# Lack of preoperative predictors of surgical complications in patients undergoing endometriosis surgery may be due to lack of adequate preoperative imaging

Sir,

We have read the article entitled "Laparoscopic treatment of endometriosis and predictors of major complications: a retrospective cohort study" by Clark et al[1] with great interest. It has been reported that major complications following laparoscopic treatment of endometriosis are infrequent and difficult to predict by patient characteristics and preoperative imaging (magnetic resonance imaging [MRI] or ultrasound [US]). Certain intraoperative events were associated with complications. We would like to congratulate the authors on their publication and add commentary on two elements of care of patients with endometriosis that, we believe, have been underdeveloped in the manuscript.

First, the integration of preoperative imaging using MRI and/or US in this study's patient population is unclear. On this basis, it is questionable to claim that preoperative imaging cannot predict complications. The authors describe using US or MRI to assess for endometriomas and implants. This leaves readers questioning the preoperative approach to patients as follows. 1. What is an "implant"? 2. How were decisions about which imaging modality to use made? 3. What was evaluated during these imaging modalities? 4. What was the level of expertise of the imaging operators?

Internationally, many centers have recognized the utility and advantages of comprehensive imaging following the International Deep Endometriosis Analysis Group (IDEA) consensus,[2] which recommends elements of pelvic US assessment beyond that which is recommended by the American Institute of Ultrasound in Medicine.[3] Specifically, IDEA recommends assessment of pouch of Douglas obliteration state and direct visualization of deep endometriosis in the anterior and posterior compartments. The technique permits improved non-invasive diagnoses,[4] an opportunity for referral to appropriately trained minimally invasive gynecologic surgeons, and potential avoidance of "two-step" surgery (diagnostic followed by therapeutic laparoscopy).

Second, we would like to underline that the surgeons involved in the study were formally trained minimally invasive gynecologic surgeons. Regardless of the preoperative awareness of disease state, these surgeons presumably have the highest knowledge and skills to surgically manage whatever they encounter with good outcomes. At the very least, they would have the wherewithal to abandon a surgery if unanticipated severe disease was found and a patient was not consented appropriately. Unfortunately, this is not a reflection of reality because in many institutions, patients with suspected endometriosis are surgically managed by general gynecologists, who do not necessarily have the appropriate level of surgical expertise to optimally and safely address severe disease in the absence of preoperative acknowledgement.

The authors suggest that the intraoperative events (adhesiolysis, ureterolysis, and number of intraoperative events) were predictors of complications, but that these may simply represent surrogates of surgical complexity. We have demonstrated that ultrasound can predict the surgical complexity using the Ultrasound-based Endometriosis Staging System (or UBESS).[5] The lack of discussion on this matter may lead readers to believe that predicting complexity or surgical risk is not possible preoperatively, which we do not believe to be true or representative of the current literature. With this in mind we would encourage the authors and readers to further incorporate these imaging strategies to not only predict complexity but also mitigate complications.

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