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EARLY DIAGNOSIS AND ONCOLOGICAL ALERTNESS IN ENT TUMORS: MODERN VIEWS AND A MULTIDISCIPLINARY APPROACH

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Abstract

Head and neck tumors remain one of the most significant challenges in modern oncology. These malignancies involve the oral cavity, oropharynx, hypopharynx, larynx, nasopharynx, nasal cavity, and adjacent anatomical regions. This article analyzes the epidemiology, major risk factors, causes of diagnostic delay, and current approaches to early detection of ENT tumors. Special attention is paid to the role of general practitioners, dentists, and otorhinolaryngologists in improving oncological alertness. The importance of morphological verification, endoscopic examination, and HPV/EBV-associated molecular markers is discussed. A multidisciplinary diagnostic algorithm adapted for clinical practice in Uzbekistan and CIS countries is proposed.

Keywords: head and neck tumors, ENT oncology, oncological alertness, early diagnosis, HPV, EBV, biopsy, endoscopy.

Introduction

Head and neck tumors are among the most clinically heterogeneous and diagnostically challenging groups of malignant neoplasms. This category includes malignancies of the oral cavity, oropharynx, hypopharynx, larynx, nasopharynx, nasal cavity, and adjacent anatomical regions. From the perspective of practical healthcare, these diseases are of particular importance because the patient's pathway almost always begins not in a specialized oncology center, but in the office of a general practitioner, dentist, or otorhinolaryngologist. At this stage, it is determined whether the symptoms will remain hidden under the mask of an inflammatory process or become the basis for early oncological verification.

In recent years, the epidemiological landscape of head and neck tumors has changed significantly. Alongside classical tobacco- and alcohol-associated tumors, the incidence of human papillomavirus (HPV)-associated oropharyngeal cancer has increased considerably. Epstein–Barr virus (EBV)-associated nasopharyngeal carcinoma also plays an increasingly important role in certain regions.

Despite advances in endoscopic and molecular diagnostics, late-stage disease continues to predominate in many countries, including Uzbekistan and other CIS states. This is largely related to delayed diagnosis, insufficient oncological alertness at the primary healthcare level, and untimely morphological verification.

The aim of this review is to analyze current concepts regarding risk factors, early diagnostic approaches, and organizational mechanisms of oncological alertness in ENT tumors, as well as to propose a multidisciplinary algorithm adaptable to clinical practice in Uzbekistan.

Materials and Methods

This review was based on an analysis of scientific publications issued between 2005 and 2025. The study included international epidemiological reports, systematic reviews, meta-analyses, clinical guidelines, professional consensus documents, molecular diagnostic studies, as well as scientific publications from Uzbekistan, Russia, Kazakhstan, and Belarus.

Priority was given to sources with the greatest practical significance for early diagnosis:

- risk factors;
- active detection strategies;
- causes of diagnostic delay;
- the role of endoscopy;
- fine-needle aspiration biopsy;
- pathological verification;
- virus-associated tumors.

A separate group of publications focused on regional data from Uzbekistan and neighboring countries, allowing the clinical situation to be assessed using real epidemiological information rather than generalized estimates.

Main Part

Major Risk Factors for ENT Tumors

The principal etiological factors for ENT tumors remain tobacco consumption and alcohol abuse. Their combined effect is not merely additive but synergistically carcinogenic.

Additional important risk factors include:

- poor oral hygiene;
- chronic mucosal trauma;
- leukoplakia and erythroplakia;
- occupational carcinogenic exposure;
- HPV infection;
- EBV infection.

HPV-associated tumors are frequently observed in younger patients and may occur in the absence of classical tobacco and alcohol exposure. Therefore, the absence of smoking history does not exclude malignancy.

Potentially malignant disorders of the oral mucosa deserve particular attention. Leukoplakia, erythroplakia, epithelial dysplasia, and related lesions should not be regarded as simple dental conditions. Instead, they represent a critical “window of opportunity” for early oncological intervention.

Diagnostic Delay: Where Early Detection Fails

One of the weakest points in the early diagnosis of ENT tumors is not the lack of technology, but delays in clinical decision-making. Numerous studies demonstrate that most diagnostic delays occur before morphological verification and often even before specialist consultation.

Patients are frequently treated for prolonged periods with diagnoses such as:

- pharyngitis;
- laryngitis;
- stomatitis;
- lymphadenitis.

At the same time, symptoms that should raise oncological suspicion are often underestimated.

The following “red flag” symptoms require special attention:

- persistent hoarseness lasting more than 2–3 weeks;
- non-healing ulcers;
- leukoplakia;
- unilateral ear pain without otoscopic findings;
- dysphagia;
- cervical lymphadenopathy;
- unexplained weight loss.

The main causes of diagnostic delay include:

1. insufficient oncological alertness in primary care;
2. delayed morphological verification;
3. limited access to endoscopic examination;
4. late presentation by patients;
5. inadequate referral and routing systems.

Systematic reviews have shown that delayed initiation of treatment is associated with advanced-stage disease and poorer prognosis, especially in oral cavity carcinoma.

Modern Approaches to Early Diagnosis

Endoscopic Examination

Fibroendoscopy and narrow-band imaging (NBI) endoscopy make it possible to identify minimal mucosal alterations at early stages. These methods improve visualization of suspicious lesions and facilitate targeted biopsy.

Morphological Verification

Early biopsy remains the gold standard for diagnosis. Recommended methods include:

- incisional biopsy;
- fine-needle aspiration biopsy (FNA/TIAB);
- core biopsy.

Waiting for a "clearer clinical picture" is rarely justified, as it often results in delayed diagnosis and more aggressive treatment requirements.

Molecular Markers

In HPV-associated oropharyngeal carcinoma, p16 profiling has substantial diagnostic and prognostic significance. In suspected nasopharyngeal carcinoma, EBV-associated markers are clinically valuable.

Liquid biopsy and salivary molecular panels currently remain promising adjunctive technologies rather than primary screening tools.

Multidisciplinary Approach

Modern clinical concepts emphasize that effective early detection of ENT tumors is possible only through multidisciplinary collaboration. The following specialists must work within a unified diagnostic system:

- general practitioners;
- dentists;
- otorhinolaryngologists;
- oncologists;
- pathologists;
- radiologists.

The primary goal of such a system is to minimize the interval between the first patient presentation and morphological confirmation of malignancy.

Particular importance should be given to:

- standardized referral pathways;
- rapid access to endoscopy and biopsy;
- telemedicine support for remote regions;
- monitoring of median time from first consultation to diagnosis.

Without these organizational mechanisms, even advanced diagnostic technologies cannot significantly improve early detection rates.

Conclusion

Modern literature clearly demonstrates that early diagnosis of ENT tumors depends not only on the quality of oncological care but also on the effectiveness of the patient's first contact with the healthcare system. Even when endoscopy, imaging, and molecular diagnostics are available, late-stage disease will continue to predominate if general practitioners, dentists, and ENT specialists are not integrated into a unified clinical pathway.

Although classical tobacco- and alcohol-associated carcinogenesis remains highly relevant, the increasing prevalence of HPV- and EBV-associated tumors requires revision of traditional diagnostic strategies.

For Uzbekistan, the following priorities remain particularly important:

- active identification of high-risk groups;
- implementation of standardized diagnostic algorithms;
- accelerated access to endoscopy and biopsy;
- development of telemedicine systems;
- improvement of oncological alertness at the primary healthcare level.

Increasing oncological vigilance should be based not on abstract recommendations but on clear clinical triggers, defined timelines, early morphological verification, and continuous audit systems. Such an approach can transform early diagnosis from a theoretical objective into a measurable clinical outcome.

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