ISSN: 2582-4686 SJIF 2021-3.261,SJIF 2022-2.889, 2024-6.875 ResearchBib IF: 10.25 / 2025

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-6, ISSUE-2

# CLINICAL-ANAMNESTIC AND PATHOMORPHOLOGICAL CHARACTERISTICS OF ESOPHAGEAL MALIGNANT NEOPLASMS AMONG THE POPULATION OF THE FERGANA VALLEY

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**Annotation**

This study examines the clinical-anamnestic and pathomorphological features of esophageal cancer (EC) within the Fergana Valley population. A comprehensive analysis of 142 patients (2019–2024) was conducted to identify regional risk factors and histological patterns. Results indicate a high prevalence of Squamous Cell Carcinoma (82.4%), with a significant correlation between chronic thermal mucosal injury (hot tea consumption >65°C) and advanced tumor stages. Statistical analysis revealed that 64.8% of patients were diagnosed at Stage III-IV, emphasizing a critical delay in medical consultation. Histopathologically, moderately (G2) and poorly differentiated (G3) tumors predominated. The study concludes that regional dietary habits and late-stage detection are the primary drivers of high mortality, necessitating targeted endoscopic screening protocols for the Fergana Valley.

**Keywords:** Esophageal cancer, Fergana Valley, Squamous cell carcinoma, Pathomorphology, Clinical anamnesis, Biostatistics, Risk factors, Oncology.

## 1. Introduction

Esophageal cancer (EC) remains one of the most lethal malignancies of the gastrointestinal tract, ranking as the sixth leading cause of cancer-related mortality worldwide. In Uzbekistan, particularly within the Fergana Valley, the epidemiological situation is characterized by specific environmental and behavioral triggers. The "Esophageal Cancer Belt," which stretches across Central Asia, suggests that population-specific studies are vital for improving survival rates. Despite modern diagnostic advancements, the clinical-anamnestic profile of patients in this region often reveals a long history of self-medication and late-stage presentation. This research aims to fill the gap in recent pathomorphological data specific to the Fergana, Andijan, and Namangan regions.

## 2. Literature Review

Recent international meta-analyses (Morgan et al., 2022; Huang et al., 2023) highlight that while adenocarcinoma is rising in the West due to obesity and GERD, Squamous Cell Carcinoma (SCC) remains the dominant histotype in Asia. Local studies (Sadykov et al., 2021) have pointed out that the Fergana Valley's soil composition and traditional use of "nasvay" (smokeless tobacco) contribute to chronic epithelial irritation. However, contemporary research emphasizes the role of thermal injury from boiling-hot beverages as a primary physical carcinogen. Recent genomic studies (Wang et al., 2020) suggest that chronic inflammation from these irritants leads to TP53 mutations, accelerating the transition from dysplasia to invasive carcinoma.

## 3. Research Aim and Objectives

**Aim:** To analyze the clinical-anamnestic and pathomorphological features of EC in the Fergana Valley to enhance early detection strategies.

**Objectives:**

1. Evaluate demographic and anamnestic risk factors.

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2. Determine the distribution of histopathological types and differentiation grades.
3. Establish statistical correlations between lifestyle factors and disease stage.

**4. Material and Methods**

**Study Design:** A mixed retrospective and prospective cohort study was conducted involving 142 patients treated at regional oncology centers between 2019 and 2024.

**Inclusion Criteria:** Confirmed primary esophageal malignancy, residency in the Fergana Valley for >15 years, and available biopsy records.

**Statistical Analysis:** Data were processed using SPSS v.26. We utilized the Student's t-test for continuous variables ($M \pm m$), the Chi-square ($\chi^2$) test for categorical data, and Pearson correlation for stage-anamnesis links. Confidence intervals (CI) were set at 95%, with $p < 0.05$ considered statistically significant.

**5. Results and Statistical Analysis**

The analysis of 142 cases (89 males, 53 females; mean age $62.4 \pm 4.2$ years) provided the following integrated data:

**Table 1. Integrated Clinical and Pathomorphological Profile (n=142)**

| Parameters | Sub-groups | n | % | 95% CI / p-value |
|---|---|---|---|---|
| **Gender** | Male / Female | 89 / 53 | 62.7 / 37.3 | Ratio 1.6:1 |
| **Anamnestic Risk** | Hot Tea (>65°C) | 106 | 74.6% | $p < 0.001$ |
| | Nasvay/Tobacco use | 60 | 42.3% | $\chi^2 = 7.14$ |
| **Histological Type** | Squamous Cell (SCC) | 117 | 82.4% | Significant |
| | Adenocarcinoma | 21 | 14.8% | $p < 0.05$ |
| **Differentiation (G)** | G1 (Well-diff) | 28 | 19.7% | |
| | G2 (Moderate) | 64 | 45.1% | Predominant |
| | G3 (Poorly-diff) | 50 | 35.2% | |
| **Clinical Stage** | Stage I-II | 50 | 35.2% | |
| | Stage III-IV | 92 | 64.8% | $p < 0.01$ |

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Statistical modeling showed that patients with a combined history of hot tea consumption and nasvay use had a 3.8-fold higher risk (OR=3.8; 95% CI: 2.1–6.4) of developing poorly differentiated (G3) tumors compared to those without these habits.

**6. Discussion and Analysis**

The findings confirm that SCC is the overwhelming histotype in the Fergana Valley, aligning with the "Central Asian" pattern. The high percentage of G2 and G3 tumors (totaling 80.3%) indicates high biological aggressiveness. A significant correlation ($r = 0.58, p < 0.01$) was found between the duration of symptoms (dysphagia) and the T-stage of the tumor.

Unlike Western populations where lower-third adenocarcinoma is linked to GERD, our cohort showed a higher frequency of middle-third SCC. This suggests that the primary carcinogenic mechanism in the Fergana Valley is exogenous mucosal irritation rather than endogenous acid reflux.

**7. Scientific Novelty and Practical Significance**

**Scientific Novelty:** This study provides updated pathomorphological mapping of EC in the Fergana Valley, identifying a direct statistical link between regional dietary habits and tumor differentiation grades (G-grading).

**Practical Significance:** The results justify the implementation of a regional "High-Risk Screening Protocol," targeting males over 50 with a history of thermal injury, utilizing low-cost lugol-staining endoscopy.

**8. Conclusion**

1. Esophageal cancer in the Fergana Valley is primarily Squamous Cell Carcinoma (82.4%), with 64.8% of cases detected at advanced stages.
2. Chronic thermal injury from hot beverages ($>65^{\circ}C$) is the most significant anamnestic risk factor ($74.6\%, p < 0.001$).
3. The aggressive nature of the disease is reflected in the high prevalence of G2 and G3 differentiation grades.
4. Improving survival requires a transition from symptomatic diagnosis to active screening of high-risk cohorts.

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ISSN: 2582-4686 SJIF 2021-3.261,SJIF 2022-2.889, 2024-6.875 ResearchBib IF: 10.25 / 2025



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