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A comparison of mandible preservation method and mandibulotomy approach in oral and oropharyngeal cancer: A meta-analysis

Pai Pang [a,b], Rui-Wu Li [a,b], Jing-Pu Shi [c], Zhong-Fei Xu [a,b], Wei-Yi Duan [a,b], Fa-Yu Liu [a,b], Shao-Hui Huang [a,b], Xue-Xin Tan [a,b], Chang-Fu Sun [a,b,*]

[a] Department of Oromaxillofacial-Head and Neck Surgery, School of Stomatology, China Medical University, Shenyang, Liaoning 110002, PR China
[b] Department of Oral and Maxillofacial Surgery, School of Stomatology, China Medical University, Shenyang, Liaoning 110002, PR China
[c] Department of Clinical Epidemiology and Evidence-based Medicine, The First Affiliated Hospital, China Medical University, Shenyang, PR China

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ABSTRACT

Objective: This study aims to compare the prognoses outcomes of mandibular preservation method (MPM) and the mandibulotomy approach (MLA) in oral and oropharyngeal cancer (OOPC) patients.
Method: We searched PubMed, Web of Science, EMBASE, Chinese BioMedical Literature Database (CBM), Cochrane Library, and clinicaltrials.gov up to September 2016 to identify the studies that compared the prognoses of the MPM versus the MLA in OOPC patients. Two authors individually extracted the data and performed quality assessment. The surgical margins, overall survival rate, total and local recurrence rates, fistula formation, and other functional outcomes were evaluated.
Result: Six studies with 309 patients were included in our analysis. No significant difference was found regarding the surgical margins, overall survival rate, total and local recurrence rates, and speech and tongue movement between the MPM and MLA groups. However, the MPM group showed a significantly lower fistula formation rate than the MLA group after the operation.
Conclusion: These findings suggest that the MPM may provide a similar clinical outcome to the MLA, but that the MPM has a lower complication rate in the treatment of OOPC patients.

Introduction

Malignant neoplasms originating from the oral cavity and oropharynx are grievous diseases that often lead to local infiltration and regional dissemination [1]. Despite of the poor prognosis of oral and oropharyngeal cancer (OOPC), desirable outcomes in some cases can be achieved by the combination of surgical incision and adjuvant radiation [2,3]. The mandibulotomy approach (MLA), generally accompanied by lip-split, is one of the traditional surgery methods [4] that is also sometimes termed *mandibular swing* or *double swing* [5,6]. This method is popular mainly because it can provide excellent exposure to the oral cavity and oropharynx [5,7]. However, the interference with the continuity of the mandible also caused many unfavorable complications [8,9], including unsatisfying appearance, wound infection, fixation failure, hardware exposure and osteonecrosis after radiation treatment [9].

These problems can be largely reduced when a mandibular preservation method (MPM) is used. This method usually combines a visor incision in the neck and mandibular lingual release; thus, this method is also referred to as *mandibular sparing* [4,10]. For oropharyngeal surgery, there are also transcervical, transpharyngeal, and transhyoid approaches among others, which can preserve the integrity of the mandible [11,12]. In this study they are collectively referred to as MPM.

Besides general indicators like 5-year survival and recurrence rates, assessment scales concerning patients' quality of life (QoL) are also extensively used in the evaluation of prognoses for OOPC patients [3,13]. The University of Washington Quality of Life scale (UW-QOL) is a self-administered scale that measured the QoL of head and neck cancer patients with respect to pain, appearance, speech, and so on [14]. In addition, Devine proposed an evaluation system of head and neck cancer patients in both objective and subjective ways [15].

For decades there has been no consensus on which method is better in the surgical management of OOPC patients. In this study, we carried out a meta-analysis to compare the prognoses outcomes of the MPM and the MLA in the treatment of OOPC patients.

* Corresponding author at: Oral Maxillofacial Surgery, School of Stomatology, China Medical University, 117 Nanjing Bei Jie, Heping, Shenyang, Liaoning 110002, PR China.
E-mail address: changfusun@hotmail.com (C.-F. Sun).

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Material and methods

Search strategy

We searched PubMed, Web of Science, EMBASE, Chinese BioMedical Literature Database (CBM), Cochrane Library, and clinicaltrials.gov for scientific papers concerning surgical treatment for OOPC. Articles met the following search strategies in the title, abstract, or keywords were included, without regard to language: (oral OR oropharyngeal) AND (tumor OR tumor OR neoplasm* OR cancer OR carcinoma) AND (mandibulotomy OR lip split* OR lip-split* OR mandibular swing OR mandibular release OR lingual release OR visor flap OR visor incision OR visor drop down OR mandibular sparing OR transcervical OR double swing). Chinese

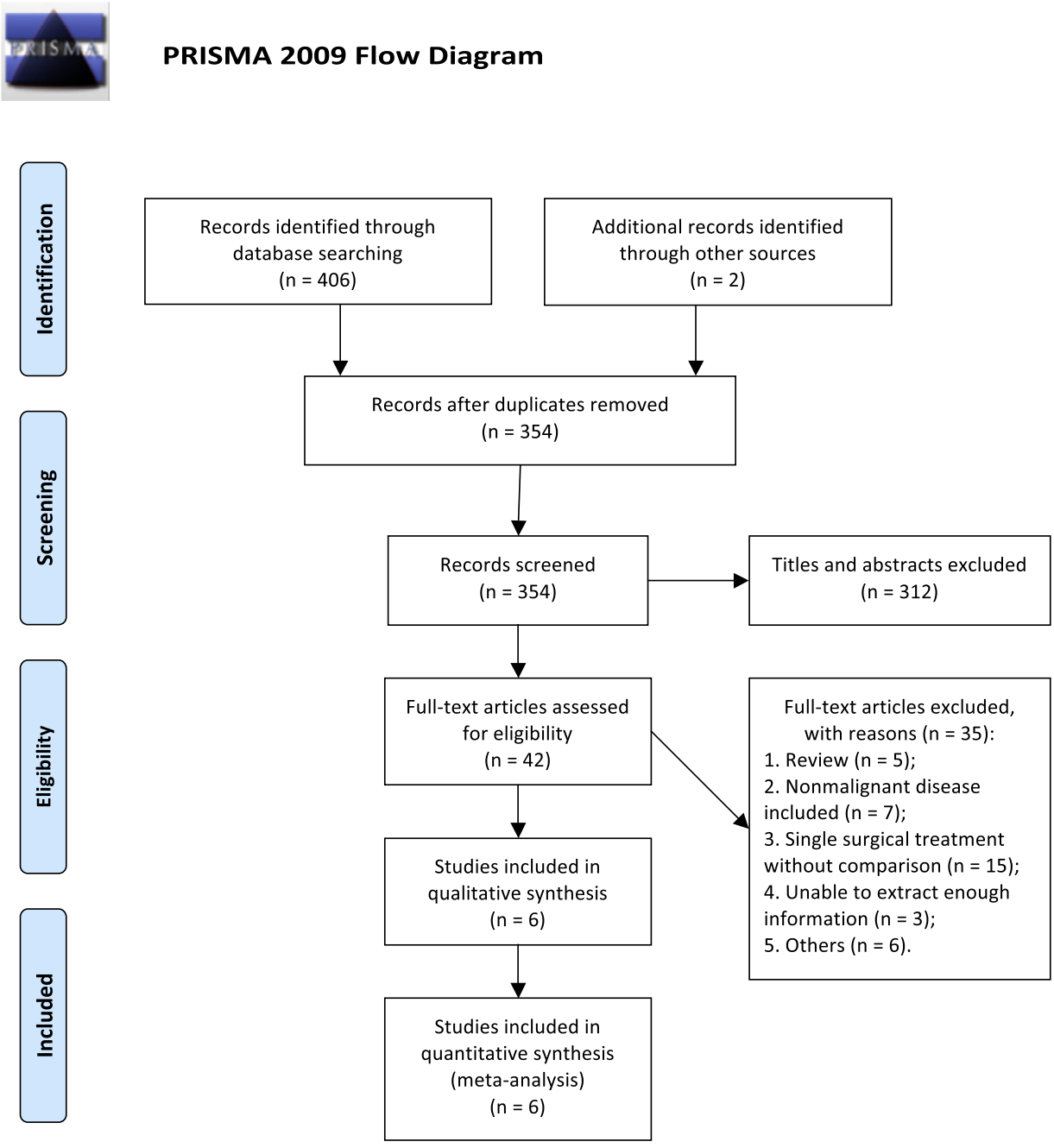

Fig. 1. PRISMA flow diagram for the study selection process.