ORIGINAL ARTICLE

Effectiveness of Autologus Platelet Rich Plasma Theraby In Patients With Chronic Cervicitis

Mahmoud E. Mohammed [a], Medhat Kamel [a], Sara A. Mohammed [b], Amaal A. M. Abdelrahman [a,*]

[a] Department of Obstetrics and Gynecology, Faculty of Medicine, Al-Azhar University, Assuit, Egypt
[b] Department of Clinical Pathology, Faculty of Medicine, Al-Azhar University, Assuit, Egypt

Abstract

Background: ***The cervix is the lower part of the uterus, about 2.5–3.5 cm long, connecting to the vagina through the cervical canal. Cervicitis is common in women, with symptoms like discharge, discomfort; platelet-rich plasma (PRP) promotes healing and tissue repair through its anti-inflammatory, regenerative properties.***

Aim: ***To assess the efficiency of autologous PRP applications in the management of chronic cervicitis.***

Patients and methods: ***This was a prospective study done on 50 women. Platelet-Rich Plasma) PRP was applied to the affected cervix after cleaning it well, carried out at the outpatient clinic of Al-Azhar University Hospital in Assiut from October 2022 to December 2023.***

Results: ***The obstetric history among the study population showed that the number of children varied from 1 to 6, with a mean ± standard deviation of 2.96 ± 1.4. Regarding contraceptive methods, 15 patients (30%) used combined oral contraceptive pills (COCs), nine patients (18%) used progesterone-only injectable preparations (PIPs), six patients (12%) used intrauterine devices (IUDs), and 20 patients (40%) did not use any contraceptive method. Current cervicitis before treatment was observed in 34 patients (68%). Vaginal discharge was present in 31 patients (62%) before platelet-rich plasma (PRP) treatment and decreased to 5 patients (10%) after treatment. Vaginal bleeding was reported by 40 patients (80%) before PRP treatment and decreased to 8 patients (16%) after treatment.***

Conclusion: ***PRP is a safe, simple, and effective management for chronic cervicitis, promoting healing and possibly preventing cervical cancer, with minimal risks.***

Keywords: Chronic cervicitis; PRP; Cervical healing

1. Introduction

The cervix is the lower part of the uterus, located at the top end of the vagina. It measures around 2.5 to 3.5 centimeters (1 to 1.3 inches) in length. The cervical canal passes through the cervix. It permits the passage of menstrual blood and fetus from the uterus into the vagina .[1]

Adult women are frequently affected by cervicitis, which presents symptoms comparable to vaginitis, including itching, persistent vaginal discharge, dyspareunia, and heaviness. It may result from sexually transmitted infections, repeated douching, trauma, and chemical irritants .[2]

Biological reagents such as PRP possess potent healing and anti-inflammatory effects because of the paracrine action and large number of growth factors, thereby playing a vital role in cell protection, regeneration, and repair of epithelial tissues, alleviating deep-seated inflammation, and protecting cases from the extended consequences of chronic inflammation .[3]

In obstetrics and gynaecology, pilot studies, case reports, and small case series have assessed the efficacy of platelet-rich plasma for treating vulvar dystrophy, cervical ectopy, ovarian torsion, premature ovarian failure, aesthetic gynaecology, assisted reproductive techniques, and premature rupture of membranes .[4]

Platelet-rich plasma offers several therapeutic uses across various illnesses, focusing on the regeneration of tissue through the angiogenetic and restorative effects of growth factors present in platelets .[5]

Accepted 01 September 2025.
Available online 30 October 2025

* Corresponding author at: Obstetrics and Gynecology, Faculty of Medicine, Al-Azhar University, Assuit, Egypt.
E-mail address: lamoalaam@gmail.com (A. A. M. Abdelrahman).

https://doi.10.21608/aimj.2025.396987.2576

Platelets possess a high concentration of growth factors and cytokines that trigger the subsequent stages: resolution, chemotaxis, tissue necrosis, cell regeneration, cell migration and proliferation, remodeling, angiogenesis, synthesis of extracellular matrix, and epithelization .[6]

Autologous platelet-rich plasma is obtained from a person's entire blood and subsequently centrifuged to remove red blood cells. The remaining plasma contains a concentration of growth factors that is five to ten times greater than that of whole blood. Researchers from several specialties, including dermatology, dentistry, gynecology, and urology, have identified that these growth factors enhance natural healing responses .[7]

The goal of this work was to assess the effectiveness of autologous PRP applications in the management of chronic cervicitis.

2. Patients and methods

This was prospective research done on 50 women. PRP was applied to the affected cervix after cleaning it well. The research was conducted at the outpatient clinic of Al-Azhar University Hospital in Assiut from October 2022 to December 2023. Before PRP treatment, all women had a Pap smear test, and all of them were negative for dysplasia.

Inclusion criteria: Cervical erosion, chronic cervicitis, vaginal discharge, and post coital bleeding.

Exclusion criteria: Patients with neoplastic cells in cervical smear, pregnant patients, and breastfeeding patients.

Methods

PRP triggered a series of biological responses, resulting in swelling at the site of the injection for a duration of up to three days. PRP was applied two times to the cervical erosion with a one-week gap, each administration occurring three to seven days post-menstrual flow cessation. The case was positioned in the lithotomy stance for the surgery. Approximately fifty to sixty cc of whole blood was extracted from each subject and combined with sodium citrate at a 1:10 volume ratio as an anticoagulant. The blood underwent centrifugation twice at 1500 rpm for ten minutes, resulting in the extraction of eight to ten milliliters of PRP. The platelet-rich plasma concentrate has been separated into two portions of four to five milliliters each for dual applications: one has been administered immediately, while the other was preserved at -30 degrees Celsius and delivered seven days later in an identical way. Prior to the operation, 0.8 milliliters of a 10% calcium chloride solution, including 800 units of thrombin, was incorporated into the platelet-rich plasma concentrate to activate the platelets, resulting in a gel that was subsequently put into a specialized application device. Following the placement of cases in the sitting lithotomy position, cervical mucus and vaginal secretions were carefully removed using cotton swabs, and the PRP gel was applied to include the area of cervical erosion. The cases maintained the sitting lithotomy position for fifteen minutes to secure the platelet-rich plasma gel on the cervix. All procedures have been carried out under aseptic conditions. The follow-up period lasted twelve weeks.

Ethical consideration: Written informed consent has been attained from all cases involved in this research, which was permitted by the Ethical Committee of the Faculty of Medicine, Al-Azhar University (Code: MSC/AZ.AST./OBG024/5/205/3/2022). Patient data were kept confidential and anonymous, and participation or refusal did not affect the medical care provided. The committee follows international ethical guidelines, including the Declaration of Helsinki and Good Clinical Practice.

Statistical Analysis

All data have been gathered, organized, and statistically analyzed with SPSS 26.0 for Windows (SPSS Inc., Chicago, IL, the United States of America). Qualitative data have been represented utilizing percentages and numbers. Quantitative data were characterized by range (maximum and minimum), standard deviation, mean, and median.

Results

Table (1) showed Distribution of age among the study population. Age of Patient in the study population varied from 20 to 50 with mean ± SD = 32.08 ± 8.1. Number of cases in the study population whose ages were in the 20 – 29 years category was 20 (40%). Number of cases in this study population whose ages were in the 30-39 years category was 20 (40%). Number of cases in this study population whose ages were in the 40-50 years category was 10 (20%).

Table 1. Distribution of age among the study population

	STUDY POPULATION (N = 50)
AGE OF PATIENT	
MEAN ± SD.	32.08 ± 8.1
MEDIAN (IQR)	30 (26 - 38)
RANGE (MIN-MAX)	30 (20 - 50)
DISTRIBUTION OF AGE	
- 20 - 29 YEARS	20 (40%)
- 30 - 39 YEARS	20 (40%)
- 40 - 50 YEARS	10 (20%)

SD: standard deviation IQR: interquartile range

Table (2) showed Obstetric history between the study population. No. of children in the study population varied from 1 to 6 with mean ± SD =2.96 ± 1.4. Number of patients who used COCs as a contraceptive method in the study population was 15 (30%). Number of cases who used PIPs as a contraceptive method in the study population was 9 (18%). Number of cases who used IUDs as a contraceptive method in the study population was 6 (12%). Number of cases who didn't use any contraception method in the study population was 20(40%).

Table 2. Parity and contraceptive method among the study population

	STUDY POPULATION (N = 50)
NO. OF CHILDREN	
MEAN ± SD.	2.96 ± 1.4
MEDIAN (IQR)	3 (2 - 4)
RANGE (MIN-MAX)	5 (1 - 6)
CONTRACEPTIVE METHOD	
- COCS	15 (30%)
- PIPS	9 (18%)
- IUD	6(12%)
- NO CONTRACEPTION	20(40%)

Table (3) showed Current cervicitis before treatment among the study population. Number of patients who had Current cervicitis before treatment with PRP in the study population was 34 (68%).

Table 3. Current cervicitis before treatment among the study population

	STUDY POPULATION (N = 50)
CURRENT CERVICITIS BEFORE TREATMENT	
- YES	34 (68%)
- NO	16 (32%)

Table (4) showed Vaginal discharge before and after treatment among the study population. Number of patients who had Vaginal discharge before treatment with PRP in the study population was 31 (62%). Number of cases who had vaginal discharge after treatment in the study population was 5(10%).

Table 4. Vaginal discharge before and after treatment among the study population

	STUDY POPULATION (N = 50)
VAGINAL DISCHARGE BEFORE TREATMENT	
- YES	31(62%)
- NO	14 (28%)
VAGINAL DISCHARGE AFTER TREATMENT	
- YES	5 (10%)
- NO	45 (90%)

Table (5) showed Vaginal bleeding before and after treatment among the study population. Number of patients who had Vaginal Bleeding before treatment with PRP in the study population was 40(80%). Number of cases who had Vaginal Bleeding after treatment with PRP in the study population was 8(16%).

Table 5. Vaginal contact bleeding before and after treatment among the study population

	STUDY POPULATION (N = 50)
VAGINAL CONTACT B	
- YES	40(80%)
- NO	10 (20%)
VAGINAL BLEEDING AFTER TREATMENT	
- YES	8 (16%)
- NO	42 (84%)

3. Discussion

This prospective observational case series study has been carried out in the outpatient clinic of the obstetrics and gynecology department, El Azhar Assiut University.

The study included fifty patients who underwent platelet-rich plasma therapy.

The mean age of the cases in this research was 32.08_+8.1 and the number of cases in the study population whose age was in the 20-40 years category was 80%, which was similar to reports from Xiaolin Hua et al.[8] and Jain et al [9].

Current cervicitis before treatment was 34 patients who were cured completely after treatment, which is consistent with reports from Yan Zeng et al.[8] who reported that 9 patients from 9 patients (100%) were cured from cervicitis after PRP treatment.

And this result is consistent with reports from Vivek Dutta[10], who reported A significant alleviation from symptoms has been observed in a week or even earlier in certain cases. This was a significant benefit that was of great benefit to cases.

The number of patients who had vaginal discharge before treatment with PRP in the study population was 31(62%), and the number of cases in the study population that had vaginal discharge after PRP treatment was 5(10%), which differs from reports from Khare et al.[9] who noticed complete improvement from vaginal discharge in the follow-up visits.

Number of patients who had vaginal bleeding before treatment with PRP in the study population was 40(80%), number of cases who had vaginal bleeding after treatment with PRP in the study population was 8(16%), which mean that (80%) of patients were treated, which is constant was reports from Jain et al.[9] who reported that only 10 patients from 14 patients (71,9) occurred after PRP treatment.

This is similar to reports from Jing Diao et al.[8] who reported that there were 10 patients out of 11 patients (90.9%) cured from vaginal bleeding after PRP treatment.

The majority of cervicitis cases arise in females with cervical ectopy, and symptomatic females often receive therapy.

PRP therapy does not result in tissue loss. Centrifugation is used to separate platelets from complete blood. The concentration of platelets and other components of cellular plasma is higher in the concentrate that is produced as a consequence of this process compared to the total blood. This abundance of the appropriate cells may induce epithelialization. In the current investigation, squamous re-epithelialization commenced at the site of PRP gel application on the ectopic columnar epithelium and progressed till the new epithelium completely substituted the old. The therapy assured the preservation of the cervix's physical features (e.g., elasticity) and its physiological functions.

Platelet-rich plasma comprises a high concentration of many growth factors, like transforming growth factor-β, insulin-like growth factors, vascular endothelial growth factor, platelet-derived growth factor, and basic fibroblast growth factor. These proteins are histo-promotive, and clinical investigations indicate that the administration of PRP to soft-tissue wounds accelerates recovery. Consequently, it was probable that administering autologous growth factors directly to the ectopic cervix via a platelet-rich plasma gel would be advantageous, and the findings of the current investigation proved conclusive Xiaolin Hua et al.[8].

The PRP group exhibited quicker healing, accompanied by less severe adverse effects of treatment, including vaginal hemorrhage and discharge attributable to two combined factors. PRP isn't only an established enhancer of healing of the wound, but it also contains white blood cells, which, due to their comparable density to platelets, accumulate in the same layer throughout centrifugation, resulting in a concentration of both platelets and white blood cells. White blood cells remove necrotic tissues, inhibit an inflammatory reaction, and phagocytize microorganisms .[10,11]

Indicated that PRP might serve as a potential therapeutic agent for osteomyelitis, noting its inhibitory effects on Staphylococcus aureus and its activity against Escherichia coli. The current investigation found no cases of foul-smelling discharge in the PRP group .[12]

In addition to having elevated concentrations of white blood cells, PRP has the benefit of localized remaining compared to liquid growth-factor solutions. Its gel-like consistency significantly contributes to diminishing inflammatory reactions and enhancing angiogenesis and repair of tissues. Furthermore, as it is derived from autologous blood, cases aren't subjected to the risks of hepatitis or HIV transmission, nor to the potential immunogenic reactions associated with xenografts or allografts. Based on medical theories and the limited published research on the subject, the possible risks of platelet-rich plasma seem to be minimal.[13]

Considering that high-income countries have established devices for producing platelet-rich plasma, there is a real likelihood that management with platelet-rich plasma will be broadly utilized for cervical ectopy due to its affordability (it costs around twenty percent below laser treatment), effectiveness, and ease. Nonetheless, the precise mechanisms of platelet-rich plasma in the squamous re-epithelialization of cervical erosion are still unknown .[8]

Recommendations: Additional investigations on this method are necessary to confirm the effectiveness and long-term outcomes of PRP in a large study population. This aids in reinforcing our observations. Extensive randomized controlled trials are necessary to validate its effectiveness and safety in diverse gynecological conditions.

4. Conclusion

Autologous PRP therapy is a promising treatment for chronic cervicitis, promoting healing of inflamed and damaged cervical tissue and improving cervical health. PRP is easy to obtain, free from immunogenic or ethical issues since it is autologous. This therapy can halt further cervical damage and potentially prevent cervical cancer. PRP is an innovative, affordable, simple, noninvasive, and effective modality with promising outcomes and no side effects. In gynecology, current researches are limited to case series, pilot studies, and case reports. Risks like hemorrhage, infection, and nerve damage seem to be slight. We have demonstrated that platelet-rich plasma is a safe, viable, and biological option for treating cervicitis and protecting patients by promoting superior healing and regeneration of cervical epithelium without the need for additional medication.

Disclosure

The authors have no financial interest to declare in relation to the content of this article.

Authorship

All authors have a substantial contribution to the article

Funding

No Funds : Yes

Conflicts of interest

There are no conflicts of interest.

References

1. Ludmir J, Sehdev HM. Anatomy and physiology of the uterine cervix. Clin Obstet Gynecol. 2000;43(3):433-439.
2. Fonck K, Kaul R, Keli F, et al. Sexually transmitted infections and vaginal douching in a population of female sex workers in Nairobi, Kenya. Sex Transm Infect. 2001;77(4):271-275.
3. Cooke JP. Inflammation and Its Role in Regeneration and Repair. Circ Res. 2019;124(8):1166-1168. doi:10.1161/CIRCRESAHA.118.314669
4. Galal MA, Khalifa AA, Abd El Hafez MY, Abd El Hafeez AT, Abd El Moneem AM. Platelet-rich plasma (PRP) in obstetrics and gynecology. The Egyptian Journal of Hospital Medicine. 2021 Apr 1;83(1):889-94.
5. Dos Santos RG, Santos GS, Alkass N, et al. The regenerative mechanisms of platelet-rich plasma: A review. Cytokine. 2021;144:155560.
6. Nurden AT. Platelets, inflammation and tissue regeneration. Thromb Haemost. 2011;105 Suppl 1:S13-S33.
7. Anitua E, Sánchez M, Orive G, Andía I. The potential impact of the preparation rich in growth factors (PRGF) in different medical fields. Biomaterials. 2007;28(31):4551-4560. doi:10.1016/j.biomaterials.2007.06.037
8. Hua X, Zeng Y, Zhang R, Wang H, Diao J, Zhang P. Using platelet-rich plasma for the treatment of symptomatic cervical ectopy. Int J Gynaecol Obstet. 2012;119(1):26-29.
9. Jain S, Khare V, Tripathi R. Autologous platelets rich plasma a potential therapeutic modality for cervical regeneration in erosions and cervicitis prospective observational study in a teaching hospital of central India. Indian J Obstet Gynecol Res. 2019;6:382-7.
10. Dutta V. Platelet Rich Plasma (PRP) – A New Concept in Treatment of Cervical Erosion. Tirath Ram Shah Hospital; 2024 Apr 27. Available from: https://www.trsch.com/blog/platelet-rich-plasmaprp-a-new-concept-in-treatment-of-cervical-erosion/
11. Yuan T, Zhang CQ, Tang MJ, Guo SC, Zeng BF. Autologous Platelet-rich Plasma Enhances Healing of Chronic Wounds. Wounds. 2009;21(10):280-285.
12. Bielecki TM, Gazdzik TS, Arendt J, Szczepanski T, Król W, Wielkoszynski T. Antibacterial effect of autologous platelet gel enriched with growth factors and other active substances: an in vitro study. J Bone Joint Surg Br. 2007;89(3):417-420.
13. Everts PA, Knape JT, Weibrich G, et al. Platelet-rich plasma and platelet gel: a review. J Extra Corpor Technol. 2006;38(2):174-187.