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Case Report
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# Small Bowel Obstruction: A Result of Metastatic Head and Neck Squamous Cell Carcinoma

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## Abstract

**Objective:** To describe a case of metastatic squamous cell carcinoma of the larynx to the small bowel.

**Study Design:** Case report.

**Methods:** We describe a clinical case of a patient with recurrent T1bN0Mx Stage I squamous cell carcinoma of the glottis with metastasis five years after initial diagnosis and treatment, presenting itself as a small bowel obstruction. Review of current literature of distant metastasis was performed.

**Results:** The patient underwent emergent small bowel resection to relieve the obstruction, with intraoperative findings revealing a palpable mass. Histopathologic findings of the mass demonstrated metastatic squamous cell carcinoma, p63 positive.

**Conclusion:** Squamous cell carcinoma from the head and neck has a low incidence of distant metastasis especially in those with locoregional control after initial treatment. When present, it most commonly metastasizes to the lung followed by the liver and bone. Metastasis to the bowel is an even rarer entity.

**Keywords: Bowel; Metastatic; Larynx; Metastatic squamous cell carcinoma**

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## Introduction

Squamous cell carcinoma (SCC) from the head and neck has a low incidence, range from 4 to 26%, of distant metastasis, with an average of 9.2% [1] in the current literature. In a study by Garavello et al. [1] distant metastasis from highest to lowest include lung (55.8%), bone (9.9%), and liver (3.9%). The incidence of metastatic disease to bowel is even rarer; metastatic disease to the bowel itself accounts for 10% of small bowel malignancies [2]. We present a case of a patient with a stage I SCC of the glottis who subsequently presented with lung and locoregional metastasis to the neck. Post treatment he presented with a small bowel obstruction due to metastatic SCC. We will provide a brief review of the incidence of metastatic disease, locations, and risk factors. As a case report, this project was exempt from institutional review board approval.

## Case Presentation

We present a 61-year-old male with a history of bilateral renal cell carcinoma with subsequent bilateral nephrectomies and transplant and a diagnosis of T1bN0Mx Stage I SCC glottis (Figure 1) three years later. It was subsequently treated with 63Gy radiation. Three years later a PET scan demonstrated hypermetabolic nodules of the left neck and lungs, both positive for SCC. Due to the metastatic disease he completed 3 cycles of Carboplatin, 5-FU, and Cetuximab. CT scan five months later revealed progression of his metastatic lung disease. Chemotherapy was halted due to inpatient admission for bacteremia and following his recovery he completed 6 cycles of paclitaxel and Cetuximab about 1 year after diagnosis of his recurrent disease. Post treatment CT scan revealed progression of metastatic disease of the left neck and lungs. Due to the imaging findings, he underwent 2 cycles of weekly Methotrexate with repeat imaging one month later revealing an overall poor response with worsening lymphadenopathy within the right carotid sheath at the level of the carotid bifurcation. The patient started a metastatic clinical trial at different facility, however, a few weeks later he was admitted to our hospital for abdominal pain, sepsis, and found to have a small bowel obstruction, CT scan revealed rim enhancing area (Figure 2). Inpatient ENT team

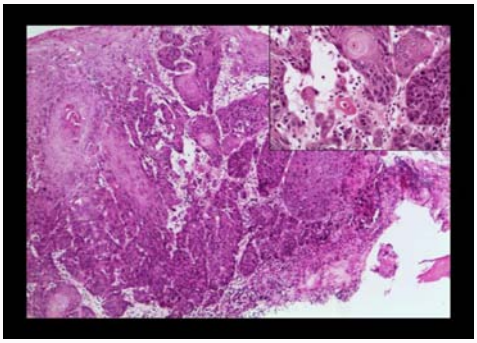

**Figure 1:** Invasive squamous cell carcinoma of the larynx moderately differentiated with multiple foci of keratinization. There is no evidence of angiolymphatic or perineural invasion in the samples taken for microscopic examination (H&E Stain X20) and inset shows higher magnification of tumor cells with keratin pearl formation (H& stain X200).

**Figure 2:** CT abdomen with contrast, axial view. There is a ring enhancing mass within the small bowel. Arrow points to the mass.

consulted and found to have bilateral firm adherent neck masses at levels 2-4. He underwent small bowel resection with end ileostomy due to an obstructing mass at the distal ileum approximately 8 cm from the ileocecal valve. Pathology revealed metastatic SCC, p63 positive (Figure 3 and 4). He subsequently enrolled in hospice care and expired a few weeks later.

## Discussion

The definition of metastasis is confirmation of tumor deposits within another primary organ site via histology. Locoregional recurrence disease presents within the treated areas 2 years after primary treatment. Distant metastasis is defined as either lymphatic spread to non-regional lymph nodes or non-lymphatic spread to other organs [3].

Head and neck SCC is most commonly known to be a locoregional disease [1]. Metastasis determines management and prognosis; therefore, knowing risk factors is important [1]. Distant metastasis on average present 1.5 to 6 years after treatment with a mean of 3.2 years [3], most studies citing about 2 years [4]. The incidence of metastasis varies widely, due to multiple study settings, number of patients, difference in follow up, etc [5].

Locations of metastatic disease differ from source to source, Spector et al. [3] indicate lung and mediastinum are most comment, 55%, and second most common is bone, 15%. The overall salvage rate for distant metastasis was 6%, with pyriform sinus cancers being the highest since the patients presented with one metastatic lesion. Subdividing the larynx into supraglottis, glottis, and subglottis, the glottis and supraglottic were least likely to metastasize, 4% and 14%, respectively [3]. Metastatic disease outside of the lung, liver, or bone

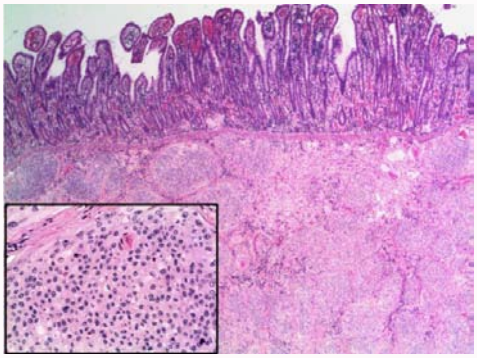

**Figure 3:** Small intestine with non-neoplastic mucosa on the top of the image bounded by muscularis mucosae. The lower portion of the photomicrograph shows submucosa with tumor lobules of metastatic squamous cell carcinoma (H&E X20) and inset shows tumor cells at higher magnification with keratinization (H&EX200).

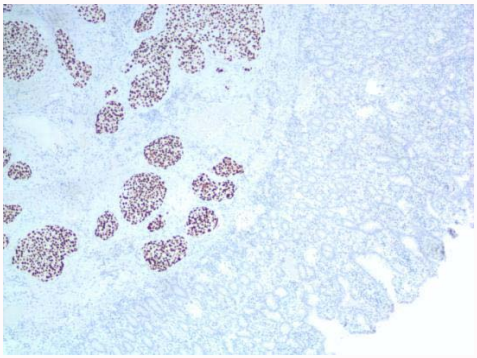

**Figure 4:** p63 immunohistochemical stain (original magnification: x40). Lobules and nests of p63-positive (nuclear staining) carcinoma, supporting squamous epithelial differentiation of the neoplastic cells.

is rarer especially from glottic source [3]. There is a higher incidence of metastatic disease on autopsy studies than clinical evaluations [3], some studies report 40-50% incidence [5]. A review by Takes et al. [5] found a frequency of 70–85% for the lungs, 15–39% for bone, 10–30% for the liver, and 0.4% for glottis. Intracranial metastasis account for about 0.4% and skin 10-15% incidence, with the frequency decreasing for skin further away for the head and neck primary [5]. These transitions to our second point: the rare cases of metastatic diseases to less frequent organ systems such as bowel.

Since 1961 there have a handful of case reports reporting metastasis from the head and neck to the bowel. A review article by Dwivedi et al. [2] described 12 cases. In all instances, the patients were male with an average age of 70.4 years. The most common primary location was larynx at 63% (supraglottis- 67%) followed by base of tongue with 17%, and tonsil/pyriform sinus with each at 8%. The detection of bowel metastasis ranged from 2 days to 56 months, with mean of 12 months. Nearly 75% of patients had high T stage and presence of nodal metastasis but data was incomplete for a few patients [2]. Those treated with primary surgery had a longer period of remission, 26 months, versus those who had primary radiation, 12 months, and chemotherapy, 5.5 months. Most common metastatic sites were ileum, 58%, followed by jejunum, 25%, and duodenum, 17%. The most common symptoms were small bowel obstructions, 48%, and perforations, 27%, (mainly ileal and jejunal, respectively), and bleeding, 27% [2]. The mean survival was 17 weeks after presentation [2]. Glicksman et al. [6] presented a patient with a history of laryngeal

cancer with a metastasis presenting as appendicitis. This report reiterates the higher incidence of metastasis close to the ileum. The authors indicate their bowel metastasis to the bowel from the larynx as being the 10th documented case [6]. Thus, our case would be the 11th in published literature.

There are many reasons why metastasis occurs, some we may never know. As previously discussed head and neck squamous cell carcinoma can be a devastating disease. Previous studies have noted that locoregional treatment failure versus those who had achieved locoregional control had and increase significant difference of metastatic disease, respectively, 38% versus 21%. The same study also demonstrated a significantly increased incidence when evaluating the presence of disease 6 to 2.5 years after treatment [7]. This study concluded that locoregional control was the strongest risk factor for when predicting distant metastasis and assessing survival. This was followed by tumor site, N-stage, and T-stage [7]. Another study looked at risk factors for metastatic disease, their conclusion was that both advanced primary disease (T4) and regional metastases (N2+) have a three-fold increase incidence of metastasis [3]. It was noted that hypopharyngeal cancer, likely due to advanced initial stage had the highest metastasis incidence, 17% [3]. Tobacco smoking increased the incidence of HPV positive oropharyngeal cancers compared to those who did not smoke [8]. Histopathological factors such as extracapsular extension and worse differentiation grade have led increase metastatic potential [5].

## Conclusion

Metastasis denotes a grave prognosis regardless of primary cancer. It is important to diagnose disease early for better outcomes. Survival after metastatic disease has ranged from 4 to 7 months according to some studies, but on average 12 months [4]. Once distant metastases have occurred the chances of cure are low. Several studies agree that advanced T, locoregional lymphatic disease, and poor differentiation, and hypopharyngeal disease have the highest frequency of metastatic disease [3,4]. Our case appears to follow the general characteristics of the case series presented [2-4]. Although rare, small bowel metastasis must be considered in a patient presenting with abdominal complaints.

## Aknowledgement

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