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Editorial

Dilemmas in precise prognosis

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Based on a general understanding of the disease's pathophysiology and the existence of risk factors of the disease, the prognosis is a prediction of the course, duration, and outcome of a disease. It is determined subsequent to the diagnosis but prior to the formulation of the treatment plan. The prognosis is based on specific information about the disease and how it can be treated, but it can also be impacted by prior experience with treatment and failures. The molecular pathophysiology of Oral lesions is complicated and arises from a variety of processes that interact with genetic alterations and changes in transcript, protein, and metabolite levels. Among the main conundrums are: histopathological uncertainty, clinical overlap, genetic and molecular variability, multifactorial etiology and inadequate follow up.

The prospects for the future are creating biological markers for improved risk classification. Also imaging and artificial intelligence assisted diagnostics to increase lesion evaluation precision and prognosis. Because not all lesions with dysplastic characteristics develop into cancer, it might be difficult to estimate the risk. Due to genetic predisposition and lifestyle choices, different patients may exhibit diverse behaviors from the same histological lesion. Depending on the kind and stage of the lesion, the prognosis of oral lesions varies significantly; some may be benign, while others may be malignant, necessitating careful monitoring and even aggressive treatments. Protemics, Transcriptomics and Metabolomics are the new subjects of omics sciences that use high throughput technologies to analyze molecules implicated in multiple biological pathways in detail for such lesions as numerous biological, clinical, and diagnostic obstacles make it difficult to determine the exact prognosis of oral lesions.[1]

Improvisation of results requires early detection and intervention. Late diagnosis, locoregional recurrence, and treatment resistance are the main reasons why overall survival has not increased considerably in recent decades, despite improvements in diagnostic techniques and therapeutic approaches. For instance, improving clinical outcomes for patients with OSCC requires the identification of trustworthy biomarkers for early detection, prognosis assessment, and therapy response prediction. Circulating biomarkers, including circulating tumor cells, serological biomarkers, and histological and genetic biomarkers, are the current prognostic and predictive tools in relation to Oral Squamous Cell Carcinoma.[2]

Similarly, it is difficult to derive evidence-based therapy guidelines for malignant salivary gland tumors as they are heterogeneous in origin. The recommendations from prospective studies are further complicated by the variations in the biological behavior and clinical course among histological subtypes. Research on specific diagnostics and prognostics for diseases of the salivary glands is therefore necessary.

The pathology linked to the odontogenic tissues includes a broad spectrum of lesions with different causes. The

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majority of lesions originate from the remains of the tissues that give rise to odontogenic apparatus; therefore diagnosing a condition often requires knowledge of odontogenesis. Diagnosis uncertainty may result from the variety of clinical, radiographic, and histological characteristics. Although paying close attention to pertinent clinical and radiological data can help to mitigate most of this, there are still a number of common areas of uncertainty and related hazards that ultimately determine the prognosis of these lesions.

Prognosis depends on the extent of the disease and the biological potential of the neoplasm. Because of overlapping clinicopathological features distinguishing benign and malignant from another can be challenging and this will require a lot of work in the near future and may serve as the foundation for future studies and research. Precision diagnostics, which employs the fundamentals and also the latest cutting-edge technology, such as genomics and molecular analysis, to accurately and specifically identify diseases, is the need of the hour.

With that in mind, the theme for the **32nd National Conference of Indian Association of Oral Pathologists, 2025** to be organized at I.T.S Dental College, Ghaziabad from 14th to 16th November, 2025 conference will precisely highlight the **–"Dilemmas in Precise prognosis",** which is the crucial demand of current times. The entire range of Oral pathology, from fundamental to modern technological advancements, has been highlighted in the past conferences. Nevertheless, the prognostic implications which have not been thoroughly examined before are a crucial topic to be discussed during the Preconference and Conference.

Excisional biopsy techniques for benign neoplasms, methods of assessment used for tumor prognosis, and molecular biology techniques like PCR and its applications are some of the preconference courses that are scheduled. These are the areas that young oral pathologists need to study in order to stay up to date with the latest technologies and trends.

Conflict of Interest

None.

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