Laryngeal Cancer Diagnosis: Time Intervals and Delay Factors

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Abstract

Objectives: To quantify time intervals involved in laryngeal cancer diagnosis and factors associated with diagnostic delays and stage of disease at diagnosis. Study Design: Retrospective cohort study. Methods: Squamous cell carcinoma of the larynx (SCCL) cases diagnosed between 2007-2010 were identified through the institutional cancer registry. Time intervals from symptom onset to treatment initiation were measured. Symptom quality, age, ethnicity, gender, sub-site, stage, and treatment modality were collected. Results: 239 SCCL cases consisted of 72% glottic, 23% supraglottic, 3% transglottic, and 2% subglottic. Most common symptoms were hoarseness (93%) and sore throat (15%). Median time from symptom onset to primary care provider (PCP) presentation was 12.0 weeks; from PCP to head/neck surgeon (HNS), 1.6 weeks; from HNS to pathology confirmed diagnosis, 2.0 weeks; from diagnosis to treatment, 4.7 weeks. Median time from symptom onset to treatment was 25.9 weeks. Sex, age, ethnicity did not correlate to degree of patient delay. Additionally, patient delay did not correlate to stage of disease. Conclusions: To our knowledge, this is the first study to evaluate factors associated with delays to diagnosis of SCCL in a large US integrated healthcare system. Most of the diagnostic delay was associated with the patients. After initial presentation, subsequent diagnosis and treatment were relatively efficient. Ways to reduce diagnostic delays for SCCL merit further investigation.

Background

Survival from Laryngeal Cancer has not improved.¹

Despite changes to treatment paradigms.

Perhaps because stage of diagnosis has not improved.

How Laryngeal Cancer patients are diagnosed has not been well studied in the USA. European studies have shown a 3-5 month delay in diagnosis. Therefore we reviewed our institutional experience.

Methods

Kaiser Permanente Northern California (KPNC) Retrospective observational study of 323 laryngeal cancer cases diagnosed 2007-2010. Identified through KPNC Cancer Registry 84 exclusions: non-SCCA, recurrent tumors, inadequate data 239 laryngeal SCCA patients reviewed for time intervals from symptom onset until treatment initiation, patient sex, age, race/ethnicity, tobacco use, tumor subsite, stage, treatment modalities, and presenting symptoms.

Statistical analysis: Descriptive, Chi-square, t-tests, nonparametric tests.

Results

Median Total of 25.9 weeks from symptom onset to treatment

Patient Delay

Symptom Onset to PCP: 85% > 3 weeks

PCP Delay

PCP to Oto-HNS: 25% > 4 weeks

Misdiagnosed:

10% reflux or post-nasal drip
7% URI or laryngitis

Oto-HNS Delay

Oto-HNS to Diagnosis: 30% > 4 weeks

Misdiagnosed:

10% reflux, laryngitis or thrush
7% nodule, polyp, papilloma, cyst

Discussion

At our institution, the largest source of delay lies with the patients. After initial presentation, subsequent diagnosis and treatment were relatively efficient. These results are compared to other studies here.

Study # Patients Patient Delay Total
Finland 2008² 93 Larynx 9 weeks
Netherlands 2005³ 117 Larynx 8 weeks
Denmark 2005⁴ 544 Glottic 19 weeks
Kaiser Permanente Northern California 2014 239 Larynx 12 weeks 26 weeks

Showed a 5% decrease in survival per month of delay.

Few studies have examined the pathway to diagnosis for head and neck cancer in an American healthcare system. Our study is the most comprehensive analysis for laryngeal cancer and should serve as a benchmark to compare to and improve upon. Our system has room for improvement, specifically:

1. Patient Awareness: Most people seem to be unaware that hoarseness or sore throat of 3 weeks duration should be evaluated by a physician. However, the reasons for patient delay were not available in our chart review. Reducing patient delay represents the largest opportunity for improvement in earlier diagnosis. Educating and screening high-risk patients merits further investigation.

2. Referral Guidelines for PCPs: Some patients are initially misdiagnosed by primary care physicians who are unable to visualize the larynx, which led to delays in referral. Current referral guidelines for primary care physicians are insufficient.

3. HNS Diagnosis: Even with flexible laryngoscopy, otolaryngologists will sometimes misdiagnose laryngeal cancers. Improved awareness of the risk factors, improved scope technology and decreased threshold for biopsy are possible avenues for decreasing these misdiagnoses.

Greater efforts should be made towards earlier detection of laryngeal cancer; perhaps then survival outcomes will improve.

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References: