Duke Obstetrics & Gynecology

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Women's Community & Population Health

Agreement of preoperative diagnoses of endometriosis and adenomyosis for hysterectomy with the corresponding post-operative pathology report in a diverse U.S. population #160704

Joacy G Mathias[1], Natalie A Rivadeneira[2], Lauren Anderson[1], Michael J Green[1], Erin T Carey[3], Whitney R Robinson[1]

1Department of Obstetrics and Gynecology, Duke University Medical Center, Durham, North Carolina, USA
2Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, North Carolina, USA
3Department of Obstetrics and Gynecology, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

Abstract

Endometriosis and adenomyosis are chronic, often painful, gynecological conditions. Despite improvements in diagnostic accuracy, these conditions continue to be difficult to diagnose. Among a diverse set of hysterectomy patients, using electronic health record data from 1,753 premenopausal hysterectomy patients (aged 18-44 years) we compared surgical findings from hysterectomy with pre-surgical indications for the surgery.

Of 242 cases with surgical findings of endometriosis, only 21.5% had it as a main indication before surgery. After including the pre-surgical indication of chronic pelvic pain and dysmenorrhea to endometriosis, the diagnostic agreement increased to 51.2%. The most common preoperative indications for those with endometriosis in the pathology report include fibroids, menorrhagia, chronic pelvic pain, and abnormal uterine bleeding. About half (n=129; {53.3%) of patients with surgical findings of endometriosis used hormonal treatments at some point. Of those with a main indication of endometriosis and no surgical findings of endometriosis, 82.5% were using hormonal therapy, versus 92.8% of those with a main indication of endo and surgical findings were using hormonal therapy.

Among 548 with adenomyosis findings, only 5.1% had adenomyosis as a main indication for their hysterectomies (p=0.27 for racial/ethnic differences). After including the pre-surgical indication of chronic pelvic pain, abnormal uterine bleeding, and dysmenorrhea, the diagnostic agreement increased to 56.0%. The most common preoperative indications for those with adenomyosis in the pathology report include fibroids, menorrhagia, chronic pelvic pain, anemia, and abnormal uterine bleeding. About 281 (51.3%) of patients with pathological adenomyosis finding used hormonal treatments at some point in their life. Of those with a main indication of adenomyosis and no surgical findings of adenomyosis, 92.3% were using hormonal therapy, versus 92.8% of those with a main indication of adenomyosis and surgical findings were using hormonal therapy.

When using hysterectomy pathology reports as a gold standard, pre-surgical diagnoses of endometriosis and adenomyosis were frequently inaccurate. We currently lack good diagnostic tools to diagnose patients preoperatively. Additionally, those with endometriosis in the pathology report using hormonal treatments may experience disease (lesions) regression, and those with adenomyosis may have experienced symptom regressions. Chronic pelvic pain, dysmenorrhea, and abnormal uterine bleeding could have many causes that could benefit from a hysterectomy, so even when the diagnosis doesn't align with the pathology report, the patient might still be getting appropriate treatment.

Background

Endometriosis is defined as the presence of the endometrial tissue outside the uterus. Endometriosis affects between 5% and 45% of women of reproductive age.

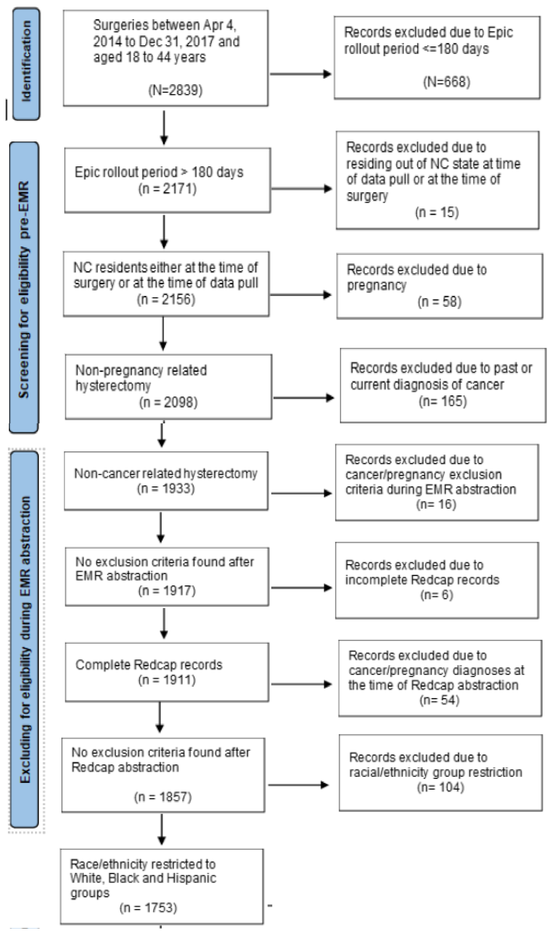
Adenomyosis is defined as the presence of ectopic endometrial tissue within the myometrium. The prevalence based on hysterectomy pathology reports ranges from 5% to 70%.

The complex pathogenesis and variable presentation of adenomyosis and endometriosis make these conditions difficult to diagnose.

Imaging tests such as pelvic ultrasound and magnetic resonance imaging can help doctors diagnose adenomyosis but examining the uterus through surgical intervention is the only way to diagnose endometriosis.

Hormonal treatments are the first line of treatment to reduce symptoms associated with adenomyosis and help with disease regression for endometriosis.

Study Design



Flow chart of inclusion and exclusion criteria of hysterectomy patient population, ages 18 to 44 years

Race/ethnicity :
Derived from two electronic health record variables that are legally required to be self-reported:• 6-level race (White, Black, Asian, Native, Other, Refused/Unknown)

Dichotomous Hispanic ethnicity

Race/ethnicity coding:
Ethnicity = Hispanic was coded as Hispanic

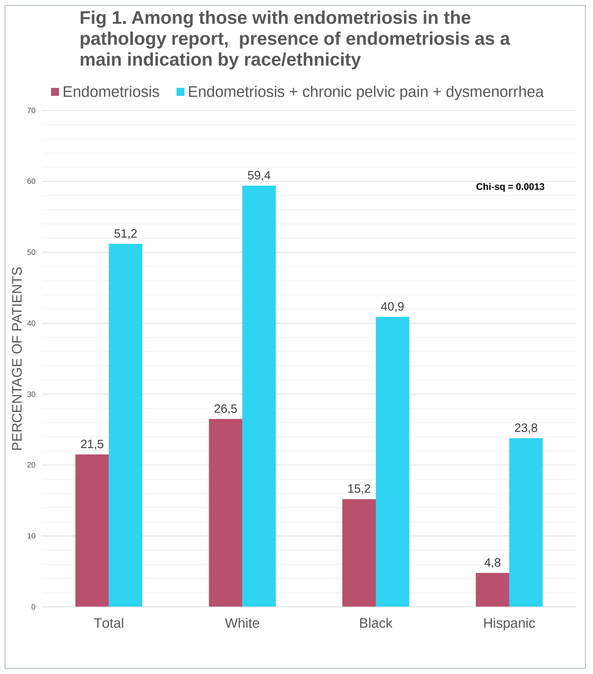
Multiple values for the electronic health record's race variable (always White + non-White value), we classified them as the non-White

Race/Ethnic groups included: non-Hispanic Black, Hispanic of any race and non-Hispanic White

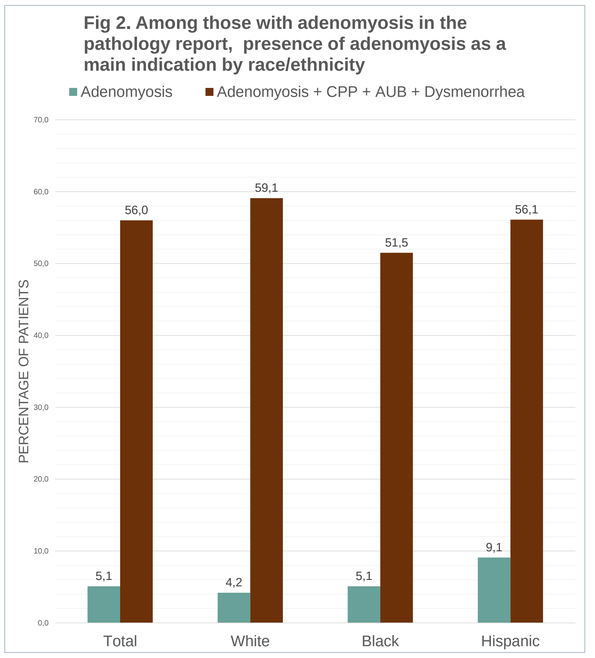
The preoperative indication was defined as the main reason indicated by the provider for a hysterectomy

Scan the QR code for additional information, such as the RedCap data collection instrument and other relevant publications from the Carolina Hysterectomy Cohort

Results



Of 242 cases with surgical findings of endometriosis, only 21.5% had it as a main indication before surgery. After including the pre-surgical indication of chronic pelvic pain and dysmenorrhea to endometriosis, the diagnostic agreement increased to 51.2%. (Fig 1)



CPP: Chronic pelvic pain; AUB: Abnormal uterine bleeding

Among 548 with adenomyosis findings, only 5.1% had adenomyosis as a main indication for their hysterectomies (p=0.27 for racial/ethnic differences). After including the pre-surgical indication of chronic pelvic pain, abnormal uterine bleeding, and dysmenorrhea, the diagnostic agreement increased to 56.0%. (Fig 2)

Results

Table 1. Distribution of hormonal therapy use among patients with Endometriosis or Adenomyosis as a main indication

	Present in the pathology report		Absent in the pathology report	
	Main indication = Yes	Main indication = No	Main indication = Yes	Main indication = No
Endometriosis				
Hormone therapy = Yes	39 (75.0)	90 (47.4)	55 (72.5)	659 (46.1)
Hormone therapy = No	13 (25.0)	100 (52.6)	22 (27.5)	772 (53.9)
Adenomyosis				
Hormone therapy = Yes	17 (60.7)	264 (50.8)	12 (92.3)	553 (46.4)
Hormone therapy = No	11 (39.3)	256 (49.2)	<10*	639 (53.6)

Hormone therapy included the use of hormonal contraception (Oral Contraceptive, Vaginal Ring, or Hormonal Patch use Ring - brand is typically NuvaRing; Patch - brand name is typically Xulane or Ortho Evra), Oral progestins (Common generic name: norethindrone. Common brand name: Provera), Depo provera, Implant (Implanon or Nexplanon), LupronDepot/GnRH agonist, Intrauterine Device (IUD): Hormonal Mirena, Skyla, Liletta, Kyleena at any period in their life

Current or prior hormonal therapy use among patients who had endometriosis as the main indication for surgery did not differ much between those with and without an endometriosis diagnosis in the pathology report (75% v 72.5%). (Table 1). Current or prior hormonal therapy use among patients with adenomyosis as the preoperative indication for hysterectomy was lesser among those with an adenomyosis diagnosis in the pathology report compared with those without an adenomyosis diagnosis in the pathology report (60% v 92.3%). (Table 1).

Conclusions

- When using hysterectomy pathology reports as the gold standard, the preoperative diagnoses of endometriosis and adenomyosis were frequently inaccurate.
- We currently lack reproducible, definitive diagnostic tools for endometriosis and adenomyosis.
- Further research is needed to improve the diagnostic accuracy of benign gynecological treatments pre-operatively.
- Limitations: We cannot determine if patients with histologically confirmed endometriosis on hormonal treatment experienced disease (lesions) regression and those with pathologic confirmed adenomyosis experienced symptom regression due to the lack of data about when hormonal treatments were prescribed and how long the patient adhered to it.
- We also do not have data on prior surgeries/procedures the patient may have undergone for treating endometriosis and adenomyosis.

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Health Disparities
Joacy Gerard Mathias
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