CASE REPORT

A tale of colorectal carcinoma metastases in the head and neck region: a case report

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Abstract

Colorectal cancer ideally spreads via the haematogenous or lymphatic route with the most common metastasis to the liver or lungs. Metastasis of this cancer to the parotid gland has not been previously reported. This paper presents a case of rectal adenocarcinoma in a 34-year-old Pakistani male, who presented with histopathological evidence of metastasis in the parotid gland within one year of treatment. He had previously undergone neo-adjuvant chemo-radiotherapy with surgical resection of rectal adenocarcinoma. Metastasis to the parotid gland is an uncommon occurrence in our setting and to our knowledge, this is the first instance of its kind. Careful surveillance of colorectal cancer patients after primary treatment may result in the early recognition of metastases, possibly providing patients with better treatment options and prognosis. This case undoubtedly provides a valuable contribution to the existing literature on colorectal cancer metastasis and points towards the need for additional assessment of these patients post-treatment.

Keywords: Colorectal cancer, Metastasis, Parotid gland, Neo-adjuvant.

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Introduction

Colorectal carcinoma continues to be one of the most common causes of cancer-related mortality worldwide. It is the third most common cancer and the fourth most common cause of cancer-related death worldwide.[1] Localised colorectal carcinoma results in a 90% five-year survival rate; however, this percentage drops to 14% if distant metastasis occurs.[2] Haematogenous dissemination of colon cancer is predominantly via portal venous circulation, whereas rectal cancer leads to systemic metastasis.[3] The most common sites reported for metastasis are the liver and the lung, while uncommon ones include the brain, bone, peritoneum, etc.[2] Organs such as the spleen, thyroid, spermatic cord, right atrium, and skeletal muscles are examples of unusual locations where colorectal cancer has metastasised.[4] Although metastases to these areas may be a sign of advanced disease, metastasis from colorectal cancer to the parotid gland has never been documented in the literature that we could find online. We report the first instance of oligo metastases including the parotid gland from colorectal cancer, a year after chemo-radiation and major abdominal surgery for rectal cancer. Histopathological evidence and clinical features of this unusual case and its outcome are also provided herein.

Case Report

A 34-year-old male from Balochistan, with no known comorbidity, presented to the Aga Khan University Hospital, in January 2020, with complaint of constipation for the last four months and bleeding per rectum for seven months. Upon rectal examination, a hard fixed palpable mass was noticed 5cm from the anal verge. CT scan of the abdomen and pelvis showed a lesion extending from the recto-sigmoid junction to the anal canal within the infiltration of the per colonic fat and possibly, the right seminal vesicle. He was then diagnosed with rectal adenocarcinoma and subsequently underwent neo-adjuvant chemo-radiation followed by surgery with laparotomy, low anterior resection, and covering ileostomy.

Approximately one year after the surgery, he presented with a skin lesion on the abdomen, measuring around 1 x 1 cm. The lesion was biopsied and noted to be poorly differentiated carcinoma (Figure 1). The patient also complained of a sudden-onset swelling on the face for which he was referred to the otorhinolaryngology department for evaluation. Upon systemic physical examination, a nodule was seen on the right parotid region measuring roughly 3 x 3 cm. Ultrasound-guided FNAC of the lesion revealed atypical cells raising suspicions of malignancy, whereas CT-scan of the face

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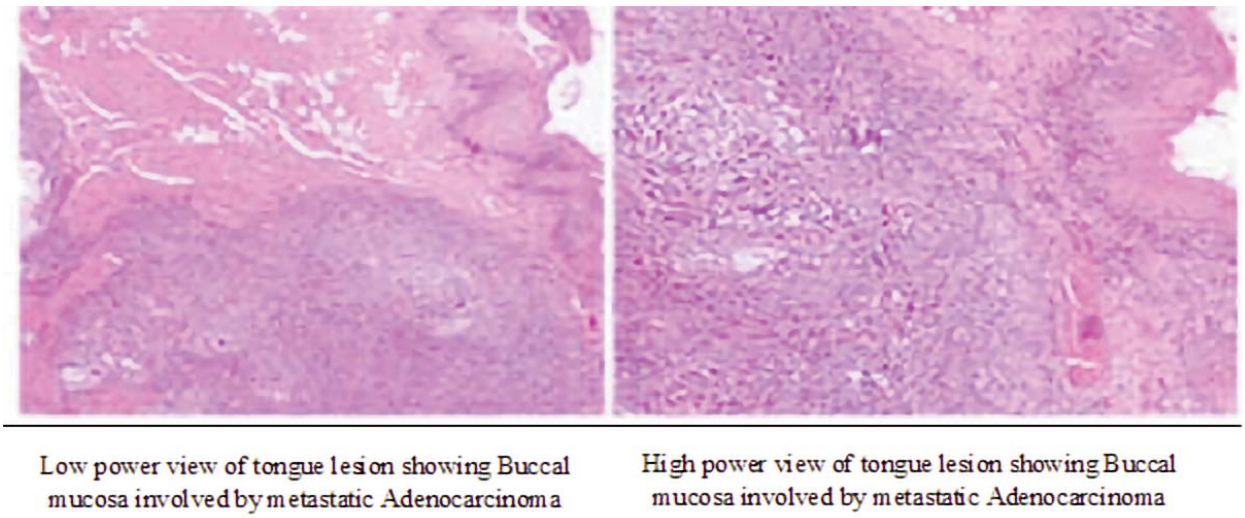

Figure-1: Abdominal skin nodule showing metastasis of rectal carcinoma.

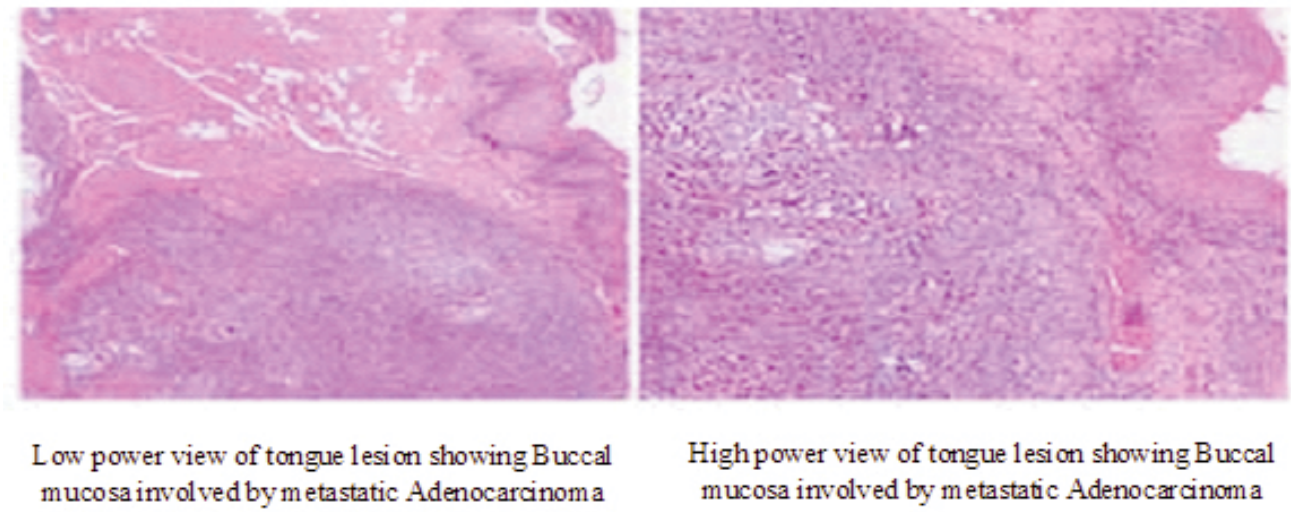

Figure-2: Tongue lesion showing metastatic rectal adenocarcinoma.

was unremarkable. Surgical excision was planned and intraoperatively right masseter muscle involvement was seen along with the left cervical lymph node which were all resected, leaving the facial nerve intact. The excised specimen was examined histologically which revealed skeletal muscle and fibro adipose tissue, exhibiting an infiltrating neoplastic lesion arranged in glands and individual cells of signet ring appearance with mucinous pools in some areas and areas of necrosis. Extensive perineural invasion was identified and tumour was observed reaching the margins of excision. Immunohistochemical stains were performed which showed the following reactivity pattern: Cytokeratin 7 Focal Positive, Cytokeratin 20 Positive, CDX2 Positive, SATB2 Patchy nuclear positive. Porta catheter was inserted in the right internal jugular vein for chemotherapy and therapy with FOLFRI (Folinic acid, Fluorouracil, and Irinotecan) was commenced postoperatively. Eight cycles were given. The chemotherapy sessions concluded in September 2021.

Around one month later, the patient presented with complaint of a tongue lesion. The lesion was approximately 4x4 cm and was present on the right middle two thirds of the tongue with adequate mouth opening. The lesion was firm, indurated, and erythematous. To remove this, a right partial hemi glossectomy was planned and performed in October 2021, histopathology of which is shown in Figure 2. The last cycle of chemotherapy with IROX regimen (Irinotecan

plus Oxaliplatin), commenced in October 2021 and a total of three cycles were administered in three months. However, within a month of completion of the third line chemotherapy the patient presented with a right cheek swelling in December 2021, along with two other nodules one in the right supraorbital region and the other in the left anterior neck. After this recurrence, he was advised palliative treatment. The patient was last admitted under palliative care for upper gastrointestinal bleed, electrolyte abnormalities and later, subacute intestinal obstruction and was managed conservatively.

Discussion

Multiple studies have shown that malignant secondary parotid neoplasm is an uncommon finding and often proves to be a diagnostic challenge.[5] This case report discusses a rare metastatic lesion in the parotid gland particularly from a colorectal carcinoma. This example of atypical rectal cancer metastasis emphasises the considerable disease progression that leads to a poor clinical prognosis.

Metastasis to the oral cavity accounts for only 1-2% of all oral cancers.[6] A study targetting parotid gland metastasis, at the Otolaryngology Department of the University Hospital of Ferrara, Italy, revealed that 71.2% of cases were metastasis from cutaneous head and neck tumours, while in 4.5% cases origin of the primary tumour remained unknown. Fine needle aspiration cytology results were compared with the final histopathologic diagnosis, showing an overall concordance of 71.9%.[5] Parotid gland metastasis from rectal cancer was diagnosed in this case due to histopathological findings.

Metastatic organ tropism is a non-random process governed by several intrinsic factors of the cancer cells, the tumour microenvironment, and how those intrinsic factors interact with one another as seen in various epithelial cancers, including breast and pancreatic cancer.[7] Different expression of cancer stem cell markers has been shown to correlate with metastatic dissemination in CRC. The stem cell markers Notch1 and ALDH1 can be used as independent prognostic indicators that are correlated with lymph node metastases, advanced stage, and tumour recurrence.[8] Although the most common sites of metastasis of CRC are the liver and the peritoneum, it may also spread to the lungs, bones, brain, or spinal cord.[2] Patients with primary rectal cancer are more likely to present with metastatic disease as compared to colon cancer, and are also prone to an earlier recurrence.[9] Multiple studies prove this finding and that the locations such as lymph nodes, thoracic organs, and the nervous system are common sites of rectal cancer specific metastasis.[10]

This case emphasises on multidisciplinary approach when dealing with aggressive cancers. Past medical history, examination, and clinical assessment should be of utmost priority. Pathology and immunohistochemistry studies are crucial due to their diagnostic value. When oral metastases are suspected and discovered, the prognosis for the disease noticeably worsens. Palliative options should be considered when appropriate so as to provide the best possible quality of care. For patients with advanced head and neck cancers involving glandular metastases, particularly those facing repeated or extensive surgery, the otolaryngologist plays a crucial role in weighing the potential for complications against the benefits of improved quality of life. In such cases, utilising local flaps for intraoral reconstruction can offer a simple and reliable palliative resection option, prioritising the patient's well-being and comfort.

Conclusion

Colorectal cancer typically spreads through haematogenous or lymphatic routes, usually targeting the liver or lungs. Yet, its metastasis to the parotid gland has rarely been documented. This report presents a unique case of rectal adenocarcinoma spreading to the parotid region, significantly contributing to our understanding of its diverse metastatic pathways.

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Authors' Contribution:
AAU: Design and data analysis.
FM: Writing and literature search.
SA: Drafting, revision and final approval.
MS, KF: Data acquisition and writing.
SA: Supervision and final approval.