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ULTRASONOGRAPHIC ASPECTS OF THE CERVIX IN CHRONIC CERVICITIS

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ABSTRACT

The aim of this study was to evaluate the structural changes of the cervix using the ultrasound examination. The studied group consisted of women aged between 21 and 75 years. 30,43% of the structural changes were represented by glandular dilatation. Other aspects observed were microcalfications (9,75%), and one endocervical polyp. All these changes are characteristic of chronic inflammation called cervicitis. The distribution of cases by age group showed that 41,46% belonged to the 41-50 age group and 36,58% to the 31-40 age group. The fewest cases (9,76%) were in the 21-30 age group. Regarding the medical history 80,49% of the patients had births or abortion in the past.

INTRODUCTION

The human uterus is a cavity organ located medially in the pelvic cavity, posterior to the urinary bladder and anterior to the rectum. The body or corpus forms the major portion of the uterus.

The cervix is located in the lower part of the uterus that projects into the vaginal canal as the portio vaginalis. A narrow cervical canal passes through the cervix. The opening of the cervical canal that directly communicates with the uterus is the internal os and, with the vagina, the external os.

The cervix contains numerous branched cervical glands. The amount and type of mucus secreted by the cervical glands change during the menstrual cycle is under the influence of ovarian hormones (Mescher 2021).

The wall of cervix consists of an inner mucosa, a middle muscular layer and an outer connective tissue adventitia. The cervical canal is lined with tall, mucus-secreting columnar epithelium. The cervical epithelium also lines the highly branched and tubular cervical glands. Some of the cervical glands may become occluded and develop into small glandular cysts (Simionescu 2009).

The portio vaginalis of the cervix is lined with nonkeratinized stratified squamous epithelium (Eroshenko 2017).

The cervical mucosa does not undergo extensive changes during the menstrual cycle.

During the proliferative phase of the menstrual cycle, the secretion from the cervical glands is thin and watery and allows for easier passage of sperm

through the cervix. During the secretory phase the cervical gland secretion become highly viscous forming a mucus plug in the cervical canal. The mucus plug prevents the penetration of spermatozoa and microorganism from the vagina into the uterine cavity (Eroshenko 2017).

Cervicitis are inflammatory processes of the cervix and are the most common disease encountered in gynecological practice (Ancar & Ionescu 2012).

Normally the leucocytic infiltrate is present in the superficial stroma of the cervical mucosa and leucocytes are present in the endocervical mucus on the surface (Young et al. 2013).

The susceptibility of the cervix to infections depends on the integrity of the epithelium and the virulence of microorganisms. With the onset of menarche, estrogen hormones stimulate the maturation of the epithelium and the loading of cells with glycogen. The estrogens determine an acid pH that increases the sensitivity of the endocol to infections and favors the appearance of cervicitis.

Repeated infections and microtraumas are the most common causes of cervicitis (Berek 2019).

Secondary to the inflammation and obstruction of the glands, cystic formation called Naboth cysts appear. In inflammatory processes with long evolution, in the stroma, diffuse fibrosis and even areas with hyaline degeneration and microcalcifications appear. In some cases, polypoid proliferation of the endocervical mucosa occurs, causing chronic polypoid cervicitis (Simionescu et al. 2009).

MATERIAL AND METHODS

The study was done on a group of 115 women between the ages of 25 and 75, who presented themselves for an ultrasound examination in the specialized medical clinic. The patients were investigated using a Siemens Aloka 5-α ultrasound and a transvaginal transducer with a frequency of 6,5 MHz.

The cervix was observed, evaluating the following aspects:

-the dimensions of the cervix, its appearance, the outline and the possible structural changes;

-the appearance and the thickness of the cervical canal mucosa;

-the presence, location and sizes of the glandular dilatations;

-the presence of microcalcifications;

-the internal and external os.

The cases were distributed according to age group.

The patients were investigated anamnestically regarding the existence of births and abortions in their medical history.

RESULTS AND DISCUSSIONS

The study showed that out of the total cases examined, structural changes of the cervix were present in 41 cases (35,65%). Glandular dilatations were observed in 35 cases, representing a percentage of 30,43% of the 115 cases and a percentage of 85,36% of all structural changes.

The anatomy of the cervix is well appreciated on transvaginal imaging. The endocervical canal is generally thin and homogenous in appearance. Nabothian cysts can be found anywhere along the length of the endocervical canal.

Endocervical glands dilated and filled with mucus appear sonographically as round or oval anechoic, well-circumscribed and avascular images.

Microcalcifications have the ultrasound appearance of hyperechoic point images with a size of 1-2 mm. An endocervical polyp appears as an intensely echogenic image and can have different sizes (Pőder, 2017).

Figure 1 and 2 show the normal ultrasound appearance of the cervix and the endocervical canal distended by the cervical mucus during the ovulatory period.

Glandular dilatations were multiple in 31 cases (88,57%) (Fig. 3).

In 4 cases it was observed a unique glandular dilatation, but of a larger size, over 10 mm (Fig. 4).

The locations of the multiple glandular dilatations were:

-in the anterior wall of the cervix – 1 case (2,86%);

-in the posterior wall – 5 cases (14,28%);

-in both, anterior and posterior walls – 29 cases (82,86%).

Other changes in the appearance of the cervix were also observed:

-microcalcifications – in 4 cases (9,75%) (Figure 5).

-thickening of the cervical canal mucosa, suggestive of the presence of a polyp – in one case.

Endocervical polyps are most common in premenopausal women. The chronic inflammation and elevated estrogen levels have been reported to be predisposing factors (Pőder, 2017).

In one case, associated changes, glandular dilatations and microcalcifications were observed.

Figure 6 shows multiple glandular dilatations in the anterior wall of the cervix, in a case of pregnancy.

Regarding the dimensions, 74,28% of the glandular dilatations were between 4 and 6 mm, and only in 4 cases the dimensions were over 10 mm.

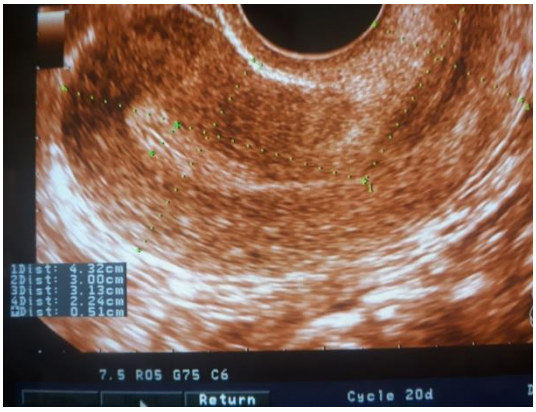

Figure 1. Normal ultrasound appearance of the cervix
Sagittal plane

Figure 2. Endocervical canal distended by the cervical mucus

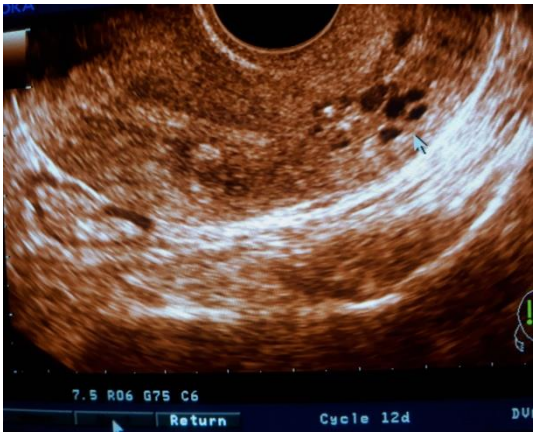

Figure 3. Cervix with multiple glandular dilatations

Figure 4. Unique glandular dilatation with the size of 13 mm

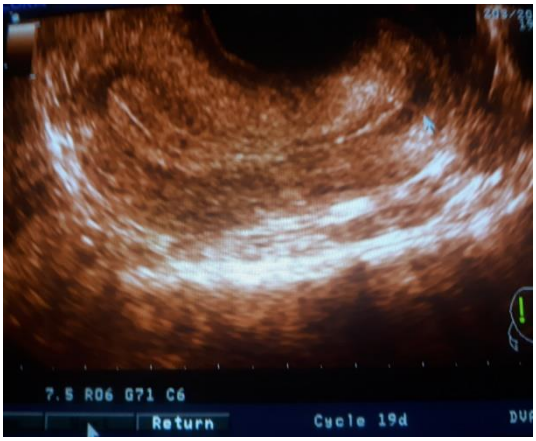

Figure 5. Cervix with microcalcifications

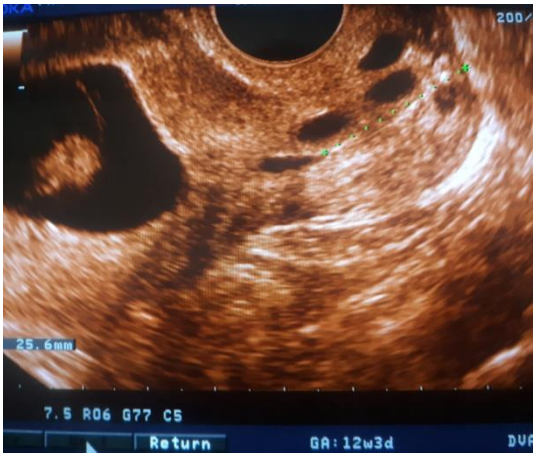

Figure 6. Cervix with multiple glandular dilatations
in the anterior wall (pregnancy)

The distribution of cases by age group showed that 41,46% belonged to the 41-50 age group and 36,58% to the 31-40 age group. The fewest cases (9,76%) were in the 21-30 age group (Table 1).

Table 1

The repartition of the cases according to the age group

Age group	No. of cases	Percentage
21-30	4	9,76%
31-40	15	36,58%
41-50	17	41,46%
>50	5	12,19%
Total	41	100%

Regarding the medical history 80,49% of the patients had births or abortion in the past. Most of the patients were in the reproductive period and in the perimenopause.

The observation of the structural changes of the cervix must be correlated with the clinical symptoms and leads to further investigations such as: gynecological clinical examination, cervical-vaginal cytology, colposcopy, microbiological examinations of vaginal secretions, hysteroscopy (Apgar et al. 2008).

It is recommended to carry out microbiological analyzes in the case of a vaginal secretion that has changed in appearance, color, consistency, smell or that causes symptoms.

It is very important to respect the hygiene rules of the reproductive system: vaginal washes after sexual contact, changing vaginal tampons during menstruation at intervals of 1-2 hours, using a condom in the case of sexual intercourses with new or multiple partners.

CONCLUSIONS

In 64,35% of the cases, the cervix had a normal ultrasound appearance. In 30,43% of the cases, multiple glandular dilatations were observed, in 74,28% of cases with size between 4 and 6 mm.

Regarding the localization, in 82,86% of the cases, the Nabothian cysts were present in both, anterior and posterior walls of the cervix.

Most of the patients (80,49%) presented births and abortions in their medical history.

Women prefer to be examined by ultrasound considering that this investigation can detect any disease. Observing any changes during the ultrasound examination requires a clinical exam and additional paraclinical investigations.

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