ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 4| April 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

COMPLEX ULTRASOUND IN THE DIAGNOSIS OF UNDERLYING DISEASES OF THE CERVIX

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SUMMARY
The article discusses the possibilities of transvaginal ultrasound in the diagnosis of underlying diseases of the cervix. Among all benign processes of the cervix in women of reproductive age, more than 90% are non-tumor diseases. Timely diagnosis and treatment of patients with comorbidities is important for the prevention of cervical cancer.
KEY WORDS: ***colposcopy, transvaginal ultrasound, cervical diagnostics.***

RELEVANCE

Timely diagnosis and treatment of patients with comorbidities is important for the prevention of cervical cancer. Most underlying or non-neoplastic diseases of the cervix usually occur in women of reproductive age. Underlying cervical diseases include mild cervical dysplasia (CIN I), endocervical hyperplasia, endometriosis, and polyps, which are more common in women of reproductive age [1, 2].

FN Nwachokor and GC Forae analyzed 176 cervical biopsies, of which 56.3% of cervical lesions were benign and 43.7% were malignant. Among all benign processes of the cervix, 92.9% are non-tumor diseases. The results of studies have shown that screening of the cervix with subsequent histological examination is an important step in the early diagnosis of precancerous and malignant lesions of the cervix [3].

S. Vijayakumar et al. (2021) conducted a retrospective analysis of clinical and laboratory studies of 164 women with a mean age of 46.07±8.17 years. In 2/3 of the examined during the examination, the normal state of the cervix was recorded . Twenty-seven women had squamous metaplasia, 6 had low-grade squamous intraepithelial lesions (LSIL) and well-differentiated squamous cell lesions (HSIL), and 1 was diagnosed with malignancy. Excessive bleeding has been reported in women with low squamous intraepithelial injury. According to microscopic studies, only flat metaplasia ($p<0.001$) and dysplasia ($p<0.001$) were reliably corrected for definitive diagnoses such as LSIL, HSIL [4].

Human papillomaviruses and *herpes simplex viruses* are common causative agents of viral cervicitis, which are closely associated with preinvasive intraepithelial neoplasia of the cervix and cervical cancer [5]. Adequate screening of the cervix followed by histological verification are important tools in the diagnosis of non-neoplastic lesions to improve the early detection of precancerous lesions [1].

Endometriosis significantly affects the quality of life of women. Its most characteristic symptoms are: dysmenorrhea, pelvic pain, dyspareunia, changes in urination and intestinal changes, psychological and social disorders [6]. The ultrasound picture of deep endometriosis is characterized by hypoechoic thickening or the presence of formations with regular or irregular contours located in the retrocervical region or in the space of Douglas [7].

In some cases, endometriosis not only penetrates the cervix, but also interrupts the serosa. Such situations are often reported in the case of deep foci of endometriosis found in the retrouterine, retrocervical and Douglas spaces, penetrating the wall of the vaginal fornix [8, 9]. Due to its simplicity and accuracy, transvaginal ultrasound is the method of primary examination of women with suspected endometriosis [10].

It is assumed that endocervical glandular hyperplasia is a harbinger of a group of mucinous adenocarcinomas with a gastric phenotype independent of a high-risk human papillomavirus infection. A study by SY Liao et al. (2013) showed that there are different molecular mechanisms of carcinogenesis leading to normal glandular lesions compared to lobular endocervical glandular hyperplasia associated with adenocarcinoma *in situ* or gastric phenotype [10].

TARGET

To evaluate the possibilities of transvaginal ultrasound in the diagnosis of underlying diseases of the cervix.

MATERIAL AND METHODS

A retrospective analysis of the results of transvaginal ultrasound of the cervix was carried out in 83 women of reproductive age (19–45 years), in whom the histological examination of curettage materials revealed background

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pathological processes of the cervix. Among them, endometriosis of the cervix was established in 39, endocervical hyperplasia was established in 31, and CIN I was established in 13. In 25 (30.1%) cases, the age of the patients varied within 19-25 years, in 45 (54.2%) - at 26-35 years old, at 13 (15.7%) - 36-45 years old. Transvaginal echography was performed on Philips HD-7 and HD-11 devices. The comparison group consisted of 37 healthy women of reproductive age.

The significance of discrepancies in the mean values was assessed by the method of Fisher's angular transformation and by Student's t-test.

RESULTS

Deep slit-like hypoechoic inclusions were reported only in patients with CIN I - in 84.6% of cases. In the diagnosis of CIN I, the sensitivity of transvaginal echography was 81.8%, specificity 50.0%, and accuracy 76.9%. The heterogeneous structure of the cervical stroma was most often observed in the group of patients with cervical endometriosis (87.2%), followed by CIN I (46.2%) ($p<0.01$). Subectocervical cysts with a thin suspension were much more common ($p<0.001$) in patients with cervical endometriosis (69.2%) than in other groups. The average value of cervical M-echo in patients with glandular hyperplasia was 8.4 mm, with adenomatous hyperplasia - 11.7 mm ($p<0.001$), in the comparison group - 5.7 mm. Small rounded endocervical cysts (<2.0 mm) were recorded much more often ($p<0.05$) in adenomatous hyperplasia (59.6%). Moderate endocervical (75%) and subendocervical vascularization (87.5%) were significantly more common ($p<0.05$ and $p<0.01$) in patients with adenomatous hyperplasia.

Rice. 1 . Colposcopy. Cervical erosion with dysplasia (CIN I). Lugol's solution exposes areas of columnar epithelium against a dark brown background. Erosion + iodine-negative zone. Histological conclusion: ectopic cervical glands, with stratified squamous epithelium, mild dysplasia (CIN I)

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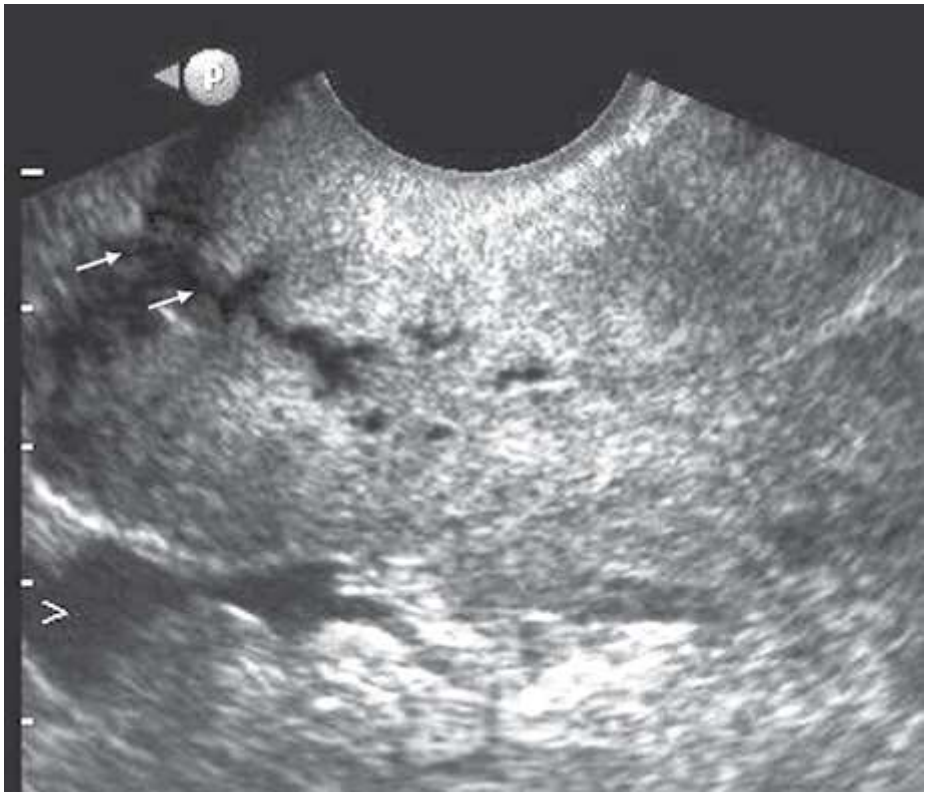

Rice. 2 . CIN I. In the area of the vaginal part of the cervix, deep narrow anechoic zones are visible (arrow to the left), a small local thickening of the mucous membrane in the transition zone (arrow to the right)

Rice. 3 . Hyperplasia of the glandular endocervix. The total thickness of the endocervix leaves is 10.8 mm. The contours of the endocervix are even, the echostructure is homogeneous, hypo-, isoechoic

CONCLUSIONS

The glandular-fibrous form of endocervix hyperplasia is characterized by cervical M-echo in the range of 8.1–10.0 mm, weak vascularization; with adenomatous hyperplasia - cervical M-echo within 10-13 mm, heterogeneous structure of the endocervix, moderate vascularization; with cervical

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endometriosis - a heterogeneous structure of the stroma of the cervix due to cystic cavities with a dispersed suspension, lack of separation of the endocervix and stroma; for CIN I - deep slit-like hypoechoic inclusions on the mucous membrane of the external pharynx and the transition zone of the cervix.

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