

## Ultrasound Diagnostics of Pseudo-Erosion of the Cervix in Young Women

Abdullaiev R Ya\*, Sibihankulov AH, Kogut AV and Kiriya DG

Department of Ultrasound Diagnostics, Kharkiv Medical Academy of Postgraduate Education, Ukraine

\*Corresponding Author: Abdullayev R Ya, Department of Ultrasound Diagnostics, Kharkiv Medical Academy of Postgraduate Education, Ukraine.

Received: August 16, 2018; Published: September 21, 2018

### Abstract

**Introduction:** Pseudo-erosion of the cervix (ectopy, just erosion) is one of the frequent diseases in gynecology and is observed in 10 - 15% of women who seek medical attention. Endoscopy does not allow you to visualize ecto- and endocervix, thereby assessing their condition. Transvaginal echography of the cervix can better visualize deep-seated changes in the ectocervix.

**Objective:** To study the echographic semiotics of pseudo-erosion in women of reproductive age in a transvaginal way.

**Materials and Methods:** The study included 187 women aged 21 - 38 years with erosion and pseudo-erosion. The diagnosis was established on the basis of clinico-laboratory, colposcopic and cytological studies. All patients underwent transvaginal ultrasound (TV) of the vaginal part of the cervix. The comparative group (CG) consisted of 34 healthy women of similar age with normal vaginal microbiocenosis and without pathological changes in the cervix.

**Results:** At a colposcopy in 29 (15.5%) women experienced erosion (group I), 158 (84.5%) had pseudo-erosion (group II). In women CG (III group) 32 (94.1%) had a smooth surface of the vaginal part of the cervix, 2 (5.9%) had false positive sonographic signs of pseudo-erosion, but without colposcopic confirmation. 6 (20.7%) of women with erosion and 12 (7.6%) of pseudo-erosion of the cervix did not have echographic changes. In patients with erosion cystic cavities were detected in 25 (73.5%) cases - in 18 (52.9%) in sizes 2 - 4 mm, in 7 (20.6%) within 5 - 8 mm. Colposcopically, cysts were detected only in 3 (12%) and 5 (20%) cases respectively, diagnosed with ultrasound. In 11 (37.9%) cases of erosion in the region of the vaginal part of the cervix, hypoechoic narrow zones (1.0 - 2.0 mm) were detected, in 12 (41.4%) cases - they were deep, broad (more 3 mm). Echographically, 21 (72.4%) patients with cervical erosion had cysts in the ectocervix, and colposcopically - in 9 (31.0%) cases. Echographically in women with pseudo-erosion vaginal part of the cervix, hypoechoic narrow zones (1.0 - 2.0 mm) were found in 81 (51.3 ± 4.0%) cases, hyperechoic inclusions 0.5 - 1.5 mm in size - 127 (80,4 ± 3.2%).

### Conclusion

1. Transvaginal echography has a high sensitivity in detecting cervical pseudo-erosion and it has advantages over colposcopy in detecting deep-seated changes in ectocervix.
2. The main echographic sign of erosion and pseudo-erosion is the presence of hypoechoic slit-like zones in the vaginal part of the cervix. With pseudo-erosion, small hyperechoic inclusions are often present.

**Keywords:** Transvaginal Ultrasound; Cervix; Pseudo-erosion; Women of Reproductive Age

### Introduction

Erosion and pseudo-erosion of the cervix (ectopy, just erosion) is one of the frequent diseases in gynecology. It is observed in 10 - 15% of women who seek medical attention. As statistics show, quite often pathology develops in a young woman under 30 years old. Various surgical interventions, traumas, abortions, early sexual debut contribute to a change in the microbiocenosis of the vaginal biotope, the selection of multiresistant strains of pathogenic and opportunistic microorganisms, the development of vulvovaginitis, exo- and endocervicitis. These factors are the most common cause of pseudo erosion [1,2].

In many women, cells from inside the cervical canal, known as glandular cells, are present on the outside surface of the cervix. This used to be called cervical erosion and is now more commonly known as cervical ectropion [3,4].

The area where the glandular cells meet the squamous epithelial cells, which are those found on the outer surface of the cervix, is called the transformation zone [5].

There are the following types of erosion: congenital erosion, true erosion, pseudo-erosion. Congenital erosion of the cervix is an ectopic cylindrical epithelium of the cervical canal. It is known that around the external throat of the cervical canal lies the boundary between the cylindrical and flat epithelium. With congenital erosion, the boundary between these kinds of epithelium shifts beyond the outer throat of the cervix. True erosion of the cervix is an acquired pathological process characterized by damage and subsequent desquamation of the multilayered flat epithelium of the vaginal part of the cervix. As a result of desquamation, a wound surface with manifestations of inflammatory reaction is formed. True erosion exists no more than 2 weeks and passes into the next stage - pseudo-erosion.

Erosion of the cervix or cervical ectropion is easily detected in the taken smear, visually and colposcopically looks like a zone of hyperemia (as the glandular cells are red). Since, in many women after birth, a cervical ectropion is recorded, this can be explained by hormonal disorders. In some young women, women taking contraceptives, the appearance of cervical ectropion is a frequent occurrence [6,7].

Colposcopy allows you to visualize the vaginal part of the cervix, to identify suspicious for neoplasia changes in the transition zone. Cervicoscopy makes it possible to visualize the mucous membrane of the cervical canal, visually assess its condition and determine the exact location of the lesion and its size. If a pathological focus is detected during the procedure, a targeted biopsy is performed for further histology. These methods in most cases provide detection of dysplasia, erosion and pseuderosion, inflammation of ectocervix, cervical cancer localized in the transition zone [8,9].

Endoscopy does not allow you to visualize ecto- and endocervix, thereby assessing their condition. Transvaginal echography of the cervix is mainly used to diagnose cervical insufficiency in pregnant women with the aim of predicting premature births [10,11]. It is of interest to study the possibilities of TV echography in the diagnosis of erosion and pseudo-erosion of the vaginal part of the cervix in young women.

**Objective of the Study**

To study the echographic semiotics of pseudo-erosion in women of reproductive age in a transvaginal way.

**Material and Methods**

The study included 187 women aged 21 - 38 years with erosion and pseudo-erosion. The diagnosis was established on the basis of clinico-laboratory, colposcopic and cytological studies. All patients underwent transvaginal ultrasound (TV) of the vaginal part of the cervix. The comparative group (CG) consisted of 34 healthy women of similar age with normal vaginal microbiocenosis and without erosion and pseudo-erosion of the cervix.

**Results**

At colposcopy, 29 (15.5%) women experienced erosion (group I), 158 (84.5%) had pseudo-erosion (group II). In women CG (III group) 32 (94.1%) had a smooth surface of the vaginal part of the cervix, 2 (5.9%) had false positive sonographic signs of pseudo-erosion, but without colposcopic confirmation. 6 (20.7%) of women with erosion and 12 (7.6%) of pseudo-erosion of the cervix did not have echographic changes (Table 1).

Colposcopy	Erosion Group I (n = 29)	Pseudo-erosion Group II (n = 158)	The healthy women Group III (n = 34)
Sonography	23 (79,3%)	146 (92,4%)	32 (94,1%)  True positive  2 (5,9%)  False positive

**Table 1:** Comparative results of colposcopy and sonography in erosion and pseudo-erosion.

In patients with erosion cystic cavities were detected in 25 (73.5%) cases - in 18 (52.9%) in sizes 2 - 4 mm, in 7 (20.6%) within 5 - 8 mm. Colposcopically, cysts were detected only in 3 (12%) and 5 (20%) cases respectively, diagnosed with ultrasound.

In 11 (37.9%) cases of erosion in the region of the vaginal part of the cervix, hypoechoic narrow zones (1.0 - 2.0 mm) were detected, in 12 (41.4%) cases - they were deep, broad (more 3 mm). Echographically, 21 (72.4%) patients with cervical erosion had cysts in the ectocervix, and colposcopically - in 9 (31.0%) cases (Table 2).

Visualization of the ectocervical cysts	Erosion Group I (n = 29)	Pseudo-erosion Group II (n = 158)	The women of Group III (n = 34)
Colposcopy	7 (24.1% ± 7,9%)	53 (33.5% ± 8,8%)	4 (11.8% ± 5,5%)
Sonography	21 (72.4% ± 8,3%)	121 (76.6% ± 7,9%)	25 (73.5% ± 7,6%)

Table 2: Comparative results of colposcopy and sonography in visualization of the ectocervical cysts.

As can be seen from table 3, echographically in women with pseudo-erosion vaginal part of the cervix, hypoechoic narrow zones (1.0 - 2.0 mm) were found in 81 (51.3 ± 4.0%) cases, hyperechoic inclusions 0.5 - 1.5 mm in size - 127 (80, 4 ± 3.2%).

Sonographic changes external throat area of the cervix	Erosion (n = 29)	Pseudo-erosion (n = 158)	The healthy women (n = 34)
Hypoechoic zones of a slit shape	23 (79,3 ± 7,5%)	81 (51,3 ± 4,0%)	2 (5,9%± 4,0%)
Hyperechoic inclusions 0.5 - 1.5 mm in size	5 (17,2 ± 7,0%)	127 (80,4 ± 3,2%)	3 (8,8 ± 4,9%)

Table 3: Sonographic changes external throat area of the cervix.

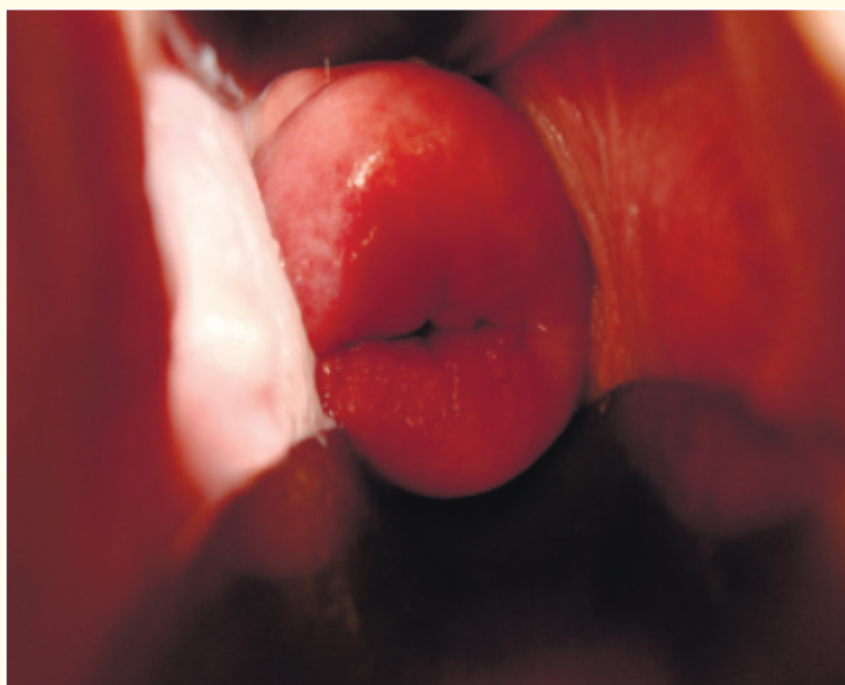
Colposcopic and echographic examples of erosion and pseudo-erosion of the vaginal part of the cervix are shown below (Figures 1-9).



Figure 1: Colposcopy of the normal mucosa of the cervix.



**Figure 2:** Normal transvaginal echogram of the vaginal part of the cervix (left arrows).



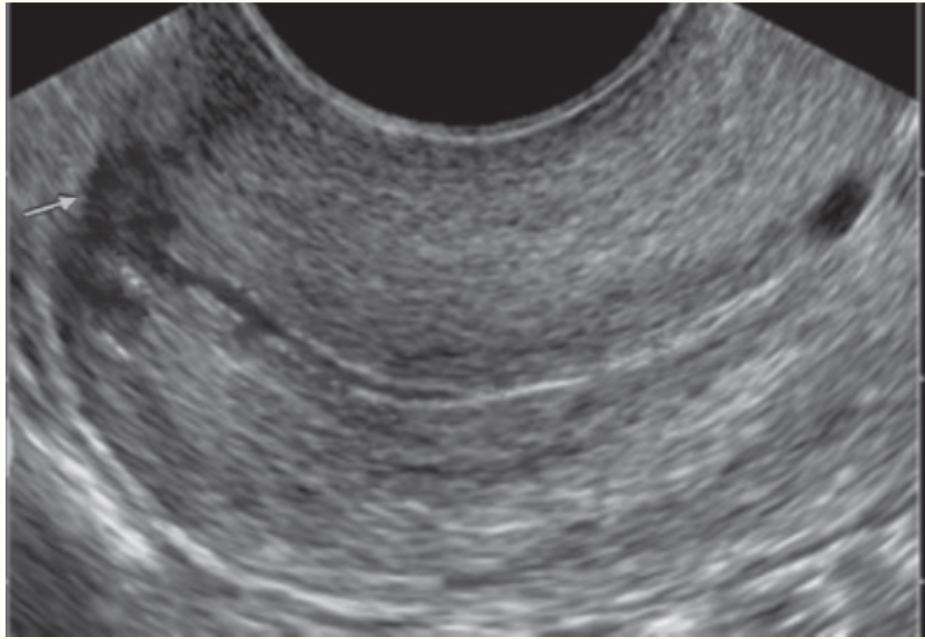
**Figure 3:** Colposcopy of pseudo-erosion. On the external surface of the vaginal part of the cervix of the uterus, areas of the cylindrical epithelium of bright pink color moved from the cervical canal with a granular surface formed by rounded and oblong papillae are visible, in which end vascular loops are visible. In this zone of ectopy, areas of multilayered flat epithelium (typical transformation zones) are determined.



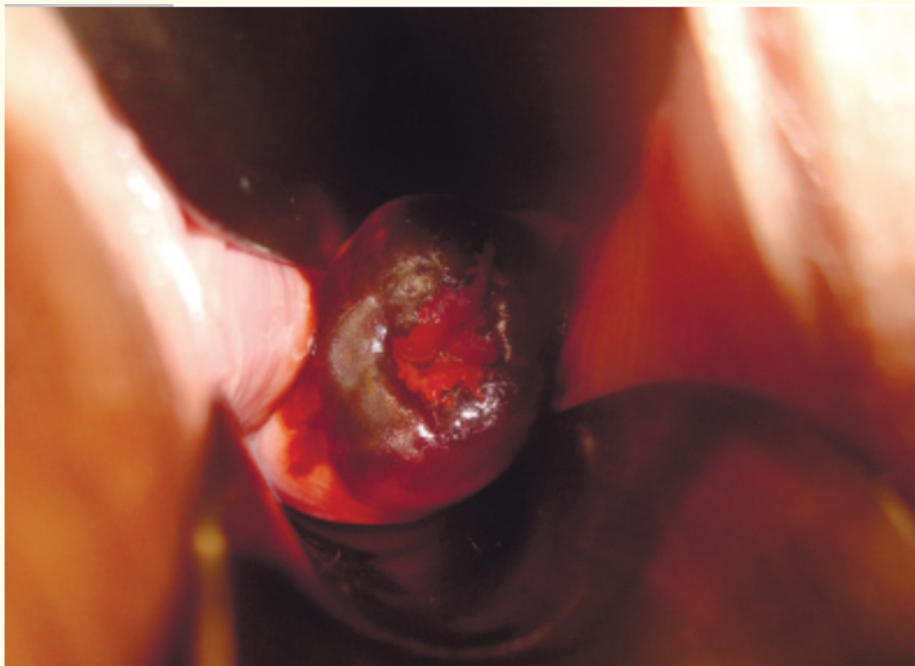
**Figure 4:** Transvaginal echogram of the cervix with visualization of the vaginal part of the cervix in a woman with colposcopic and histologically diagnosed pseudo-erosion (see figure 2). Arrow shows serration mainly in the anterior lip region.



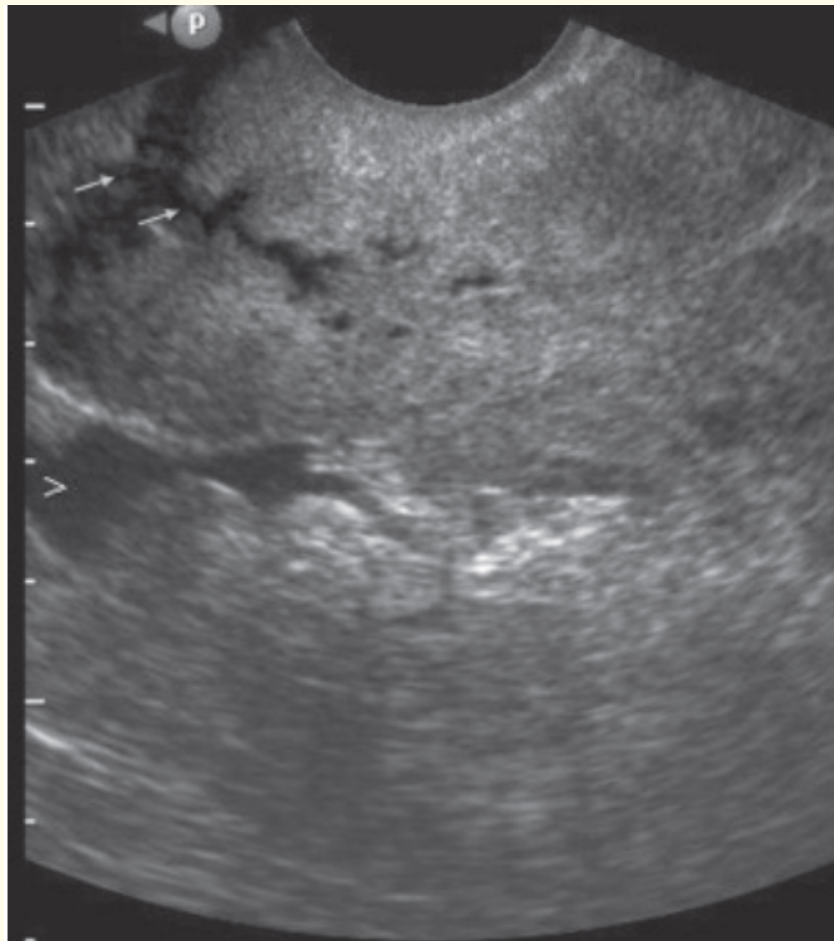
**Figure 5:** Colposcopy of pseudo-erosion (See figure 3). In the transition zone, closed glands and large retention cysts of nodular glands with enlarged branching vessels on the surface were revealed. In addition, open gland ducts scattered along the periphery of this zone are determined. There is a pronounced inflammatory component. Bright hyperemia of the surface of the cervix, increased vascular pattern and small-point hemorrhage. When processing lugol, unpainted areas appear cylindrical epithelium on a dark brown background. Histological picture of cervical erosion. Papillary cervical ectopia. Pelvic-papillary ectopia.



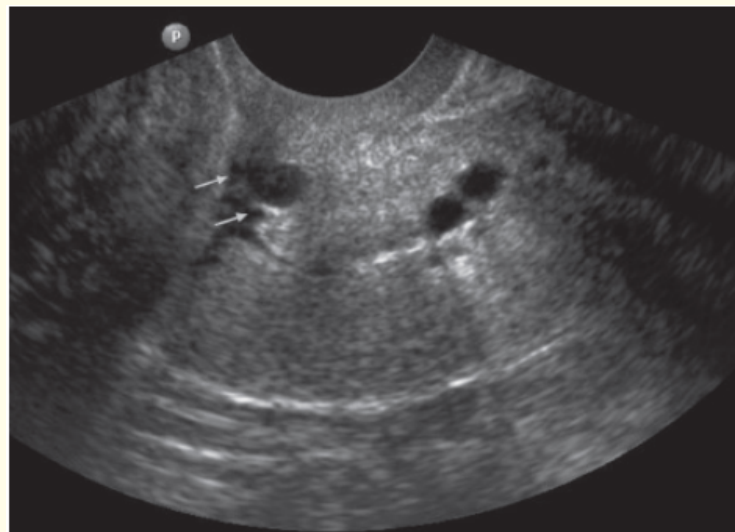
**Figure 6:** Transvaginal echogram of the vaginal part of the cervix with colposcopic and histologically diagnosed pseudo-erosion (see figure 5). Deep anechogenic zones in the projection of the anterior and posterior labia (arrow) are visualized.



**Figure 7:** Colposcopy Erosion of the cervix with dysplasia (CIN I). Lugol's solution uncovered areas of cylindrical epithelium on a dark brown background. Erosion + iodonegative zone. Histological conclusion: glandular cervical ectopia, in multilayered flat epithelium, mild dysplasia (CIN I).



**Figure 8:** The same. In the region of the vaginal part of the cervix, deep narrow anechogenic zones (left arrow) are visible, small local thickening of the mucosa in the transition zone (right arrow).



**Figure 9:** Pseudo-erosion of the cervix with the presence of a large cyst of the erosive gland (upper arrow).

## Discussion

As statistics show, quite often erosion and pseudo-erosion of the cervix develops in a young woman under 30 years old. Pseudo-erosion can exist for a long time until the pathological processes that caused it have been eliminated. At the same time, she herself supports the inflammatory process in the cervix due to infection of the erosive glands. Microorganisms can last for a long time in the deep fragments of erosive glands [12]. Various pathogenic factors of inflammation (Gardnerellez, vaginal candidiasis) cause changes in ectocervix, often requiring differential diagnosis between hyperplastic and non-tumor diseases [13]. Endoscopic methods do not allow visualizing the middle layers of endocervix and cervical stroma, and therefore the diagnosis of cervicitis is often determined indirectly [14].

In our previous studies, the possibilities of diagnosing endocervicitis with transvaginal echography are shown [15]. In the present work, we have shown the possibilities of transvaginal echography in visualizing the vaginal part of the cervix, an advantage over colposcopy in the diagnosis of ectocervix cysts.

## Conclusions

1. Transvaginal echography has a high sensitivity in detecting cervical pseudo-erosion and it has advantages over colposcopy in detecting deep-seated changes in ectocervix.
2. The main echographic sign of erosion and pseudo-erosion is the presence of hypoechoic slit-like zones in the vaginal part of the cervix. With pseudo-erosion, small hyperechoic inclusions are often present.

## Conflict of Interest

The authors declare that they have no conflicts of interest.

## Bibliography

1. Polk J., *et al.* "Chronic cervicitis: presenting features and responses to therapy". *American Journal of Obstetrics and Gynecology* 213.6 (2015): 907.
2. Singh N and Arora A. "An Extreme Case of Chronic Cervicitis Mimicking Cervical Cancer and Causing Third- Degree Prolapse". *Journal of Gynecologic Surgery* 30.6 (2014): 380-382.
3. Sonnex K., *et al.* Cambridge University Hospitals NHS Foundation Trust. "Women's Services, Colposcopy Department. Patient Information: Cervical Ectropion". Cambridge University Hospitals NHS Foundation, Cambridge, UK (2013).
4. Liu Y., *et al.* "Microwave therapy for cervical ectropion (review)". The Cochrane Collaboration (2007): CD006227.
5. Nayak S., *et al.* Heatherwood and Wexham Park Hospitals NHS Foundation Trust. Cervical Ectropion. Heatherwood and Wexham Park Hospitals NHS Foundation Trust; Ascot, UK (2013).
6. Machado Junior LC., *et al.* "Evidence for benefits from treating cervical ectopy: literature review". *Sao Paulo Medical Journal* 126.2 (2008): 132-139.
7. Matiluko AF. "Cervical ectropion. Part 1: appraisal of a common clinical finding". Version of Record online 14.3 (2009).
8. Eckert LO., *et al.* "Infections of the lower genital tract". In: *Comprehensive Gynecology*. 6<sup>th</sup> edition - Philadelphia, PA: Elsevier Mosby (2012).
9. Herbert A. "Cytology-based screening Eurogin. HPV Associated Diseases and Cancer From Reality Now to the Future". Lisbon, Portugal (2011).
10. Owen J., *et al.* "Multicenter randomized trial of cerclage for preterm birth prevention in high-risk women with shortened midtrimester cervical length". *American Journal of Obstetrics and Gynecology* 201.4 (2009): 375.e1-8.



11. Iams JD., *et al.* "The Rate of Cervical Change and The Phenotype of Spontaneous Preterm Birth". *American Journal of Obstetrics and Gynecology* 205.2 (2011): 130.e1-6.
12. Geisler WM. "Diseases caused by chlamydiae". In: Goldman L, Schafer AI, eds. *Goldman's Cecil Medicine*. 25<sup>th</sup> edition. Philadelphia, PA: Elsevier Saunders; Chapter 318 (2016).
13. Sánchez A., *et al.* "Cervical erosion as a result of infectious vaginitis". *European Journal of Experimental Biology* 2.5 (2012): 1659-1663.
14. Lusk MJ., *et al.* "Cervicitis aetiology and case definition: a study in Australian women attending sexually transmitted infection clinics". *Sexually Transmitted Infections* 92.3 (2016): 175-181.
15. Abdullayev R Ya., *et al.* "Transvaginal Echographic Diagnosis of Chronic Cervicitis". *Journal of Gynecology and Reproductive Medicine* 1.1 (2017): 1-4.

**Volume 7 Issue 10 October 2018**

**© All rights reserved by Abdullaiev R Ya., *et al.***