CASE REPORT

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Miraculous Response to Neoadjuvant Chemotherapy and Chemoradiation in Esophageal Signet Ring Cell Carcinoma with Subsequent Recurrence

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Abstract

Background: Esophageal signet ring cell carcinoma (ESRCC) is a rare, aggressive histological subtype of adenocarcinoma, comprising approximately 2.6%–5.0% of esophageal cancers. It is typically characterized by poor differentiation, diffuse infiltrative growth, rapid progression, and high metastatic potential. The role of chemotherapy and radiation in inoperable patients is yet to be defined; thus, this case report helps to add to the limited literature.

Case Presentation: A 75-year-old non-smoker, non-alcoholic male presented with difficulty in swallowing for the last 2.5 months. Upper GI endoscopy and PET-CT revealed an ulcerated lesion in the distal esophagus at 32 cm from the incisors, along with a large hiatus hernia and Barrett's esophagus. Biopsy of the lesion showed signet ring cell carcinoma. The patient received 4 cycles of neoadjuvant chemotherapy with Carboplatin (5 AUC) and 5-Fluorouracil. After multidisciplinary evaluation, the patient was considered unsuitable for surgery because of suboptimal performance status and subsequently underwent chemoradiation. Three months post-treatment, PET/CT scan showed non-FDG-avid circumferential mural thickening with no enhancement and mild luminal narrowing in the distal esophagus, likely post-RT changes. Thereafter, the patient was on regular 2-monthly follow-up and again developed difficulty in swallowing after 1.8 years, which was gradually progressing. Upper GI endoscopy revealed esophageal candidiasis and luminal narrowing at 35 cm of about 2–3 cm in length, and biopsy confirmed signet ring cell carcinoma. The patient was started on oral chemotherapy (Tab Gefitinib 250 mg OD and Tab Methotrexate 25 mg weekly). Presently, after 4 months, the patient's dysphagia score and performance status have improved.

Conclusion: Neoadjuvant chemotherapy followed by concurrent chemoradiation in the present case has shown a good response, but recurrence warrants the need for adjuvant treatment. Despite the difficulty in deriving conclusions, this case report provides insight into developing chemoradiation protocols with definitive doses. It suggests a promising role of metronomic chemotherapy with immunotherapy; however, long-term follow-up is required.

Keywords: Esophageal signet ring cell carcinoma • Neoadjuvant chemotherapy • Chemoradiation • Dysphagia • Recurrence

Introduction

Esophageal signet ring cell carcinoma (ESRCC) is an aggressive histological subtype of adenocarcinoma associated with significantly poorer long-term outcomes compared with conventional esophageal adenocarcinoma (1). It is rare, comprising approximately 2.6%–5.0% of esophageal cancers, and is typically characterized by poor differentiation, diffuse infiltrative growth, rapid progression, and a high metastatic potential. The presence of signet-ring cells is considered an adverse prognostic feature and may confer a distinct response pattern to standard therapies (2–4).

There are no separate guidelines for this entity, and treatment is based on data interpreted from studies on adenocarcinoma of the esophagus. Treatment includes multimodality therapy, centered on surgery whenever the disease is resectable. Peng Z et al. conducted a comparative analysis of signet ring cell carcinoma and adenocarcinoma treatment and concluded that surgery and adjuvant therapy are best for late stages, while for early stages, further studies are warranted. The role of chemoradiation alone, especially in patients with poor or borderline performance status, is undefined; thus, this case report helps to add to the limited literature (5).

Case Presentation

A 75-year-old non-smoker, non-alcoholic male visited our hospital with difficulty in swallowing for the last 2.5 months, gradually progressive in nature. Upper GI endoscopy showed an ulcerated lesion in the distal esophagus at 32 cm from the incisors, along with a large hiatus hernia and long-segment Barrett's esophagus. PET/CT scan showed FDG-avid, heterogeneously enhancing circumferential wall thickening with luminal narrowing in the distal esophagus (SUVmax 11.7, thickness 1.8 cm, craniocaudal length 7.4 cm) and a gastrohepatic lymph node (SUVmax 4.0, measuring 1.8 × 0.9 cm). The gastroesophageal (GE) junction appeared uninvolved. Biopsy of the lesion showed signet ring cell carcinoma.

The patient received 4 cycles of neoadjuvant chemotherapy with inj. Carboplatin (AUC 5) and inj. 5-FU (1,000 mg/m^2). After multidisciplinary evaluation, the patient was considered unsuitable for surgery because of suboptimal performance

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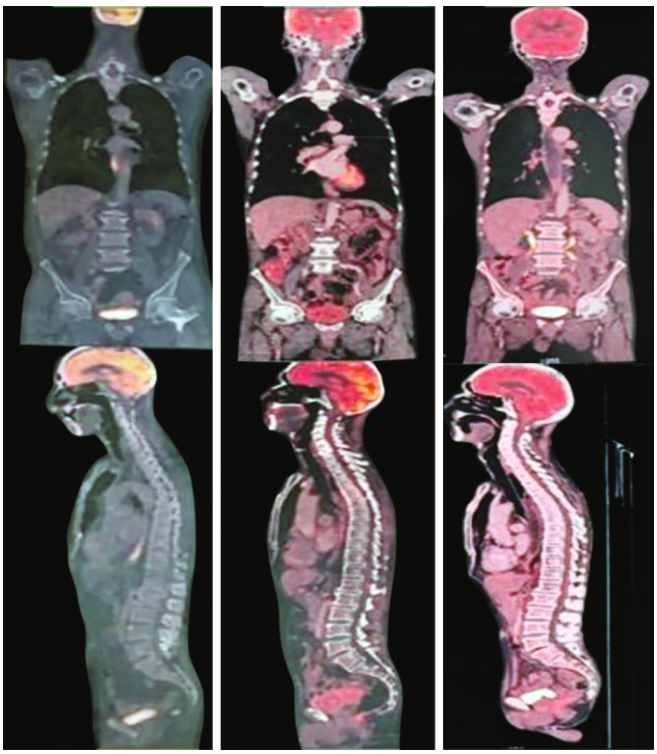

Figure 1: Serial PET/CT imaging before treatment, post-treatment response, and recurrence. (A) FDG-PET/CT demonstrating circumferential wall thickening with luminal narrowing noted in the distal esophagus (SUVmax - 11.7, thickness 1.8 cm, CC length 7.4 cm). (B) FDG-PET/CT demonstrates Non FDG avid asymmetrical circumferential mural thickening with no enhancement and mild luminal narrowing is at the distal end of esophagus, likely post RT changes. (C) FDG-PET/CT demonstrating mural thickening involving the distal oesophagus extending up to the GE junction (SUVmax - 4.0, thickness 1.3 cm, CC length 3.9 cm).

status. The patient received chemoradiation with a dose of 30 Gy in 10 fractions over 2 weeks, concomitant with inj. Paclitaxel (50 mg/m^2) and inj. Carboplatin (AUC 2) weekly.

Three months post-treatment, PET/CT scan showed non-FDG-avid circumferential mural thickening with no enhancement and mild luminal narrowing in the distal esophagus, likely post-RT changes. Thereafter, the patient was on regular 2-monthly follow-up and again developed difficulty in swallowing after 1.8 years, which was gradually progressive. Upper GI endoscopy revealed esophageal candidiasis (Kodsi Grade 1) and luminal narrowing at 35 cm of about 2–3 cm in length, and biopsy confirmed signet-ring cell carcinoma. PET/CT scan showed FDG-avid, mildly enhancing asymmetrical 1.3 cm mural thickening involving the distal esophagus extending up to the GE junction (SUVmax 4.0, length 3.9 cm).

The patient was diagnosed with recurrent signet ring cell

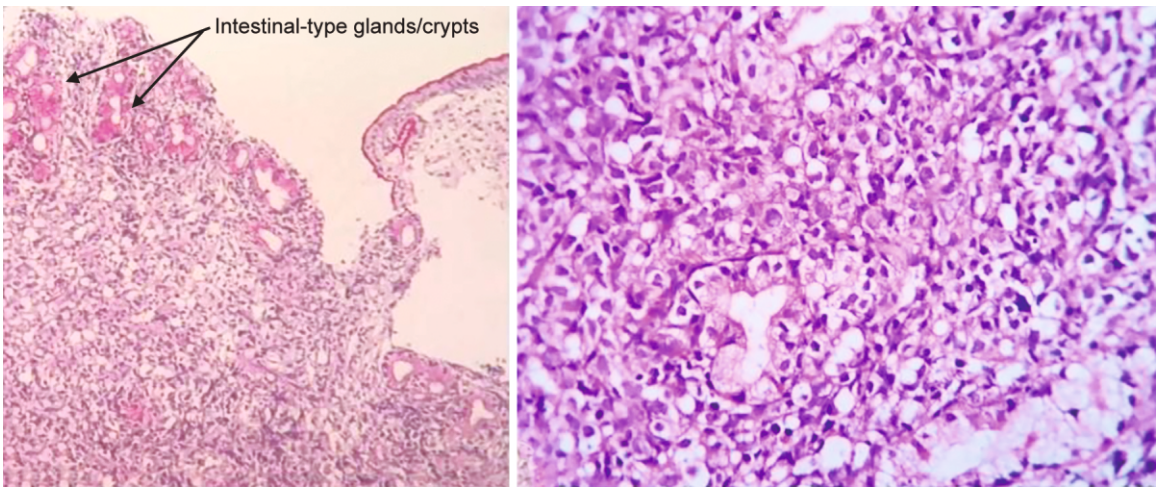

Figure 2: Histopathological features of esophageal signet ring cell carcinoma. (A) Histology (100×) shows signet ring cell carcinoma arising in a background of Barrett esophagus, characterized by replacement of distal esophageal stratified squamous epithelium with intestinal-type columnar epithelium containing goblet cells. (B) Histology (400×) shows diffuse infiltration by poorly cohesive malignant cells with abundant intracytoplasmic mucin displacing nuclei to the periphery (signet ring cells), consistent with signet ring cell carcinoma.

carcinoma of the esophagus. In view of poor performance status, the patient is currently on oral chemotherapy (Tab. Gefitinib 250 mg OD and Tab. Methotrexate 25 mg weekly).

Discussion

Signet ring cell carcinoma is a rare and aggressive form of adenocarcinoma. Western literature has estimated ESRCC to account for 3–3.5% of all esophageal cancers (6–7). Although studies in the Asian region are scarce, a study conducted in China by Chen L et al. reported signet ring cell histology in 13.4% (136 of 1015) patients with esophageal adenocarcinoma (8). Further, there is a lack of Indian data; however, one study showed that 2 females out of 38 cases of adenocarcinoma (5.3%) had ESRCC over a 2.5-year period (9).

Studies have shown that these tumors are more commonly of low and undifferentiated pathological grade and usually present at an advanced stage, which is similar to the present case report (10–12). In view of the rarity of the tumor and lack of definitive guidelines, treatment is based on adenocarcinoma histology from studies such as the 'Chemoradiotherapy for Oesophageal Cancer Followed by Surgery Study' (CROSS) (13). However, multiple small-scale studies have shown that the response to neoadjuvant chemoradiation has been suboptimal in these cases, with reduced pathological complete response rates and inferior disease-free and overall survival despite multimodality treatment (1,4,8).

Chen L et al. studied the component of signet ring cells (SRC) in patients with esophageal adenocarcinoma and found that patients in the SRC ≥50% group had a lower overall survival rate (3-year: 37.6% and 5-year: 0%). Female sex, large tumor size, and increasing TNM stage were independent prognostic factors for SRC ≥50% esophageal carcinoma patients (8). In a study by Solomon D et al., median survival in the Grade 3 adenocarcinoma group was worse in patients with SRC histology (18 months, 95% CI 8.6–27.4) than those without (30 months, 95% CI 23.8–36.1; p = 0.041) (14). However, a study by Van Hootegem SJM et al. reported no difference in overall and disease-free survival after neoadjuvant chemoradiation in the SRC group versus the adenocarcinoma group in esophageal and gastroesophageal junction carcinoma (15).

Similarly, in the present case report, there was an initial good response. Recurrence is frequent, as observed by Nafteux et al. in these tumors, similar to the present case report (7). The role of adjuvant treatment is still evolving; thus, in this case report, no adjuvant treatment was given as there was a complete metabolic response. Probably, adjuvant low-dose chemotherapy in such patients could have been an option after the initial response rather than administering it at the time of recurrence. Further studies are warranted in this group of inoperable and suboptimal performance status patients.

To the best of our knowledge, there are no studies on chemo-immunotherapy in ESRCC; thus, further follow-up in this case report and prospective studies on similar cases will help determine its role.

HER2 expression was not studied in this case report. There are also scarce studies on HER2 expression in esophageal cancer worldwide. A study by Yoon H N et al. showed that only 4 patients out of 70 ESRCC cases in a cohort of 713 patients with esophageal adenocarcinoma showed HER2 positivity (16). Similarly, a study by Thacker MM et al. on 70 Indian gastrointestinal signet ring cell tumor patients showed no HER2 positivity in 6 cases with signet ring cell morphology (17). A retrospective study by Lee et al. included 147 cases of signet ring cell carcinoma of the esophagus to evaluate prognosis. ESRCC demonstrated poorer overall and disease-free survival outcomes despite the use of contemporary induction therapies and minimally invasive surgical approaches. HER2 positivity in esophageal cancers with signet ring cell features appears to be associated with an unfavorable prognosis (18).

Despite the difficulty in deriving conclusions, this case report provides insight into developing chemoradiation protocols with definitive doses. The role of metronomic chemotherapy and immuno-therapy cannot be underestimated.

Conclusion

Signet ring cell carcinoma of the esophagus is a rare and biologically aggressive subtype with a high risk of recurrence. Chemoradiation and metronomic chemotherapy are promising; however, prospective studies with special emphasis on the quantification of SRC content are the need of the hour.

Ethical Approval

Ethical approval was not required for this case report in accordance with institutional policies. The study was conducted in compliance with the ethical standards of the institutional and/or national research committee and with the Declaration of Helsinki.

Informed Consent

Written informed consent was obtained from the patient(s) for publication of the images and associated information.

Conflict of Interest

The authors declare that they have no conflicts of interest.

Author Contributions

Case acquisition: Dr Simran Kataria, **Patient management:** Dr Rajeev Artri, Data curation: Dr Rahul, **Literature review:** Dr Simran Kataria, **Writing–original draft:** Dr Simran Kataria, **Writing–review & editing:** Dr Rahul, **Visualization/Figures:** Dr Drishti Singhla, **Supervision:** Dr Rakesh Dhankhar

Data Availability Statement

The data is not publicly available due to ethical/confidentiality/legal restrictions but can be made available by the corresponding author upon reasonable request.

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References

1. Corsini EM, Foo WC, Mitchell KG, Zhou N, Maru DM, Ajani JA, et al. Esophageal adenocarcinoma with any component of signet ring cells portends poor prognosis and response to neoadjuvant therapy. J Thorac Cardiovasc Surg. 2021;162(5):1404–1412.e2. doi:10.1016/j.jtcvs.2020.08.067
2. Kurra P, Mikkilineni J, Thungathurthi SSLC, Reddy Byreddy A, Kode R, Cherukuri H. S4354: A case of signet-cell adenocarcinoma of the esophagus. Am J Gastroenterol. 2025;120(10 Suppl 2):S931.

3. Sathe TS, Resio BJ, Hoag JR, et al. Surgically managed signet ring cell esophageal carcinomas in the National Cancer Database. Ann Thorac Surg. 2020;109:1656–1662.doi:10.1016/j.athoracsur.2020.01.021
4. Khan N, Donohoe CL, Phillips AW, et al. Signet ring gastric and esophageal adenocarcinomas: characteristics and prognostic implications. Dis Esophagus. 2020;33:doaa016.
5. Peng Z, Li F, Cheng Z, Wang K, Song Z. Comparative analysis of clinical, treatment, and survival characteristics of signet ring cell and adenocarcinoma of esophagus. J Gastrointest Oncol. 2021;12(4):1643.
6. Chen C, Wang Z, Qin Y. Prognosis prediction in esophageal signet-ring-cell carcinoma: a competing risk analysis. BMC Gastroenterol. 2023;23(1):178.
7. Nafteux PR, Lerut TE, Villeneuve PJ, Dhaenens JM, De Hertogh G, Moons J, et al. Signet ring cells in esophageal and gastroesophageal junction carcinomas have a more aggressive biological behavior. Ann Surg. 2014;260(6):1023–1029.
8. Chen L, Liu X, Gao L, Wang R, Gao D, Bai D. The clinicopathological features and prognosis of signet ring cell carcinoma of the esophagus: a 10-year retrospective study in China. PLoS One. 2017;12(5):e0176637.
9. Gupta V, Bhardwaj S, Bhagat OK. Pattern of esophageal cancer in a tertiary care hospital in North India: a clinicopathological study. Int J Res Med Sci. 2017;5(4):1405–1409.
10. Xie R, Lu G, Li L. Clinical features and prognostic factors of esophageal signet ring cell carcinoma: construction and validation of a model based on the SEER database. Transl Cancer Res. 2022;11(10):3674.
11. Lu M, Yang Z, Feng Q, et al. The characteristics and prognostic value of signet ring cell histology in gastric cancer: a retrospective cohort study of 2199 consecutive patients. Medicine (Baltimore). 2016;95:e4052.
12. Nitsche U, Friess H, Agha A, et al. Prognosis of mucinous and signet-ring cell colorectal cancer in a population-based cohort. J Cancer Res Clin Oncol. 2016;142:2357–2366.
13. Shapiro J, van Lanschot JJB, Hulshof MCCM, van Hagen P, van Berge Henegouwen MI, Wijnhoven BPL, et al.; CROSS study group. Neoadjuvant chemoradiotherapy plus surgery versus surgery alone for oesophageal or junctional cancer (CROSS): long-term results of a randomised controlled trial. Lancet Oncol. 2015;16(9): 1090–1098.doi:10.1016/S1470-2045(15)00040-6
14. Solomon D, Abbas M, Feferman Y, Haddad R, Perl G, Kundel Y, et al. Signet ring cell features are associated with poor response to neoadjuvant treatment and dismal survival in patients with high-grade esophageal adenocarcinoma. Ann Surg Oncol. 2021;28(9):4929–4940.
15. van Hootegem SJ, Smithers BM, Gotley DC, Brosda S, Thomson IG, Thomas JM, et al. The impact of signet ring cell differentiation on outcome in patients with esophageal and gastroesophageal junction adenocarcinoma. Ann Surg Oncol. 2019;26(8):2375–2384.
16. Yoon HH, Shi Q, Sukov WR, Wiktor AE, Khan M, Sattler CA, et al. Association of HER2/ErbB2 expression and gene amplification with pathologic features and prognosis in esophageal adenocarcinomas. Clin Cancer Res. 2012;18(2):546–554.
17. Thacker MM, Chiplonkar S. Frequency of HER2/neu over expression in adenocarcinoma of the gastrointestinal system, a Study of 70 cases [Internet]. IP J Diagn Pathol Oncol. 2019 [cited 2026 Jun 06];4(4):272-277. Available from: https://doi.org/10.18231/j.jdpo.2019.057.
18. Lee DN, Mazzola E, Bhagat R, Kucukak S, Bravo-Iniguez CE, Bueno R, et al. Esophageal cancer with signet-ring cell features is associated with poor prognosis in the modern treatment era: factors influencing overall and disease-free survival. Ann Esophagus. 2020;3:32.