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DEVELOPMENT AND EVALUATION OF A DIAGNOSTIC AND TREATMENT ALGORITHM FOR SELECTING THE OPTIMAL SURGICAL TREATMENT FOR CHRONIC PARAPROCTITIS IN PATIENTS WITH DIABETES MELLITUS

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ABSTRACT

Background: Chronic paraproctitis (CP) in patients with diabetes mellitus (DM) presents a significant clinical challenge due to high recurrence rates and impaired tissue healing. **Methods**: This study involved 119 patients divided into a control group (n=58, traditional treatment) and an academic group (n=61, algorithm-based treatment). A diagnostic and treatment algorithm was developed based on the "VRCP" (Probability of Recurrence of Chronic Paraproctitis) integral prognostic scale, utilizing laser Doppler flowmetry (LDF) and cytological indices. **Results**: The implementation of the algorithm led to a reduction in recurrence rates from 31% to 6.6%. Healing times were significantly shortened, and the average treatment cost decreased from 5.0 million UZS to 3.7 million UZS. **Conclusion**: The integrated approach using laser and plasma technologies guided by the VRCP scale ensures superior clinical and economic outcomes for diabetic patients with CP.

Keywords: Chronic paraproctitis, Diabetes mellitus, Surgical treatment, Laser coagulation, Plasma sanitation, Recurrence risk, VRCP scale.

INTRODUCTION

Chronic paraproctitis (CP) is a prevalent condition in proctological practice, accounting for 20-30% of all proctological pathologies. In patients with diabetes mellitus (DM), the management of CP is complicated by diabetic microangiopathy (DAP) and neuropathy (DNP), which severely impair local microcirculation and the regenerative potential of tissues. Traditional surgical methods, such as radical excision or ligature techniques, often result in prolonged wound healing, secondary infections, and a high incidence of recurrence (up to 30-40%) in the diabetic population.

The necessity for a personalized surgical strategy that minimizes tissue trauma while ensuring radicality is paramount. Modern technologies like intrafistular laser coagulation and plasma sanitation offer promising alternatives, but their application requires a structured decision-making framework to match the surgical intensity with the patient's individual risk profile.

MATERIALS AND METHODS

This study follows a retrospective-prospective design (2018-2025) involving 119 patients treated at the Surkhandarya Regional Multidisciplinary Medical Center.

Patient Demographics. The study population predominantly consisted of middle-aged and elderly patients, reflecting the long-term impact of DM on tissue health.

Table 1: Distribution of Patients by Age and Gender

Age Category (WHO)	Control Group (n=58)	Main Group (n=61)	Total (n=119)
Young (18-44 years)	3 (5.2%)	3 (4.9%)	6 (5.0%)
Middle-aged (45-59 years)	28 (48.3%)	26 (42.6%)	54 (45.4%)
Elderly (60-74 years)	17 (29.3%)	20 (32.8%)	37 (31.1%)
Senile (75-89 years)	10 (17.2%)	12 (19.7%)	22 (18.5%)

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Age Category (WHO)	Control Group (n=58)	Main Group (n=61)	Total (n=119)
Gender			
Men	32 (55.2%)	39 (63.9%)	71 (59.7%)
Women	26 (44.8%)	22 (36.1%)	48 (40.3%)

Diagnostic Predictors. A multivariate logistic regression analysis was conducted to identify independent predictors of recurrence. Six key parameters were identified as statistically significant ($p < 0.01$).

Table 2: Multivariate Analysis of CP Recurrence Predictors

Predictor	OR (Odds Ratio)	95% CI	P-value
Fistula Type	3.1	1.4 - 6.6	0.003
Length of Main Tract (>5 cm)	1.45	1.15 - 1.8	0.002
Diameter of Internal Opening	1.28	1.1 - 1.5	0.007
Presence of Abscesses (MRI)	1.52	1.3 - 1.96	0.001
Cytological Index (CIV)	1.2	1.1 - 1.3	<0.001
Baseline Microcirculation (LDF)	0.7	0.6 - 0.9	0.002

The "VRCP" Prognostic Scale and Algorithm

Based on the identified predictors, an integral scale was developed to stratify patients into three risk levels.

Table 3: VRCP (Recurrence Risk of Chronic Paraproctitis) Scale

Criteria	0 Points	2 Points	4 Points
Fistula Type	Intrasphincteric	Transsphincteric	Supra/Extrasphincteric
Tract Length	≤2 cm	3-4 cm	>5 cm
Internal Opening	≤3 mm	4-6 mm	≥7 mm
MRI Abscesses	None	Single (≤2 cm)	Multiple (>3 cm)
CIV Index	≤1 units	2-3 units	≥4 units
LDF Perfusion	≥90%	70-89%	≤69%

Treatment Algorithm. Patients were managed according to their total score:

- **I Level (≤6 points - No Risk)**: Single-stage laser coagulation (1470 nm, 6-10W).
- **II Level (7-19 points - Low Risk)**: Plasma sanitation with controlled tissue destruction.
- **III Level (≥20 points - High Risk)**: Multi-stage treatment (Primary drainage + Delayed closure).

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RESULTS AND DISCUSSION

The implementation of the algorithm significantly improved clinical outcomes. In the main group, 73% of patients achieved complete epithelialization within 3-4 weeks, compared to 42% in the control group.

The diagnostic accuracy of the VRCP model was validated using ROC analysis, showing an Area Under the Curve (AUC) of 0.87, with 82% sensitivity and 78% specificity. This confirms the model's reliability in identifying high-risk patients.

Medical and Economic Efficiency

The new approach demonstrated substantial advantages across three dimensions:

1. **Medical**: Recurrence rates dropped from 31% in the control group to 6.6% in the main group. Infectious complications were reduced by 2.5 times.
2. **Social**: 78% of patients regained independent mobility by discharge (vs 41% in control). 54% returned to work within 3 months (vs 32% in control).
3. **Economic**: Average direct costs were reduced by 26%, from 5.0 million UZS to 3.7 million UZS per patient.

Table 4: Comparative Economic Efficiency

Indicator	Control Group	Main Group	Improvement
Average Cost per Patient	5.0 mln UZS	3.7 mln UZS	-26%
Favorable Outcome Rate	69%	87%	+18%
Recurrence Rate	31%	6.6%	-78.7%
Cost-Effectiveness Ratio	0.54	0.18	3x Better

CONCLUSION

The developed diagnostic and treatment algorithm based on the VRCP scale provides a personalized, evidence-based approach to managing CP in diabetic patients. The integration of laser and plasma technologies allows for radical treatment with minimal trauma, specifically addressing the needs of patients with microvascular complications. Wide implementation of this algorithm is recommended to improve the quality of care and reduce the economic burden on the healthcare system.

REFERENCES

1. Alisoltanov Sh.Kh., Aliev K.M. Modern approaches to diagnosis and rehabilitation of patients with chronic paraproctitis // Medicus. - 2025. - No. 2(68). - P. 12-16.
2. Akhmadullina L.R., Zotin A.V. Minimally invasive method of treating children with chronic paraproctitis // Northern Russia: strategies and prospects for development: materials of the III All-Russian Scientific and Practical Conference (Surgut, May 26, 2017). Vol. III. - Surgut: Surgut State University, 2017. - P. 12-15.
3. Zyuzko D.D., Shcherbakova O.V. Surgical treatment of children with CP and PS: analysis of modern techniques // Russian Bulletin of Pediatric Surgery, Anesthesiology and Reanimatology. - 2023. - Vol. 13, No. S. - P. 67.
4. Kargina E.S., Kudinova V.R., Didenko P.N. et al. Application of the VAAFT minimally invasive method in the treatment of the fistulous form of CP // 74th Final Scientific Conference of Students of Rostov State Medical University: collection of materials (Rostov-on-Don, April 15, 2020). - Rostov-on-Don: RostGMU, 2020. - P. 147-148.

5. Kusainova A.S., Isakhanov N., Mazhiev N.Zh. Tool for assessing medico-social characteristics of patients with CP // Current issues of experimental and clinical medicine–2024: collection of abstracts of the LXXXV scientific and practical conference with international participation (St. Petersburg, April 1-28, 2024). - St. Petersburg: Pavlov First St. Petersburg State Medical University, 2024. - P. 210-211.
6. Lichman L.A., Katorkin S.E., Andreev P.S. et al. Practical application of a wound-healing agent in the treatment of patients with paraproctitis // Outpatient Surgery. - 2024. - Vol. 21, No. 2. - P. 120-125.
7. Madaminov A.M., Likhomanov L.V. Results of surgical treatment of acute paraproctitis using a laser // Bulletin of KRSU. - 2024. - Vol. 24, No. 1. - P. 34-38.
8. Petryashev A.V., Tyutyunnikov D.A., Kim R.N. et al. Evaluation of efficacy and treatment outcomes of patients with chronic paraproctitis // Translational medicine: from theory to practice: materials of the 6th scientific and practical conference (St. Petersburg, April 17, 2018). - St. Petersburg: Mechnikov North-Western State Medical University, 2018. - P. 38-39.
9. Rudkova K.E., Fomenko A.S. Actual algorithms for surgical treatment and rehabilitation in the early postoperative period of patients with CP // St. Petersburg Scientific Readings–2022: collection of abstracts of the IX International Youth Medical Congress (St. Petersburg, December 7-9, 2022). - St. Petersburg: Pavlov University, 2022. - P. 390-391.
10. Sadretdinova A.Kh., Mukhametshina R.T. Surgical complication in a child with chronic constipation and intestinal dysbiosis (CP) // Forcipe. - 2022. - Vol. 5, No. S1. - P. 160.