American Journal of Clinical Case Reports

ISSN: 2766-5844

Case Report

A Metachronous Virchow's Node Metastasis from Right-Sided Colon Adenocarcinoma Following Curative Resection: A Case Report

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Abstract

Background: Colorectal Cancer (CRC) commonly metastasizes to the liver and lungs. Metastasis to Virchow's Node (VN), the left supraclavicular lymph node, is rare and more frequently associated with advanced gastric cancer. Its occurrence as a metachronous solitary metastasis after curative-intent surgery for Right-Sided Colon Cancer (RSCC) is exceptionally uncommon and may reflect aggressive tumor biology.

Case presentation: We report the case of a 67-year-old male who underwent right hemicolectomy with simultaneous ablation of liver metastases for stage IV RSCC. Five weeks postoperatively, he developed a left supraclavicular lymphadenopathy. Biopsy revealed metastatic adenocarcinoma consistent with colorectal origin. This unexpected finding prompted a shift in management from adjuvant (curative-intent) therapy to palliative systemic chemotherapy.

Conclusion: This case illustrates a rare metastatic pattern of RSCC and highlights the prognostic significance of Virchow's node involvement, even when presenting as an isolated lesion following apparently successful surgical treatment. Awareness of such atypical dissemination routes is crucial for timely diagnosis and appropriate therapeutic decision-making.

Keywords: Virchow's node; Colon adenocarcinoma; Right-sided colon cancer; Metachronous metastasis; BRAF V600E mutation

Introduction

Colorectal Cancer (CRC) is one of the leading causes of cancer-related mortality worldwide, with metastases most commonly involving the liver and lungs [1]. Virchow's Node (VN), the left supraclavicular lymph node, functions as a sentinel node for thoracic and abdominal malignancies (Troisier's sign). Although classically associated with advanced upper gastrointestinal cancers, VN metastasis arising from CRC is uncommon [2,3]. Cases originating from right-sided colon cancer - particularly presenting as metachronous lesions following curative-intent treatment are exceptionally rare. This report describes such an unusual presentation and highlights the implications for tumor biology, prognosis, and subsequent management.

Case Presentation

A 67-year-old male, functionally independent, presented with a 6-month history of progressive asthenia. His past medical history included hypertension, dyslipidaemia, and Benign Prostatic Hyperplasia (BPH). Laboratory studies revealed significant anaemia (haemoglobin 8.1 g/dL; reference range 13.0-17.0 g/dL). Colonoscopy identified a large, ulcerated lesion in the proximal ascending colon, and biopsy confirmed a well-differentiated adenocarcinoma.

A thoracic abdominal pelvic Computed Tomography (CT-TAP) scan confirmed the primary tumor and identified a solitary 26-mm hepatic lesion suspicious for metastasis. Serum Carcinoembryonic Antigen (CEA) was elevated at 11.1 ng/mL (reference <5.0 ng/mL for non-smokers). A subsequent liver biopsy confirmed metastatic adenocarcinoma.

The case was discussed at a multidisciplinary oncology meeting, and the patient underwent single-stage laparoscopic right hemicolectomy with simultaneous intraoperative microwave ablation of the liver metastasis with curative intent. The postoperative course was uneventful. Final histopathology revealed a pT3N2b adenocarcinoma (20/30 positive lymph nodes) with lymph vascular invasion (LVI+). Molecular profiling of the primary tumor demonstrated a BRAF V600E mutation and RAS wild-type status.

Five weeks after discharge, the patient developed a newly palpable, painless left supraclavicular nodule measuring 22 mm. Ultrasound-guided fine-needle aspiration revealed metastatic adenocarcinoma consistent with intestinal origin, confirming Virchow's node metastasis (Figures 1 and 2). A restaging CT-TAP scan showed no new hepatic, intra-abdominal, or pulmonary lesions at that time.

Given the new metastatic finding, the treatment strategy shifted from adjuvant (curative-intent) therapy to palliative systemic therapy. First-line treatment with FOLFIRI plus bevacizumab resulted in disease progression after six months. The regimen was subsequently switched to second-line therapy with encorafenib and cetuximab.

Citation: Vieira B, Ribeiro A, Pinto-de-Sousa J. A Metachronous Virchow's Node Metastasis from Right-Sided Colon Adenocarcinoma Following Curative Resection: A Case Report. Am J Clin Case Rep. 2025;6(3):1112.

Publisher Name: Medtext Publications LLC

Manuscript compiled: Dec 18th, 2025

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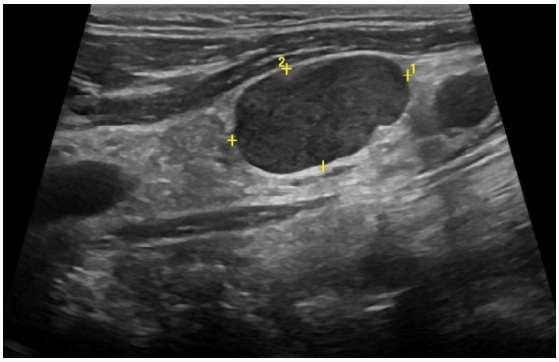

Figure 1: Ultrasound imaging of the left supraclavicular lymph node (sagittal view) showing a 22-mm, well-defined hypoechoic mass.

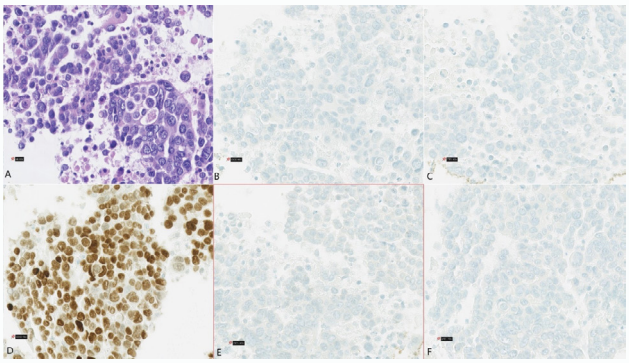

Figure 2: The left supraclavicular lymph node biopsy exhibited morphological and immunohistochemical features consistent with metastatic colorectal adenocarcinoma. A: Hematoxylin & eosin staining (×40) showing atypical epithelial cells arranged in irregular clusters with enlarged, pleomorphic nuclei and prominent nucleoli; B: Cytokeratin 20 (CK20, ×40) with weak/absent staining; C: Thyroid transcription factor-1 (TTF-1, ×40) negative; D: CDX2 (×40) showing strong nuclear positivity, supporting colorectal origin; E: Cytokeratin 7 (CK7, ×40) negative; F: p40 (×40) negative.

Discussion

The development of Virchow's Node (VN) metastasis in a patient with RSCC is extremely rare. The typical lymphatic drainage of the right colon follows the superior mesenteric vessels to the liver via the portal circulation. Subsequent drainage to the systemic circulation through the thoracic duct and the left supraclavicular nodes is uncommon, especially when compared to upper gastrointestinal cancers [4,5].

In this patient, initial presentation included a solitary liver metastasis without VN involvement; the metachronous and rapid development of cervical metastasis after successful R0 resection is exceptional. This highlights both an unusual metastatic pathway and aggressive tumor biology.

The significance of this case lies in the atypical metastatic pathway and the fundamental shift in the patient's prognosis. The presence of distant nodal metastasis is an indicator of advanced, often incurable, disease [6]. This event transitioned the management intent from adjuvant/curative to palliative. The identification of the BRAF V600E mutation is a critical aspect, as these mutations are associated with a poorer prognosis and aggressive disease course in CRC [7]. The molecular profile guided the initial decision to use a Bevacizumab-based regimen, as anti-EGFR antibodies are ineffective in the presence of this mutation [8,9].

This case serves as a crucial reminder for clinicians that meticulous follow-up is necessary, even after successful R0 resection of primary and solitary metastatic lesions [10,11]. A high index of suspicion for atypical recurrence sites, such as the VN, is vital for timely diagnosis and management adjustment.

Conclusion

Virchow's node metastasis is an uncommon manifestation of right-sided colon cancer. This case demonstrates a rare and rapid metachronous presentation following curative-intent surgery. Clinicians should be aware of such aggressive tumor behaviour, particularly in patients with LVI and genetic markers such as the BRAF V600E mutation. The presence of VN metastasis necessitates a shift to palliative management, highlighting its significance as a key prognostic indicator in colorectal oncology.

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