ABSTRACT

Incidence and Predictors of Contralateral Occult Lymph Node Metastasis in Advanced Medial Wall Pyriform Sinus Squamous Cell Carcinoma Presenting with a Clinically NO Contralateral Neck

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INTRODUCTION

The presence of nodal metastasis is the single most important prognostic factor in the head and neck cancer. The hypopharynx has a high rate of metastasis with nodal involvement present in 70% of cases. Contralateral or bilateral cervical metastasis reduces prognosis by an additional 50% in head and neck cancer. Consequently, nodal status has serious therapeutic and prognostic implications.

METHODS AND MATERIALS

Between 2001 and 2011, a total of 237 patients were diagnosed as having pyriform sinus squamous cell carcinoma in the department of otolaryngology-head and neck surgery at Saitama Cancer Center in Japan. (Table 1) Patients in the present study were selected based on the following criteria: 1. Primary tumor in the pyriform sinus involving the medial wall. 2. Presence of ipsilateral vocal cord fixation. 3. An ipsilateral single node clinically confirmed as N1 or N2a. 4. Absence of nodal disease in the contralateral neck (N0 neck). 5. No preoperative treatment of either radiation or chemotherapy given. 6. Subsequent surgical treatment of laryngopharyngectomy, simultaneous bilateral neck dissection and immediate reconstruction using a free jejunal autograft.

Of the 237 patients reviewed, 33 met the criteria defined for this study (Table 1). Pathologic N stage (pN stage) Lymph nodes larger than 3mm in diameter were identified by palpation and inspection, measured, removed and recorded according to the anatomical level of the neck (level I-V). Special attention was paid to lymph nodes measuring less than 3mm in diameter as these could escape detection easily owing to their small size.

RESULTS

Table 1: Distribution of patients with pyriform sinus carcinoma according to T and N stage. Each numeral in table indicates number of patients in the present study

<table>
<thead>
<tr>
<th>T Stage</th>
<th>N Stage</th>
<th>N0</th>
<th>N1</th>
<th>N2a</th>
<th>N2b</th>
<th>N2c</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>T1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<td>4</td>
<td>77</td>
</tr>
<tr>
<td>T3</td>
<td>50</td>
<td>13</td>
<td>17</td>
<td>14</td>
<td>15</td>
<td>9</td>
<td>96</td>
</tr>
<tr>
<td>T4</td>
<td>6</td>
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<td>31</td>
<td>38</td>
<td>35</td>
<td>22</td>
<td>24</td>
<td>237</td>
</tr>
</tbody>
</table>

CONCLUSION

Contralateral occult metastases are almost certain to exist in patients with advanced stage of the pyriform sinus carcinoma who present with hemilaryngeal fixation and who have a single ipsilateral node in the neck. We advocate an aggressive surgical treatment emphasizing bilateral neck dissection for these patients.

DISCUSSION

The medial wall of pyriform sinus is in close proximity to the laryngeal intramuscular vessels, explaining how easily the vocal cords are affected with the tumor. Both mucosal and submucosal lymphatic vessels in the larynx are seen to cross the midline. Although lymphatics are not present in the mucosa of the vocal cords, a high density of lymphatics can be found in the vocal cord muscles and supraglottic region. These observations may suggest why our study finds such a high incidence of metastasis in the contralateral neck in pyriform sinus carcinoma when the vocal cord is found to be fixed.

Three recent studies, each based on a large series of patients with HPSSC undergoing neck dissections, have reported an incidence of sufficient risk of metastases in the contralateral neck in patients with lesions involving the medial wall of the hypopharynx. An interlinking system of large lymphatic vessels in the pyriform sinus and posterior pharyngeal wall does exist, allowing the flow of lymph to communicate with regional nodes. The posterior pharyngeal wall also has specific regions with significant midline crossing. Previous studies have identified T and N stages, hemilarynx fixation, and posterior pharyngeal wall involvement as important predictors of contralateral metastasis.

Number of nodal metastases significantly impacts the prognosis of patients with HNSCC and has several important clinical implications regarding treatment modalities such as the use of radical neck or modified neck dissection, adjuvant chemotherapy and radiation.

Although organ preserving chemoradiotherapy (CCRT) has recently been applied to treat advanced head and neck cancer, patients with advanced pyriform sinus carcinoma with single ipsilateral node still have been managed with surgery that includes ipsilateral neck dissection with primary resection followed by reconstruction and postoperative adjunctive CCRT.

In the present study, the rate of contralateral occult metastasis was as high as that of the ipsilateral neck. Likewise, the number of occult nodes in the contralateral neck was as high as that in the ipsilateral neck.

REFERENCES

5. Garden AS. Organ preservation for carcinoma of the larynx and hypopharynx. Head Neck 2001;23(2):152-240