

Dysphagia after Total Laryngectomy Resulting from Hypocalcemia: Case Report

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Although hypocalcemia is a common postoperative complication of patients who have undergone a total laryngectomy with total thyroidectomy for treatment of laryngeal cancer or cancer of adjacent organs and hypocalcemia can produce the symptom of dysphagia, there has never been a report that hypocalcemia is the cause of dysphagia in these patients. The authors reported two cases who had hypocalcemia after total laryngectomy with total thyroidectomy and presented with sudden and severe dysphagia. However, the symptom of dysphagia was dramatically improved after calcium replacement therapy.

Keywords : Dysphagia, Laryngectomy, Hypocalcemia

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Dysphagia is a common complaint among patients after having undergone a laryngectomy. Causes of dysphagia include cricopharyngeus muscle spasm, pharyngeal stenosis, fistula and residual or recurrent tumor⁽¹⁾. However, it has never been claimed that it resulted from hypocalcemia although hypocalcemia is a common postoperative complication after total laryngectomy with total thyroidectomy and it may be the cause of dysphagia.

This report reveals two cases of dysphagia arising after a total laryngectomy and as a result of hypocalcemia.

Case Report

Case 1

A 72-year-old man presented after experiencing difficulty swallowing both solids and fluids for a 24-hour period. Five years earlier, he had been diagnosed with glottic cancer (T₄N₀M₀) and underwent both a total laryngectomy and total thyroidectomy followed by postoperative radiation therapy. After surgery, he had hypothyroidism and hypocalcemia, requiring thyroid hormone replacement and calcium supplements. Notwithstanding, he had

not experienced difficulty swallowing until the day before this visit, that is five years later. A nasogastric tube was inserted but failed so esophagography and esophagoscopy were requested. Owing to the history of thyroid hormone and calcium discontinuity, serum calcium and thyroid function were evaluated. The *corrected* serum calcium level was 4.7 mg% (normal range is 8.4-10.2 mg%) so an intravenous push of 10% calcium gluconate, followed by an intravenous drip, were given. The next morning, the symptoms of dysphagia had disappeared and he was able to swallow normally so the esophagography and esophagoscopy were canceled. On the day of discharge, the serum calcium was 9.1 mg%. The results of the thyroid function test came 2 weeks later and indicated hypothyroidism, however, since he could swallow the authors had already started thyroid replacement. Three months later, the cancer had metastasized to the lungs but without recurrent dysphagia so palliative treatment was given.

Case 2

A 61-year-old man was diagnosed with cancer of the right pyriform fossa (T₄N₃M₀) and underwent a total laryngopharyngoesophagectomy with a gastric pull-up, total thyroidectomy and a right radical neck dissection. He had postoperative

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hypothyroidism and hypocalcemia, which needed thyroid hormone replacement and calcium supplements. Five weeks later, after having received 3 days of radiation treatment, he experienced a sudden onset of dysphagia and numbness in both hands for a day. Insertion of a nasogastric tube failed and esophagography and esophagoscopy were requested. He had not taken the thyroid hormone and calcium supplements for two weeks and his serum calcium level was only 3 mg% so calcium therapy was given. The next morning, the dysphagia had resolved and he was able to swallow so the esophagography and esophagoscopy were canceled. The full course of radiation was completed without any recurrence of dysphagia.

Discussion

Hypocalcemia has been found in 12% (2/17) of cases whose thyroid gland, or a portion thereof, was preserved after a total laryngectomy⁽²⁾ but in 100% (6/6) of those undergoing both a total laryngectomy and total thyroidectomy⁽³⁾. It is reasoned that manipulation of the vessels supplying the parathyroid gland, or accidental removal of the parathyroid gland, explains the etiology of postoperative hypocalcemia. A previous study⁽⁴⁾ revealed 25% (4/16) of patients who received postoperative radiotherapy experienced hypocalcemia, albeit usually of delayed onset.

Additionally, a total laryngopharyngoesophagectomy and gastric pull-up reconstruction (the second case) have a high risk of developing postoperative hypocalcemia-73% (22/30)⁽²⁾. The pathogenesis is thought to be the result of a physiologic change of the gastric secretion from acidic to basic, causing a decrease in intestinal calcium absorption, which is better absorbed in an acid medium.

The clinical presentation of hypocalcemia can vary from an asymptomatic biochemical finding to a life-threatening condition. It enhances neuromuscular excitability including circumoral numbness, paresthesia of the distal extremities, mild muscle cramps (in mild cases) and severe muscle cramps, carpedal spasms, tetany, syncope or seizure (in severe cases). There is, however, no absolute level of serum calcium at which symptoms can be expected. Chronic hypocalcemia sometimes has a few symptoms of neuromuscular excitability despite a markedly

depressed serum calcium level. By contrast, patients with acute hypocalcemia frequently manifest many symptoms of tetany.

Hypocalcemia after a total laryngectomy presenting as dysphagia has never before been reported; while hypocalcemia presenting as dysphagia has only ever once been reported after a subtotal thyroidectomy⁽⁵⁾. Perhaps, muscle cramps of the constrictor muscles of the pharynx or the cricopharyngeus muscle, if preserved, are the cause. Both of the presented cases presented with a sudden onset of dysphagia that improved dramatically with calcium therapy. Indeed, the presented patients' serum calcium levels were quite low, 4.7 mg% and 3 mg%, respectively, before treatment.

Due to the rapid onset and equally quick improvement in the presented cases, other causes of dysphagia, such as cricopharyngeus muscle spasm, pharyngeal stenosis, residual or recurrent tumor, were ruled out by clinical observation. Hypocalcemia should be included as a differential diagnosis of dysphagia after total laryngectomy especially in cases of sudden onset and having a history of calcium discontinuity. It should be recognized and corrected immediately before the serious complications of hypocalcemia occur.

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รายงานผู้ป่วยที่มีอาการคลื่นไส้ลำบากหลังผ่าตัดกล่องเสียงออกหมดซึ่งมีสาเหตุจากภาวะแคลเซียมในเลือดต่ำ

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ถึงแม้ว่าภาวะแคลเซียมในเลือดต่ำจะเป็นภาวะที่เกิดขึ้นได้บ่อยในผู้ป่วยที่ได้รับการผ่าตัดกล่องเสียงออกหมดเพื่อรักษาโรคมะเร็งกล่องเสียง หรือ มะเร็งของอวัยวะใกล้เคียง ซึ่งผู้ป่วยบางรายอาจจะต้องผ่าตัดเอาต่อมไทรอยด์ออกหมดด้วย และภาวะแคลเซียมในเลือดต่ำนี้สามารถทำให้เกิดอาการคลื่นไส้ลำบากได้ แต่ยังไม่เคยมีรายงานมาก่อนว่าภาวะแคลเซียมในเลือดต่ำจะเป็นสาเหตุของอาการคลื่นไส้ลำบากในผู้ป่วยกลุ่มนี้ รายงานนี้จึงขอนำเสนอผู้ป่วย 2 ราย ที่มีภาวะแคลเซียมในเลือดต่ำหลังการผ่าตัดกล่องเสียง และต่อมไทรอยด์ออกแล้วมาพบแพทย์ด้วยอาการคลื่นไส้ลำบากอย่างเฉียบพลันและรุนแรง ซึ่งเมื่อแก้ไขภาวะแคลเซียมในเลือดที่ต่ำแล้วพบว่าอาการคลื่นไส้ลำบากดังกล่าวดีขึ้นอย่างรวดเร็ว
