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RECURRENT ULCERATION PATTERNS IN DIABETIC FOOT SYNDROME: A CLINICAL ANALYSIS

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Introduction

Diabetic Foot Syndrome (DFS) remains one of the most challenging complications of diabetes mellitus worldwide. The high rate of ulcer recurrence, the progression of neuropathic and ischemic changes, and the need for repeated
surgical interventions continue to affect patient outcomes and long-term quality of life. Although modern surgical and conservative methods have advanced significantly, many patients still experience recurrent ulcers that lead to functional impairment, limb deformity, and major amputations.
This study presents a modified analytical review of ulcer recurrence among patients treated for DFS, focusing on how different types of surgical interventions influence ulcer location, frequency, and long-term functional outcomes.

Materials and Methods

A retrospective analysis was performed on 893 patients diagnosed with various clinical-pathogenetic forms of DFS.
Most patients (66.7%) were men aged 51–80 years, and 98.1% had type 2 diabetes. Neuropathic forms were predominant (74.9%), while the remaining patients had neuro-ischemic involvement.
At admission, 60% of patients had anatomically intact feet, whereas 40% had previously undergone surgical procedures such as drainage of phlegmon, toe amputations, disarticulations, or transmetatarsal amputations. In total, 1,177
surgical procedures were performed during treatment, averaging 1.3 operations per patient. Amputations accounted for 56% of all interventions.
Ulcer severity was assessed using the Wagner classification. Long-term follow-up extended over five years, with annual evaluation of ulcer recurrence, limb functionality, and major amputation rate.

Results

Over the five-year observation period, preservation of weight-bearing function was achieved in 69.3% of patients.
Despite ongoing therapy, the number of major amputations progressively increased each year, largely due to recurrent ulcers and infection. On average, one major amputation occurred per 14.9 patients within five years.

Risk factors triggering recurrent ulceration included:
• Shoe-related pressure and friction (24%)
• Blunt trauma (20.3%)
• Cuts from sharp objects during self-care (17.1%)

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• Fungal infections (20.6%)
• Hyperkeratosis (15%)
• Ingrown nails (2.3%)

Ulcer Recurrence Patterns
The recurrence rate strongly correlated with the type of previous surgical intervention:
1. Ipsilateral ulceration (same limb)
  • Most common in patients treated without amputations (34.4%)
  • Also frequently observed after amputation of all toes (29.5%)
  • Least frequent after selective II–V toe amputations (17.5%)

2. Contralateral ulceration (opposite limb)
  • Highest after amputation of all toes (49.2%)
  • Moderate after II–V toe amputations (19.6%)
  • Lower in patients without amputations or with only first-toe amputation (31.8% total)

This pattern suggests that asymmetrical load distribution after toe loss increases the biomechanical burden on the unaffected limb, predisposing it to ulceration.

3. Bilateral ulceration
  • Most commonly observed in patients who had undergone major toe amputations
  • Less frequent among those treated without amputations

Quality of Life Assessment
Quality-of-life analysis demonstrated a gradual decline over the years. During the first year, 53.3% of patients could fully care for themselves. By the third year, self-care independence decreased noticeably due to recurrent ulcers, comorbid cardiovascular disease, and progression of neuropathy.
Patients with frequent ulcer recurrence showed the steepest decline in physical functioning.

Discussion
The study demonstrates that ulcer recurrence is highly dependent on the type and extent of surgical intervention.
Non-amputational procedures lead to higher ipsilateral recurrence rates, whereas toe amputations significantly increase the risk of contralateral and bilateral ulceration.

This can be explained by altered gait mechanics, redistribution of plantar pressure, and long-term structural changes in the foot. Additionally, progression of diabetic angiopathy and neuropathy contributes to chronic vulnerability of tissue integrity, especially in patients with longstanding disease.

Conclusion
• Ulcer recurrence and its anatomical distribution are strongly influenced by the type of previous surgical intervention.
• Non-amputation surgeries exhibit higher recurrence on the originally affected limb.
• Toe amputations increase biomechanical load on the opposite limb, resulting in a higher recurrence of contralateral ulcers.

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• Quality of life consistently declines over time, mainly due to recurrent ulcers and complications of DFS.

This analysis underlines the importance of comprehensive rehabilitation, pressure-redistribution orthotics, and
long-term preventive strategies to minimize recurrent ulceration and improve patient outcomes.

References:

1. Амбулаторная ангиология: руководство для врачей / под ред. А. И. Кириенко, В. М. Кошкина, В. Ю. Богачева.– М.: Литтера, 2007. – 325 с.

2. Анциферов М.Б., Суркова Е.В., Майоров А.Ю. Критерии качества жизни при лечении больных сахарным диабетом. Качество жизни. М.: Медицина, 2003.- С.69-71.

3. Ибрагимова Л. И. Оценка эффективности программы обучения больных сахарным диабетом 1 типа на помповой инсулинотерапии: автореф. дис…. канд. мед. наук, М. 2014.- 26с.

4. Сачек М.Г., Булавкин В.П., Ерошкин С.Н. Возможности прямой реваскуляризаци конечности в лечении пациентов с синдромом диабетической стопы//Новости хирургии.- 2011.- Т.19 , №4.- С.123-129.

5. Татжикова К.А. Влияние полимагнитотерапии на качество жизни больных синдром диабетической стопы с хронической артериальной недостаточностью//Сибирский медицинский журнал.- 2008.- № 1.- С.87-89.

6. Черданцев Д.В., Николаева Л.П., Степаненко А.В., Константинов Е.П. Способы восстановления магистрального кровотока у больных с диабетической ангиопатией сосудов нижних конечностей//Журнале научных публикаций аспирантов и докторантов.- 2009.- №11.- С.25-29.

7. Шишкова Ю.А. Клинические, психологические и социально-демографические аспекты качества жизни больных сахарным диабетом 1 типа молодого возраста: автореф. дис…. канд. мед. наук, М. 2013.- 28с.

8. Шишкова Ю.А., Мотовилин О.Г., Суркова Е.В., Майоров А.Ю. Гликемический контроль, качество жизни и психологические характеристики больных сахарным диабетом 1 типа//Сахарный диабет.- 2013.- №4.- С.58-65.

9. Egede L., Ellis C. The effects of depression on metabolic control and quality of life in indigent patients with type 2 diabetes//Diabetes Technol Ther. – 2010.- Vol.12(4).- P.257-262.

10. Hajos T., Pouwer F., de Grooth R.et al. The longitudinal association between glycemic control and health-related quality of life following insulin therapy optimization in type 2 diabetes patients. A prospective observational study in secondary care//Qual Life Res. – 2012.- Vol.21(8).- P.1359-1365.

11. Liu X., Miller Y., Burton N., Brown W. A preliminary study of the effects of Tai Chi and Qigong medical exercise on indicators of metabolic syndrome, glycemic control, health-related

AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES
ISSN NUMBER: 2692 - 5206 Volume 5. No 11. November ,2025

quality of life, and psychological health in adults with elevated blood glucose//Br J Sports Med. – 2010.- Vol.44(10).- P.704-709.

12. Schram M., Baan C., Pouwer F. Depression and quality of life in patients with diabetes: a systematic review from the European depression in diabetes (EDID) research consortium// Curr Diabetes Rev. – 2009. - Vol.5(2).- P.112-119.