <b>Rouzi, et al.</b>    | Between January 2008 and December 2013 | Jeddah, Saudi Arabia  | Hospital based cross sectional study | Endometriosis was diagnosed in 21 women (11.1%). 190 gynecologic laparoscopies cases were recorded. The indications for laparoscopy were infertility (40%), chronic pelvic pain (17.9%), pelvic mass (6.3%), and removal of a missing intrauterine contraceptive device (3.2%). In women undergone gynecologic laparoscopy, endometriosis was uncommon.   | [22] |
| <b>Al-Talib et al.</b>  | 2013                                   | Saudi Arabia  | Case Report                          | A 31-year-old woman suffering from frequent pain in the right side of the pelvis for two years, which increases with urination and defecation. She was examined by an urologist and gastroenterologist consultant and the result was normal. When performing laparoscopy, it was found that there was an appendicular implantation in the lining of the back of the uterus. And that the appendix fused with the front wall of the abdomen. When performing surgery for chronic pelvic pain, surgeons should expect that endometriosis may contribute to pain in patients with endometriosis.     | [23] |
| <b>Khairy</b>           | 2005                                   | King Khalid University Hospital Riyadh, KSA.                              | Case report                          | The case presents a woman with vague abdominal pain and ultimately was found to have endometriosis of the appendix. At admission, she had normal vital signs and was afebrile. Abdominal examination showed deep tenderness in the lower abdomen with no rigidity, guarding, tenderness or any palpable mass. All radiological, biochemical, and hematological investigations, including CT scan and pelvic/abdominal ultrasound, were unremarkable. The histological results showed endometriosis of the appendicular apex   | [24] |

|                   |                                       |   |  |   |      |
|-------------------|---------------------------------------|---|--|---|------|
| Aladin et al.     | from 1 December 2018 to 31 March 2019 | Maternity and Children Hospital, Arar, KSA.   | A hospital-based cross-sectional study           | The prevalence of infertility was evaluated in women attending the outpatient and inpatient department. The reported causes of infertility included endometriosis in 18 cases (3.2%).                               | [25] |
| Khadaward, et al. | 2020                                  | Umm Al-Qura University, Makkah, Saudi Arabia. | Descriptive hospital-based cross-sectional study | While many women with endometriosis become pregnant and bear healthy children, endometriosis is closely associated with infertility. More investigations are necessary to explore the pathobiology of this disease. | [26] |

## DISCUSSION:

The prevalence of endometriosis is underestimated due to the need for laparoscopy, which is known to be the preferred method to verify the diagnosis. At least 10% of all women of reproductive age are affected by the disease (the mean age at diagnosis is 25–29 years) [27]. Regarding adolescence, a previous study found that endometriosis is not uncommon among adolescents, half of the women under 20 years of age who have chronic pelvic pain or dyspareunia have the disease [28]. Since a laparoscopy or surgery is needed for the accurate diagnosis, the prevalence of endometriosis is hard to determine correctly.

In a previous study, endometriosis was reported as 4.1% in asymptomatic cases after laparoscopy for tubal ligation. However, in the same study, 20% of patients undergoing laparoscopic studies for infertility and 24% of women with pelvic pain had endometriosis [29]. Another study reported the total prevalence of both symptomatic and asymptomatic cases to be 5%–10% with 38% prevalence among infertile women [30]. One of our tabled studies at the KSA reported an endometriosis prevalence of 14.3% and 30 to 34 years as the peak age of this disease with a maximum of patients with stage 4 endometriosis [21]. A retrospective analysis of 892 post-laparoscopic cases with histologically confirmed endometriosis diagnosis. The average age was 33.2±6.3 years [31]. Although, in another study, 383 patients of childbearing age were examined for their debilitating symptoms, 192 of whom were diagnosed with endometriosis [32].

Recurrence is frequently observed in females with endometriosis and ranges widely from study to study. Recurrence may be partially attributed to the fact that large lesions respond poorly to medical attention. It is extensively agreed that endometrioma is not appropriate for surgical care, while partial therapeutic relief can be obtained [33]. The average recurrence rates vary from 6 to 67% according to the parameters that are taken into account [34]. Another research showed a 4-year recurrence rate of 23.7%, 30.6%, 17.8%, and 24.6%, for

ovary and vaginal, cervical, vaginal, and ovary endometriosis cases ( $P < 0.05$ ). Recurrence rates declined in all populations (except the ovarian endometriosis) in the age group of  $\geq 34$  years and these results were significant ( $P < 0.05$ ) [35]. There was no proof of gain from a comprehensive analysis of the current care for women with infertility having endometriosis, and it is not recommended for those seeking to conceive [36]. A systematic review of the laparoscopic treatment of endometriosis in women with subfertility indicated an increase in conception in the 9-12 months following surgery [37]. A second systematic analysis of laparoscopic excision relative to ablation endometrioma showed a five-fold rise in pregnancy rates [38].

Cases with moderate to serious endometriosis, especially those affected by ovaries to oviducts with an adhesive disease, have reduced fertility rates. It is technically based on the mechanical obstruction between the ovaries and the oviduct, with the resulting breakdown of the gamete transfer to the tubal ampulla [35]. Brugnion et al. reported that the number of collected oocytes, transfer rate, and the rate of cycles with a frozen embryo were lower in cases of endometriosis [39].

## CONCLUSION:

Endometriosis significantly affects the quality of life and health of the patient and may lead to infertility. Effective surgical treatment should be used with a clinical diagnosis of endometriosis. Furthermore, knowledge of the different atypical presentations and imaging methods used to diagnose endometriosis is the responsibility of the clinician, and the importance of awareness cannot be ignored.

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