A Case of Thyroid Cartilage Fracture

Atsushi Imai, Katsuyoshi Suzuki and Sho Morita

A 30-year-old man fractured his thyroid cartilage while participating in Kendo, which is a Japanese sport that involves fighting with wooden swords. He complained of hoarseness and slight pain in the upper neck. Laryngoscopy revealed no vocal cord palsy but slight intralaryngeal hematoma and endolaryngeal swelling. 3-dimensional computed tomography (3D-CT) showed a fracture line in the left thyroid cartilage plate. Seven days after the injury, the inflammation and hematoma had reduced, however, the voice disorder remained. Decreased tension and shortness of the left vocal fold were also clearly revealed. Open reduction was performed with rigid internal fixation of the thyroid cartilage fracture using titanium miniplates under general anesthesia on the 16th day. The patient’s voice disorder fully recovered after 2 months.

External blunt injury to the larynx can cause not only acute airway trouble but also long-term voice or swallowing dysfunction. It is important to evaluate laryngeal injuries carefully and determine appropriate treatment in order to repair them appropriately.

Keywords: thyroid cartilage fracture, voice disorder, titanium miniplates, surgical procedure

References
Clinical findings at the first visit
Slight subcutaneous hemorrhage can be observed.
a: Frontal view. b: Lateral view.

Computed tomography (CT) showing a fracture line in the left thyroid cartilage plate.
a: Axial. b: 3-dimensional CT image from the front. c: 3-dimensional CT image from below.

Intraoperative photography.
a: Slight left deviation of the laryngeal prominence. b: Perichondrium of the thyroid cartilage. c: The fracture of the left thyroid cartilage plate.
d: Rigid stabilization of the thyroid cartilage with two titanium miniplates.

GRBAS scales and MPT
The voice disorder improved postoperatively.

<table>
<thead>
<tr>
<th></th>
<th>The day before surgery</th>
<th>POD 2</th>
<th>POD 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRBAS scales</td>
<td>G2R1B2A1S0</td>
<td>G2R1B2A2S2</td>
<td>G0R0B0A0S0</td>
</tr>
<tr>
<td>MPT (sec.)</td>
<td>17</td>
<td>18</td>
<td>22</td>
</tr>
</tbody>
</table>

G, grade; R, rough; B, breathy; A, asthenic; S, strained
MPT: maximum phonation time
POD: postoperative day