Quality of life and functional outcomes in the management of early glottic carcinoma: a systematic review of studies comparing radiotherapy and transoral laser microsurgery

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CRD summary
The authors concluded that the evidence base demonstrated comparable vocal and quality of life outcomes for radiotherapy and transoral laser surgery treatments for early throat cancer (glottic carcinoma). The reliability of this conclusion is uncertain given a number of weaknesses in the review including the risk of error/bias in the review process and the unclear quality of included studies.

Authors' objectives
To compare radiotherapy and transoral laser microsurgery for early glottic carcinoma with respect to quality of life, post-treatment voice character and swallowing outcomes.

Searching
MEDLINE, Cochrane Database of Systematic Reviews, DARE, Cochrane Central Register of Controlled Trials (CENTRAL), EMBASE, CINAHL, the American College of Physicians Journal Club, and Cancer Lit were searched from 1970 to November 2009. No language restrictions were applied. Search terms were reported. Bibliographies of identified studies were handsearched.

Study selection
Studies that compared laser surgery or radiotherapy (with or without controls) in the treatment of T1 or T2 glottic carcinomas were eligible for inclusion. Outcome measures were objective measures of quality of life, voice or swallowing.

Most included patients had tumours graded as T1 lesions. Men and women were included. Patient follow-up periods varied. Measures of voice outcomes included electronic voice analysis, phonatory function tests, subjective and specialist assessment of voice quality (GRBAS: grade, roughness, breathiness, asthenia, strain). Measures of quality of life and functional outcomes were varied including the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ C30), Voice Handicap Index (VHI), and Voice Symptom Score (VoISS).

It was not clear how many reviewers screened studies for inclusion.

Assessment of study quality
The authors did not report any formal assessment of study quality, but assessor blinding was taken into account.

Data extraction
Data indicating the direction of effect and significance on measures of quality of life, voice or swallowing in the comparison treatments (radiotherapy and transoral laser microsurgery) were extracted.

It was not clear how many reviewers extracted the data.

Methods of synthesis
Studies were summarised in a narrative synthesis.

Results of the review
Twenty-one studies (n=880 patients) were included. Sample sizes ranged from 13 to 92 patients for studies reporting voice outcomes. Most studies were case-controls; none were randomised controlled trials.

Voice outcomes (15 studies): Eleven studies found no significant difference between radiotherapy and laser surgery following treatment. Three studies reported superior vocal outcomes for radiotherapy.

Voice disability perception (seven studies): Five studies reported no difference between treatment groups; the
remaining two reported conflicting results.

**Quality of life outcomes** (nine studies): Seven studies found no difference between treatment groups in overall scores, although some reported differences in subsets of questions.

**Swallowing function**: There were no studies that assessed swallowing function.

**Authors’ conclusions**
The evidence base demonstrated comparable vocal and quality of life outcomes for radiotherapy and transoral laser surgery for early glottic carcinoma.

**CRD commentary**
The review question was clearly stated. Inclusion criteria were specified, although broadly for study design. Several literature sources were searched without language limitations which reduced the potential for language bias. It was unclear whether steps were taken to minimise errors and bias in the review process.

Study quality was not reported in any detail, so the reliability of included studies was unclear. The decision to summarise study results narratively was appropriate given significant study differences. The authors acknowledged the limitation of small sample sizes with insufficient power to detect treatment differences.

The reliability of the authors’ conclusions is uncertain given a number of weaknesses in the review including risk of error and bias in study selection and data extraction, and unclear quality of the included studies.

**Implications of the review for practice and research**

**Practice**: The authors stated that given current lack of clear evidence on which of the modalities (radiotherapy versus transoral laser microsurgery) is more effective, clinicians must consider other factors such as side-effects, cost, and duration of treatment in early glottic carcinoma.

**Research**: The authors stated that the results of on-going multicentre randomised controlled trials (in Australia and North America) of laser resection versus radiotherapy are awaited. They also recommended further multicentre randomised controlled trials with stringent inclusion and exclusion criteria, and a consensus on well-defined outcome variables for the treatment of early laryngeal carcinomas.

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