
Swallowing Outcomes Following Primary Surgical Resection and Primary Free Flap Reconstruction for Oral and Oropharyngeal Squamous Cell Carcinomas: A Systematic Review of Quantitative Evidence

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Abstract

Background

Dysphagia is still a treatment related morbidity as organ preservation does not always translate into function preservation despite advances in treatment modalities. The purpose of this systematic review is to review the swallowing outcomes of patients with oral or oropharyngeal squamous cell carcinoma following primary surgery with primary free flap reconstruction with or without adjuvant therapy.

Objectives

The objective of this systematic review is to investigate swallowing outcomes following primary surgical resection and free flap reconstruction for the treatment of patients with oral and oropharyngeal squamous cell carcinoma. Dysphagia was evaluated with the use of objective investigations (Videofluoroscopic swallowing studies, Fiberoptic endoscopic evaluations of swallowing, Manometry, Gastrostomy dependency, Tracheostomy dependency) and subjective questionnaires (MD Anderson Dysphagia Inventory, University of Washington Quality of Life Questionnaire, Functional Oral Intake Score).

Inclusion criteria

This review considered studies which included patients with oral or oropharyngeal squamous cell carcinoma treated with primary surgical resection and primary surgical reconstruction with or without adjuvant therapy. Swallowing evaluation was conducted at six months or greater after curative therapy. Objective outcome measures included gastrostomy dependency, tracheostomy dependency, penetration-aspiration rates, oral and pharyngeal transit times or pharyngeal pressure readings measured with either videofluoroscopic swallowing studies or fiberoptic endoscopic evaluations of swallowing or manometry. Subjective outcomes were measured with the MD Anderson Dysphagia inventory, University Washington Quality of Life Questionnaire or Functional Oral Intake Scale.

Methods

A comprehensive search strategy was undertaken across MEDLINE, CINAHL, Embase, and Scopus. Papers retrieved were assessed by two independent reviewers regarding study design, study population, interventions, outcome measures, results and conclusions for each article. Data extracted and analyzed for descriptive studies and findings presented in narrative form.

Results

15 studies were included in the systematic review, which consisted of eight cohort studies and seven cases series. Postoperative radiotherapy was associated with worse swallowing outcomes. Swallowing outcomes following the use of radial forearm free flap and anterolateral thigh flap were inconclusive. Resections of the oropharynx demonstrated poorer swallowing outcomes compared with oral cavity resections.

Conclusion

Radiotherapy has been demonstrated to be detrimental to swallowing function following surgical resection and primary free flap reconstruction. Furthermore, swallowing function was shown to improve with the use of free flap reconstruction compared with primary closure for large tumor resections. From these results, a protocol for the identification of patients at low or high risk of developing dysphagia has been proposed. There is, however, a lack of high quality primary research regarding swallowing outcomes following primary surgery with primary free flap reconstruction for oral and oropharyngeal squamous cell carcinoma.

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Declaration

I, Stephen Shih-Teng Kao, certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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