

Scientific Investigation of Endometriosis among Adolescents

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ABSTRACT

The scientific literature on endometriosis specific to the adolescent population is limited, and the existing data are retrospective and descriptive in nature. It is possible that the disease has a different pathophysiology in adolescents, but little epidemiologic or molecular data exist to support or refute this speculation. In addition, the limited literature does not yet confirm that intervening in the adolescent population prevents long-term sequelae such as pain and infertility as adults. Case-control and cohort studies to identify risk factors, as well as prospective observational and intervention studies to assess treatment outcome, are required to further knowledge about endometriosis in the adolescent population.

The scientific literature on endometriosis specific to the adolescent population is limited, and the existing data are retrospective and descriptive in nature. This review summarizes studies that have been done to date and suggests areas for future investigation.

The early literature focused primarily on defining the incidence of endometriosis in the adolescent population. In 1980, Goldstein et al reported a 47% prevalence of surgically confirmed endometriosis among 140 adolescents who underwent laparoscopy for chronic pelvic pain.¹ Subsequent retrospective studies have reported incident diagnosis of adolescent endometriosis among those with chronic pelvic pain ranging between 25%–38%.^{2–4} Two studies restricted to adolescents who failed to achieve pain remediation from conventional therapy with nonsteroidal anti-inflammatory drugs and oral contraception reported incident diagnosis as high as 73%.^{2,5} Unlike adult women who can be diagnosed with endometriosis through either of 2 avenues—pain or infertility—adolescents are typically diagnosed based purely on symptoms of pain, which likely contributes to the high frequency of endometriosis among symptomatic adolescent patients seen in these studies. The true disease prevalence in the general adolescent population remains unknown.

There are virtually no large-scale epidemiologic studies on endometriosis among adolescents. A single retrospective cohort study reported a positive family history of endometriosis in a greater proportion of adolescents with endometriosis than adult women with endometriosis (30% vs 7.6%), although the sample size (6 out of 20 adolescents, 11 out of 143 adults) was limited.⁶ This result may reflect an increased awareness of endometriosis among mothers of adolescent girls as compared to the mothers of adult women because of an overall heightened awareness of endometriosis in recent generations. It is also possible that a family history of endometriosis may prompt an earlier surgical evaluation in the adolescent patient than in the general population.

The reported incidence of adolescent endometriosis has increased with time, in part because of a growing appreciation of the disease in this population. Although classically considered a postmenarchal disease because of retrograde menstruation, cases of endometriosis have recently been identified even in premenarchal but post-thelarchal girls, suggesting multifactorial peripubertal etiologies of the disease in the adolescent population.^{2,7} These findings have prompted some authors to propose the use of thelarche as a developmental milestone, after which endometriosis should be included in the differential diagnosis for chronic pelvic pain in adolescent girls.⁸

There is limited literature suggesting that endometriosis in adolescents may have a more varied clinical presentation than in adult women. As opposed to the classic symptom of dysmenorrhea seen in adults, a majority of adolescents present with some component of noncyclic pelvic pain.^{2,9} A large retrospective survey of 4000 adult women with endometriosis suggested that disease presentation during adolescence may correlate with severity of pain in adult women. Twenty-one percent of women who recalled experiencing their first symptoms of endometriosis prior to the age of 15 rated their current degree of pelvic pain as “severe,” as compared with 11%–14% of women who experienced their first symptoms over the age of 25.¹⁰ To minimize the potential for recall bias inherent in retrospective research, prospective studies following symptomatic adolescents into adulthood would be beneficial.

A number of studies have compared the surgical presentation of adolescent endometriosis with that seen in adult women. In a recent study of 20 adolescents and 143 adult women undergoing laparoscopic evaluation for pelvic pain, red lesions occurred significantly more frequently in adolescents versus adults (75% vs 26%, $P < .0001$).⁶ The predominance of “atypical” (clear or red) lesions in the adolescent population had been previously demonstrated in

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other studies. In a retrospective analysis comparing 49 adolescent girls with pelvic pain to 46 women undergoing laparoscopically assisted vaginal hysterectomy for endometriosis, both groups demonstrated the classic “blue-black powder-burn” lesions, but a greater percentage of adolescents also displayed atypical red lesions.¹¹ The recognition of atypical lesions has broadened the diagnostic criteria for adolescent endometriosis and likely contributed to its increased diagnosis over the past 3 decades. This hypothesis is illustrated in a 5-year study of adolescents by Vercellini et al, who found a 26.9% incidence of endometriosis as defined by classic blue-black lesions during the first 3 years of the study, but a 52% incidence during the last 2 years, when the diagnosis was expanded to include clear and red lesions. Had the authors continued to restrict their definition to the “classic” implants during the last 2 years, the incidence would have remained unchanged at 23.8% across time.¹²

Descriptive studies have consistently shown that the majority of adolescents have stage I or II disease at the time of laparoscopic diagnosis.^{2,5,6} There is very limited literature, however, on disease progression in the adolescent population and none on progression or change in lesion appearance during and following transition from adolescence to adulthood. A retrospective case series of 90 surgically treated adolescents who subsequently experienced pain exacerbations while on continuous medical therapy and opted for a second laparoscopy revealed no change in stage in 70% of patients at a median time of 29 months.¹³ Of the remaining 30%, 20% improved by 1 or 2 stages and 10% worsened by a single stage. Although this study suggests that disease progression is minimal over a 2- to 3-year duration, its retrospective nature and the absence of a control group make it difficult to draw broad conclusions about the role of surgical or medical therapy in controlling progression. A small case series of 3 adolescent patients with stage I endometriosis who underwent a second laparoscopy after failure to remain compliant with medical therapy did reveal progression of disease. Two patients evaluated after 24 months were noted to have stage IV disease, whereas the third patient was noted to have stage II disease after 5 years, suggesting that disease progression may vary widely between individuals.¹⁴

Research on adolescent endometriosis is still in its infancy, and the existing publications are of case series and descriptive studies. It is possible that the disease has a different pathophysiology in the adolescent population, but little epidemiologic or molecular data exist to support or refute this speculation. Case-control and cohort studies to identify risk factors for adolescent endometriosis during the in utero, early childhood, and pubertal time periods are crucial to advance our understanding of disease etiology and progression. In addition, the limited literature does not yet confirm that intervening in the adolescent population prevents long-term sequelae such as pain and infertility as adults. Other areas for investigation include the efficacy of GnRH-agonists with or without add-back therapy in adolescents, as well as long-term follow-up studies of disease progression and quality of life with medical versus surgical treatment. The short- and long-term impact of diet, lifestyle, and complementary and alternative therapies is

also in need of formal investigation. Prospective observational and intervention studies are required to address many of these enduring questions about endometriosis in the adolescent population.

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The young lady who has nausea and vomiting with her menstrual period, who lies in the nurse's office and the nurse is saying she is just trying to get out of class, is developing severe endometriosis. And those girls deserve immediate attention and their mothers need to know that, and they need to go to somebody that will do something about it. Unfortunately, because they are teenagers and they are emotional, it is all blamed on that.

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When a girl tells you she has pain during her period, and that an over-the-counter pain reliever and a heating pad does not help — please believe her and help her!

Carol Drury
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Some doctors believe that doing nothing is treatment. It is thought that reassurance that “everything is normal” will be enough for the patient to cope with her pain. The obvious question that is missed with this approach is “Why did the patient, and frequently her parents, arrange time out from work or school to come to the doctor for disruptive pain? Just to waste time?”

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