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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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EARLY DETECTION, STAGE, AND SURVIVAL IN ORAL SQUAMOUS CELL CARCINOMA: LITERATURE REVIEW OF CLINICAL AND RECURRENCE DATA (2019–2025)

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Abstract.

Background: Oral squamous cell carcinoma (OSCC) remains the most common oral malignancy, with prognosis strongly dependent on stage at diagnosis. Early-stage detection is linked to significantly better survival and reduced recurrence risk. This review synthesizes recent clinical evidence to support early diagnosis and structured follow-up in OSCC.

Methods: A structured literature review was conducted using PubMed, Scopus, and Web of Science (2019–2025) to identify English-language clinical studies reporting stage-stratified overall survival (OS), disease-specific survival (DSS), and recurrence patterns in OSCC. Included studies were case series, retrospective or prospective cohorts, and clinical trials. Data were extracted and summarized in tables describing survival by stage and recurrence features.

Results: Earlier stages consistently showed better survival outcomes, with 5-year OS and DSS rates highest in stage I–II cancers. Depth of invasion (DOI) emerged as a critical prognostic factor linked to upstaging and nodal metastasis. Recurrence was most frequent within the first two years post-treatment, especially among patients with high-stage tumors, nodal involvement, or positive margins. Structured follow-up and early intervention strategies were shown to improve outcomes.

Conclusions: Early detection remains the cornerstone of improving OSCC outcomes. Clinicians should adopt standardized pathways including risk assessment, clinical examination, biopsy of suspicious lesions, selective use of adjunctive tools, and DOI-based staging to enable earlier diagnosis and effective surveillance.

Key words. Oral squamous cell carcinoma, early detection, TNM staging and depth of invasion, survival and recurrence.

Introduction.

Oral squamous cell carcinoma (OSCC) is considered by far the most common oral cancer and carries a substantial global burden [1]. Despite advances in surgery, radiotherapy, and systemic therapy, population outcomes still hinge on stage at diagnosis: survival is markedly higher for localized disease and declines steeply with nodal involvement or distant spread [2]. This stage–survival gradient underscores a simple reality that earlier detection saves lives.

Although histopathology is the gold standard, early detection is possible by visual examination because oral squamous cell carcinoma often begins as a superficial epithelial lesion. Diagnostic accuracy in primary care is modest, reported sensitivity is about 57.8% and specificity 31–53% [3,4]. Limited training, substantial heterogeneity, and lack of experience further hinder reliable diagnosis [5,6]. Automated decision-support systems could enhance accuracy and consistency, especially for less-experienced clinicians.

Enhancing public awareness, encouraging routine dental visits, and establishing comprehensive screening initiatives are essential strategies for the early detection of individuals at risk [7].

Because the biggest risks for oral squamous cell carcinoma are known and mostly behavior-based and changeable, true prevention starts with people. Educate clearly and support them to reduce or quit those habits [8].

Oral squamous cell carcinoma predominantly affects older men, yet recent reports indicate a rising incidence in younger individuals, particularly tongue cancers, often associated with chronic mucosal trauma from sharp teeth or restorations. Some studies further suggest that disease in younger patients may be more aggressive, with higher locoregional recurrence and poorer prognosis [9,10].

Purpose of this review.

This is a literature review on early detection, staging, survival, and recurrence in oral squamous cell carcinoma. The study highlights (a) the relationship between stage and survival and (b) patterns and predictors of recurrence that inform surveillance. Our goal is to frame actionable, early-detection strategies for clinicians and health systems that can be integrated into routine dental care and community programs, thereby shifting diagnosis to earlier stages and improving outcomes.

Materials and Methods.

We searched PubMed, Scopus and Web of Science database of studies conducted from 2019–2025 for English language clinical studies reporting stage and overall survival (OS) and disease specific survival (DSS) combined with studies that analyzed recurrence patterns. Search terms include using combinations of terms as “oral squamous cell carcinoma,” “OSCC,” “TNM staging,” “early detection”, “overall survival,” “disease-specific survival,” “recurrence”, “depth of invasion”. Inclusion criteria were: English full-text clinical studies (case series, retrospective/prospective cohorts, trials) reporting stage-stratified survival (OS/DSS) and/or recurrence. Tables 1 and 2 summarize overall survival rate and disease specific survival rate -OS/DSS by stage and recurrence features.

Results.

The studies selected between 2019 and 2025 were included in this review (Table 1). These studies collectively examined early detection, staging, survival, and recurrence patterns in oral squamous cell carcinoma (OSCC). The included studies varied in sample size, geographic location, and follow-up duration, but all focused on clinical and recurrence outcomes in OSCC patients. Survival outcomes showed considerable variability across studies. Most reported 5-year survival rates ranging between 50% and 75%, with earlier stages of OSCC correlating with significantly better prognoses. The studies also emphasized the impact of early diagnosis, highlighting that stage I and II cancers had notably higher survival rates than stage III and IV. Delays in diagnosis were commonly associated with poorer outcomes, particularly in low-resource settings or among populations with limited access to care.

Table 2 presented recurrence data. Recurrence rates ranged from 17% to 45%, with the majority occurring within the first 18 to 24 months post-treatment. Local recurrences were the most frequently reported, followed by regional and distant metastases. Several studies identified clinical factors associated with recurrence, including tumor size, nodal involvement, margin status, and histological grade.

Overall, the data confirmed the high-risk window for recurrence within the first two years post-treatment and emphasized the critical need for close monitoring and early intervention strategies during this period.

Table 1. *Stage–survival summaries for oral cancer studies and the overall survival rate (OS) and disease specific survival rate (DSS).*

SN	Authors	Year	Journal/ Setting	Type of study	Sample size	TNM/Staging (summary)	OS summary	DSS summary	Key conclusion
1	He Y et al.	2025	Scientific Reports	SEER cohort (early OSCC)	—	cN0 early-stage; END vs no END	END linked to higher survival	—	Supports END in clinically node-negative early OSCC
2	Xu Z et al.	2025	Front Oncol	Multicenter retrospective + model	—	Clinicopathologic model	Nomogram discriminated OS well	—	Model assists stage-informed decisions
3	Stawarz K et al.	2025	Head & Neck	Single-center surgical cohort	100	Pathologic stage & adverse features	Varied by PNI, margins, nodes	—	Stage dominant; pathology stratifies risk
4	Ariyanon T et al.	2024	Oral Oncol Rep	Surgical cohort ± adjuvant	—	Stage-stratified analysis	Adjuvant improved OS in higher stage	—	Benefit of adjuvant therapy in advanced stage
5	Jiromaru R et al.	2024	Cancer Diagn Progn	Single-center 2013–2023	272	Mixed subsites; stage distribution	5-yr OS ≈64% overall	—	Tongue common; double cancers worsen survival
6	Yang J et al.	2023	Eur J Med Res (SEER)	Population-based	—	All stages; age effects	Older age → lower OS	—	Age independent adverse factor
7	Shinohara et al.	2021	—	Multicenter retrospective	1055	I–II vs III–IV	2-yr 94.5%, 5-yr 92.2% (I–II) vs 2-yr 76.8%, 5-yr 56.1% (III–IV)	—	Adjuvant RT/CT improved outcomes in advanced
8	Liu et al.	2021	—	Multicenter retrospective	773	I–II (279) vs III–IV (494)	Overall 5-yr 62%	5-yr 78%	Adjuvant RT referral improved DFS in III–IV
9	Ebrahimi et al.	2020	—	Multicenter retrospective	1146	Stage III (9.4%) & IV (90.6%)	—	5-yr DSS 86.1% vs 76.1%	DSS varied with nodes, PNI, immunosuppression
10	Hakim et al.	2020	—	Prospective observational	77	T1–T4; N0 vs N+	T1–T2: 2-yr 83.3%, 5-yr 77.2%; T3–T4: 2-yr 47.6%, 5-yr 38.9%	—	Size, mets, margins drove prognosis
11	Zanoni et al.	2019	—	Retrospective observational	2082	pT1–pT4	pT1 81%, pT2 64.3%, pT3 51.8%, pT4 39.1% (5-yr)	pT1 92.8%, pT2 79.6%, pT3 67.3%, pT4 54.3% (5-yr)	AJCC8 nodal staging strongest predictor
12	Kawabata et al.	2019	—	Multicenter retrospective (lip SCC)	193	Stage I/II; late LNM risk	5-yr OS 55% w/o LNM; 42% with late LNM	5-yr DSS 100% w/o LNM; 68% with late LNM	>18 mm & invasive pattern → consider END
13	Otsuru et al.	2019	—	Multicenter retrospective	1234	T1–2N0M0; END vs observation	10-yr OS 87.1% (END) vs 76.2% (obs)	10-yr DSS 89.1% vs 82.2%	END beneficial with adequate depth

Table 2. *Recurrence summaries for oral cancer studies.*

SN	Authors	Year	Journal/ Setting	Type of study	Sample size	TNM/Staging	No. of recurrences	Avg. time to recurrence	Key conclusion
1	Oguejiofor K et al.	2025	Clinical Oncology	Locally advanced OSCC; multimodality	—	Advanced stages	—	—	Long-term survival and recurrence after combined therapy
2	Sood R et al.	2025	Oral Oncology	Large early-stage cohort	—	Pathologic I–II; adjuvant impact	—	—	Predictors of recurrence; adjuvant mitigates risk in selected cases
3	Majumdar KS et al.	2024	CRST	Single-center cohort	—	ENE status	—	—	Extranodal extension strongest predictor; indicates CRT
4	Matsuo M et al.	2024	Ann Surg Oncol	Recurrent HNSCC	—	Post-treatment recurrent cases	—	Shorter interval → worse survival	Most recurrences within 2 years; early recurrence poorer outcomes
5	Kim & Ahn (25)	2024	—	Retrospective observational	168	Stage I–II (64) vs III–IV (104)	81	—	pTNM stage and recurrence affect prognosis
6	Liu et al. (34)	2021	—	Retrospective observational	65	T1N0 (65)	5-yr 29.2%; 10-yr 33.8%	35 months	Clinicopathologic factors guide follow-up
7	Spörl et al. (33)	2020	—	Multicenter retrospective	745	I:231; II:123; III:120; IV:271	157 (21.25%)	—	Lymphatic/vascular invasion predict recurrence and survival
8	Zenga et al. (32)	2019	—	Multicenter retrospective	102	T1–T2 (60); T3–T4 (38); N0 (50); N+ (52)	Local 56; Regional 28; Locoregional 18	6.1 months	Negative margins → better OS
9	Sun et al. (31)	2019	—	Multicenter retrospective	72	Imm-supp 40; Imm-comp 32	Locoregional 31/21; Distant 4/7; Combined 5/4	9.1 vs 10.1 months	Poor survival regardless of immune status

Discussion.

This review reinforces the central, consistent finding across oral oncology: stage at diagnosis dominates prognosis. Contemporary population and cohort data show steep survival gradients from localized to advanced disease, underscoring the value of detecting OSCC before nodal spread. Current SEER-based estimates for oral cavity/oropharynx cancers illustrate this gap (e.g., markedly higher 5-year survival for localized vs regional/distant disease), aligning with global burden summaries from GLOBOCAN 2020. (Cancer.org) [11].

Early detection and screening are crucial in reducing the impact of OSCC, especially given that suspicious lesions in the oral cavity are often visible to the naked eye. However, relying solely on clinical inspection and palpation makes it difficult to clearly distinguish potentially malignant lesions from benign inflammatory changes. Because visual cues alone cannot reliably indicate malignant transformation, histopathological analysis remains the standard for evaluating any lesion of concern. Still, traditional histology has its limitations. Dysplasia is currently the main marker used to identify precancerous changes, but the criteria for grading it are not universally agreed upon and are subject to variation, even among expert pathologists. Moreover, the likelihood of progression to cancer remains unpredictable—some dysplastic lesions may never evolve or may even regress without intervention.

Pathology explains much of the stage–survival gradient. Since AJCC 8, depth of invasion (DOI) is a key metric: the deeper the tumor, the worse the survival and the more likely upstaging—especially in oral tongue cancer. These findings support DOI-guided choices such as elective neck dissection and adjuvant therapy even in early clinical stages [12]. Recent studies support the use of adjunctive tools to enhance detection. Narrow-band imaging (NBI), for instance, improves visualization of mucosal microvasculature and has shown higher accuracy in identifying dysplasia or malignancy compared to standard white-light inspection. Meta-analyses confirm its value in screening and surveillance settings, particularly for high-risk individuals [13-15].

Salivary biomarkers have also emerged as promising non-invasive tools. Markers such as miR-21, IL-8, and CYFRA 21-1 are under investigation for their diagnostic or prognostic potential. However, most lack standardization or validation for routine clinical use [16,17].

These innovations align with broader efforts to reduce diagnostic delay. In lower-resource settings where OSCC burden is highest, integrating opportunistic screening into dental practice and targeted awareness campaigns remains a public health priority [18-20].

Limitations.

Heterogeneity in study designs, endpoints (OS vs DSS vs DFS), and evolving staging systems complicates meta-inference; moreover, many adjunct studies are single-center with spectrum bias. Larger, standardized datasets linked to outcomes are needed to move adjuncts from “promising” to “practice-changing.”.

Conclusion.

The most effective way to improve outcomes in oral squamous cell carcinoma is to ensure that diagnosis occurs as early as possible. Evidence consistently shows that earlier stages at presentation correspond with markedly better survival and lower recurrence risk. To support this shift, clinical practice should emphasize structured, repeatable pathways focused on early recognition: targeted risk assessment, careful intraoral and neck examination, prompt biopsy or short interval review of suspicious lesions, and selective use

of validated optical adjuncts when clinical findings are uncertain. Incorporating depth of invasion (DOI) into diagnostic and staging decisions is essential, given its strong association with prognosis and nodal metastasis. Integrating these standardized approaches in dental and primary care settings can meaningfully reduce delays in diagnosis, improve stage distribution at presentation, and ultimately enhance survival outcomes.

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