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Case Report

Surgery Section

# Asymptomatic Orbital Metastasis from Rectal Adenocarcinoma: A Case Report

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## ABSTRACT

Orbital metastasis from colorectal carcinoma is an extremely rare presentation, especially in the absence of ocular symptoms and without involvement of more common metastatic sites such as the liver and lungs. We report a 54-year-old male presenting with chronic difficulty in defecation, occasional bleeding per rectum, and significant weight loss. On evaluation, he was found to have signet cell adenocarcinoma of the rectum with metastasis involvement of cervical lymph node and an incidentally detected asymptomatic intraconal orbital lesion with no evidence of hepatic or pulmonary metastases. The patient underwent a diverting loop ileostomy due to subacute intestinal obstruction caused by luminal narrowing caused by the rectum extending into the sigmoid colon. The patient was initiated on palliative chemotherapy but succumbed to the disease within four months of diagnosis. This case underscores the importance of thorough systemic evaluation and highlights the possibility of atypical metastatic sites even without localising symptoms.

**Keywords:** Colorectal cancer, Palliative chemotherapy, Postoperative finding, Secondary tumours, Signet ring cell adenocarcinoma

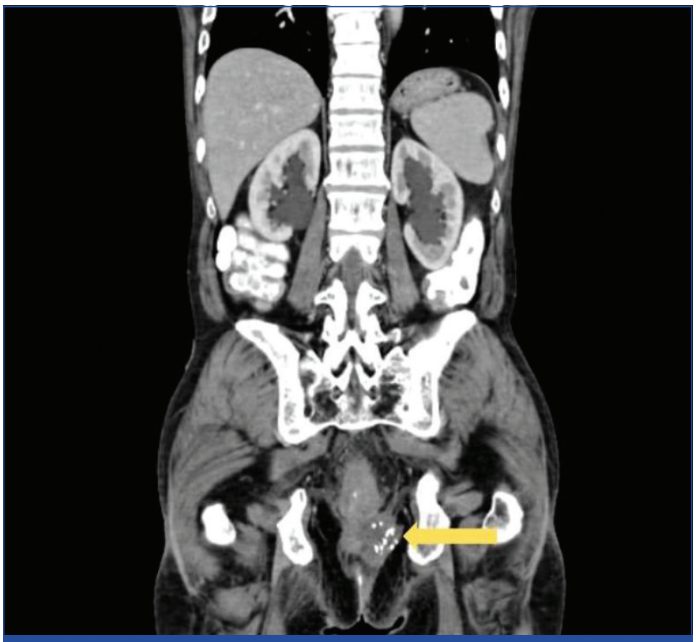
## CASE REPORT

A 54-year-old male from rural central India presented with six months of difficulty in defecation, per rectal bleeding and weight loss of 10 kg in the past year. He had a history of multiple surgeries for fistula-in-ano in the years 2009 and 2023 with alternative medicine (ayurveda), along with drainage of perianal abscess in 2017. Examination revealed a scar from previous surgery and significant anal canal stenosis. No visible external pathology was appreciated.

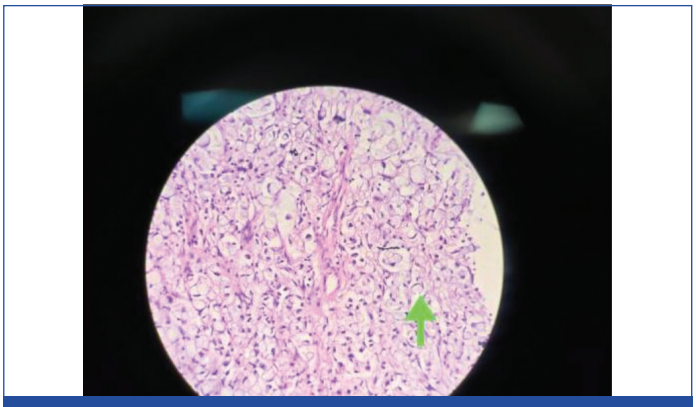
General examination identified bilateral inguinal and axillary lymphadenopathy along with a palpable left level V cervical lymph node. Routine blood tests were unremarkable except for an elevated Carcinoembryonic Antigen (CEA) value of 68.2 ng/mL.

CECT abdomen and pelvis [Table/Fig-1] showed asymmetric, circumferential wall thickening of the rectum extending into sigmoid colon (maximum thickness 1.3 cm; 8.7 cm in length) with surrounding fat stranding and obliteration of fat planes anterior to the prostate. There was subacute intestinal obstruction due to rectal wall thickening. In view of obstructive symptoms, the patient underwent a diverting loop ileostomy. There was no evidence of hepatic or pulmonary metastasis on imaging. Colonoscopic biopsy was inconclusive on two attempts, and further immunohistochemical markers could not be performed due to resource-related constraints. Biopsy of the cervical node [Table/Fig-2,3] confirmed metastatic signet ring cell adenocarcinoma. A staging CECT revealed a homogenously enhancing soft-tissue lesion in the right intraconal compartment [Table/Fig-4] without clinical ophthalmic symptoms, consistent with orbital metastasis..

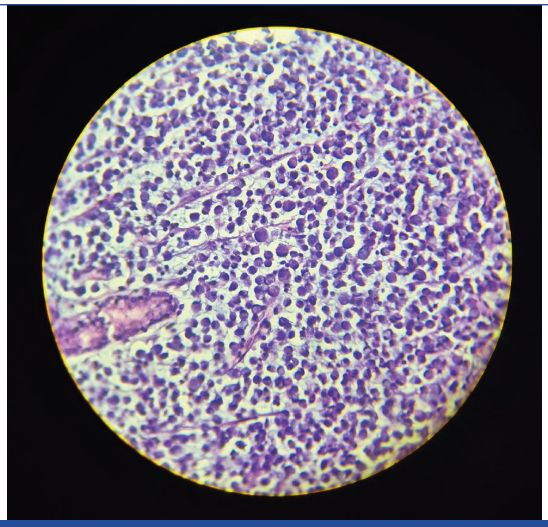
The patient was diagnosed with stage IV signet ring cell adenocarcinoma of the rectum and metastatic spread to cervical lymph nodes and right orbit; in the absence of liver and lung metastasis, the diagnosis was established. The patient was initiated on palliative chemotherapy with the FOLFOX regimen, comprising oxaliplatin, leucovorin, and 5-fluorouracil. administered at a standard 2-weekly interval, and received three cycles of treatment. No significant chemotherapy-related toxicities were documented during this period. A formal response assessment could not be performed due to early clinical deterioration.



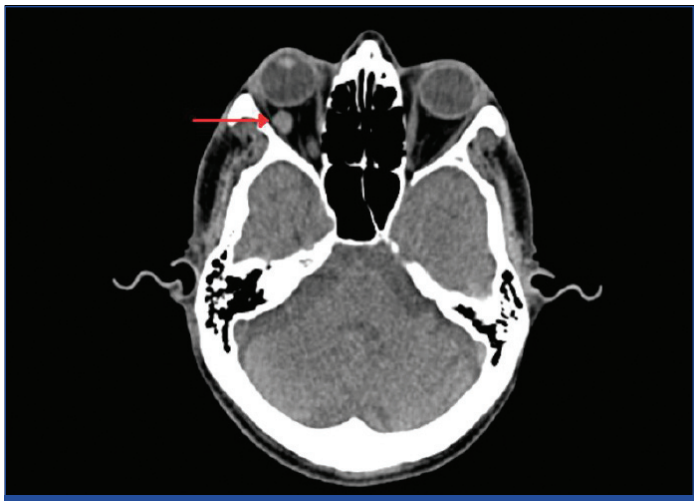
**[Table/Fig-1]:** Coronal section of CECT abdomen and pelvis shows asymmetric, circumferential enhancing thickening of the rectal wall with associated peripheral fat stranding and the yellow arrow shows an ill-defined hypodense collection with multiple coarse calcifications, all suggestive of a locally advanced rectal malignancy. The visualised liver shows no hepatic metastasis.



**[Table/Fig-2]:** Group of signet ring-shaped epithelial cells from a biopsy of the left cervical lymph node (green arrow highlighting a signet cell; 10x magnification.



**[Table/Fig-3]:** Magnification view, 100x H & E-stained tissue biopsy shows diffusely infiltrating, dispersed signet ring cells.



**[Table/Fig-4]:** CECT image of the brain demonstrates a well-defined, homogenously enhancing soft tissue lesion in the right intraconal compartment, displacing adjacent extraocular muscles without evidence of optic nerve compression or bony erosion-findings consistent with orbital metastasis (red arrow).

Radiotherapy for orbital involvement was deferred as the orbital lesion was asymptomatic. Unfortunately, despite treatment, the patient died within four months of diagnosis.

## DISCUSSION

Colorectal Cancers (CRC) rank among the most common malignancies globally. Distant metastases are frequently observed in the liver, lungs, and peritoneum. However, orbital metastasis is a rare entity, accounting for less than 5% of all orbital secondary tumours, and is more commonly associated with primaries such as breast, prostate, and lung malignancies [1,2]. Reports of CRC metastasising to the orbit are exceedingly rare, and asymptomatic presentations are even more unusual [2-6]. Most patients present with proptosis, diplopia, painful ophthalmoplegia or visual impairment; however, several reports have documented incidentally detected or asymptomatic orbital lesions during staging, indicating that orbital metastasis may occur silently in advanced CRC [7-10]. In the largest systematic review of orbital metastases, colorectal primaries account for approximately 1-2 per cent of all metastatic orbital tumours, highlighting extreme infrequency [1]. Notably, our patient had no hepatic or pulmonary metastasis, which are typically the first sites of dissemination [1,4].

Signet ring cell carcinoma, a rare histologic subtype of CRC (<1%), is known for its aggressive behaviour and early dissemination to atypical sites, possibly due to its mucin-producing phenotype that facilitates hematogenous spread [11].

Orbital metastasis requires tumour cells to undergo Epithelial-Mesenchymal Transition (EMT), enabling increased invasiveness, intravasation into vascular channels and loss of adhesions. These tumour cells, after surviving hemodynamic stress and immune surveillance, extravasate and colonise distant tissue [12]. The middle and inferior haemorrhoidal veins drain into the systemic circulation via the internal iliac and inferior vena cava, allowing tumour cells to bypass hepatic filtration and spread directly to the systemic circulation [1]. Another path provided by the Batson plexus, which provides direct communication between the pelvic and cranial venous systems, allowing tumour migration towards the cavernous sinus and ophthalmic veins even in the absence of hepatic or pulmonary metastasis [1,10]. The absence of hepatic and pulmonary involvement in our case is notable and supports the theory of skip metastasis via hematogenous dissemination, possibly aided by the mucinous nature of the signet ring cell [9,10,13-16].

The orbit is a relatively immune-privileged site with limited vascularisation, making metastases rare. When present, orbital metastasis commonly involves the extraocular muscle or the intraconal space [1]. Clinical manifestations may include diplopia, exophthalmos, vision loss, or ocular pain [1,8,17]. In most reported cases of colorectal malignancies, orbital metastases occur in widespread systemic disease, frequently with liver and lung involvement, reflecting involvement of the conventional portal systemic dissemination pattern [1,4]. However, a few cases have documented “skip metastasis”, where orbital involvement occurs without prior or concurrent hepatic or pulmonary metastasis. In these cases, patients often presented initially with ocular symptoms, typically affecting one eye, and the orbital lesion was sometimes the first indication of an otherwise occult colorectal malignancy. Histopathological examination confirmed adenocarcinoma or signet-ring cell carcinoma consistent with the primary tumour, and diagnosis relied on imaging and biopsy of the orbital lesion. These reports highlight the importance of considering orbital metastasis in the differential diagnosis of unexplained ocular symptoms, even in the absence of systemic diseases [9,10,13-16].

Orbital lesions in such contexts must be differentiated from primary orbital neoplasms, inflammatory pseudotumour, and other mimicking CT/MRI characteristics and, when accessible, histopathological confirmation [1]. In our case, biopsy of the orbital lesion was not pursued due to the conclusive diagnosis from cervical node FNAC and imaging concordance.

Management of orbital metastasis from CRC is palliative and includes systemic chemotherapy tailored to the primary, with radiotherapy reserved for symptomatic lesions [12]. Symptomatic orbital metastases often warrant radiation therapy, typically administered using external beam techniques. Standard dosing ranges from 30 to 45 Gy in 10-15 fractions, which has demonstrated favourable outcomes in symptom relief and local tumour control [12]. Although orbital radiation achieves symptom control in 70-90% of cases, its role in asymptomatic metastasis remains debateable [12]. Corticosteroids may be administered concomitantly to reduce peritumoural oedema and relieve acute symptoms [1,12]. Surgical intervention is rarely indicated except for diagnostic biopsy or severe mass effect [1,12]. Prognosis is generally poor, with reported median survival of approximately one year following orbital involvement [1,12]. Our patient succumbed to the disease within four months of being diagnosed with metastatic rectal carcinoma, underscoring its aggressive nature.

## CONCLUSION(S)

Orbital metastasis, although rare and often symptomatic, can occasionally present without clinical signs and in the absence of involvement of the liver or lungs. Early detection, even if incidental, aids in staging and guides appropriate palliative treatment with FOLFOX, which forms the backbone of metastatic CRC treatment and aims to provide modest prolongation of survival rather than cure. A multidisciplinary approach remains paramount in optimising

patient outcomes in such unusual metastatic scenarios; however, the overall response of orbital metastases to chemotherapy is variable and limited.

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