VP05.02
Abstract withdrawn

VP05.03
Machine learning in the detection of forniceal endometriosis

S. Guerriero[4], M. Pascual[1], S. Ajossa[2], B. Graupera[1], I. Rodríguez[1], M. Pagliuca[2], F. Deiala[2], J. Alcazar[3]

[1]*Obstetrics, Gynecology and Reproduction, Dexeus University Institute, Barcelona, Spain;* [2]*Obstetrics and Gynecology, University of Cagliari, Cagliari, Italy;* [3]*Obstetrics and Gynecology, University of Navarra, Pamplona, Spain;* [4]*University of Cagliari, Cagliari, Italy*

Objectives: The aim of this study was to compare the accuracy of seven classical machine learning (ML) models trained with ultrasound (US) soft markers to raise suspicion of forniceal endometriotic involvement.

Methods: Input data to the models was retrieved from a database of 194 patients submitted to surgery for the suspicion of presence of deep endometriosis. The following models have been tested: k-nearest neighbours' algorithm (k-NN), Naive Bayes, Neural Networks (NNET-neuralnet), support vector machine (SVM), decision tree, random forest, and logistic regression. The data driven strategy has been to split randomly the complete dataset in two different datasets. The training dataset and the test dataset with a 67% and 33% of the original cases respectively. All models were trained on the training dataset and the predictions have been evaluated using the test dataset. The best model was chosen based on the best AUC demonstrated on the test dataset. The information used in all the models were: age; presence of US signs of uterine adenomyosis; presence of an endometrioma; adhesions of the ovary to the uterus; presence of ''kissing ovaries''; absence of sliding sign. All models have been trained using CARET package in R with ten repeated 10-fold cross-validation. Sensitivity, and specificity, were calculated using a Youden index threshold.

Results: 28 women had a surgical diagnosis of forniceal endometriosis. In term of diagnostic accuracy, the best model was the Neural Net (AUC, 0.73; sensitivity, 0.78; specificity 0.70) but without significant difference with the others.

Conclusions: The accuracy of ultrasound soft markers in raising suspicion of forniceal endometriosis using artificial intelligence (AI) models showed similar results to the logistic model.

This study was partly supported by Fondazione di Sardegna grant F74I19001010007.

VP05.04
Prevalence of endometriosis in premenopausal women attending general gynecology clinics

P. Chaggar[1,2], N. Thanatsis[2], L. De Braud[2], T. Setty[2], T. Tellum[3,2], D. Jurkovic[1,2]

[1]*Gynecology, University College London, London, United Kingdom;* [2]*Gynecology, University College London Hospitals NHS Foundation Trust, London, United Kingdom;* [3]*Gynecology, Oslo University Hospital, Oslo, Norway*

Objectives: To determine the prevalence of endometriosis in premenopausal women attending general gynecology clinics.

Methods: This was a prospective observational cohort study, conducted at a tertiary university hospital from February 2019 to October 2020. We included consecutive premenopausal women who had a transvaginal ultrasound scan performed by a single experienced examiner. Women with previous oophorectomy or hysterectomy were excluded. The presence, number and location of endometriotic cysts and lesions, and other pelvic pathology was noted, as well as demographic and clinical data.

Results: We included 1026 women in this study of which 194 (18.9%) had sonographic evidence of endometriosis. Of these 194 women, 88 (45.4%) had evidence of endometriomas, 169 (87%) had evidence of endometriotic nodules and 63 (32.5%) had both. 84 (64.1%) women had evidence of endometriotic nodules in the rectovaginal space, 59 (45.0%) in the uterosacral ligaments and 26 (19.9%) in the bowel. These were the most common locations for the presence of deep endometriosis. The indication for the examination was pelvic pain symptoms in 368 (35.9%) patients, whereas the remaining 658 (64.1%) patients had attended with non-pain related symptoms. 79 (7.8%) patients underwent laparoscopy by an experienced surgeon, of which 17 (21.5%) were diagnosed with endometriosis at surgery. There was agreement between the scan and surgery results in 76 out of 79 cases (96.2%). The calculated kappa value was 0.89 (95% CI: 0.66 to 1.00), suggesting excellent agreement between the two methods in the detection of the presence or absence of endometriosis.

Conclusions: The prevalence of endometriosis in the general premenopausal population is higher than previously thought. Endometriosis can be diagnosed non-invasively with ultrasound in an outpatient setting and health care providers should allocate sufficient resources to facilitate a timely diagnosis. Specialised endometriosis services should be expanded to holistically manage symptomatic women.

VP05.05
Abstract withdrawn

VP05.06
Differential diagnosis of deep rectal endometriosis by ultrasound

G. Szabó, I. Madár, J. Rigó, A. Hajdinák, N. Ács, A. Bokor

Department of Obstetrics and Gynecology, Semmeweis University, Budapest, Hungary

Objectives: In the past decade, the use of transvaginal ultrasound according to the IDEA protocol increased the ultrasound detection rate of rectal deep endometriosis foci. Due to the nature of the disease, such as distorted pelvic anatomy and the variety of phenotypes of endometriotic lesions, a complete sonographic evaluation is often difficult. Several conditions can mimic rectal deep endometriosis.

Methods: This was a prospective study of patients presenting for possible pelvic deep endometriosis between January 2019 and May 2021. Patients were examined by transvaginal ultrasonography and sonoelastography based on the IDEA protocol. Histology after laparoscopy was the gold standard of the study.

Results: Of the 450 patients who underwent ultrasonography for the suspicion of pelvic deep endometriosis in 291 (64,7%) cases were rectal localisation the indication. Deep endometriosis was confirmed by 279 patients. In the remaining 12 (4,3%) patients the diagnoses were: vaginal cyst (3/12), anorectal abscess (3/12), rectal cancer (2/12), hydrosalpinx (2/12) metastatic endometrial cancer (1/12) and Crohn's disease (1/12). Vaginal cysts were round, anechogenic masses with smooth wall at the level of the rectovaginal septum. Anorectal abscesses have mixed hyperechogenic content and high vascularity in the soft wall of the lesion. Rectal cancer can bulge in the lumen of the bowel, but it usually grows outward contrary to deep infiltrating endometriosis lesions infiltrating inward. With a colour Doppler ultrasound examination, rectal cancer shows also increased vascularity. Metastastic tumour was an irregular solid lesion with a leading vessel. In Crohn's Disease elastography shows diffuse fibrosis.

Conclusions: For the diagnosis of rectal deep endometriosis a trained ultrasound operator, combining ultrasound modalities and interdisciplinary approach are important. The best scenario is