

# Cutaneous metastasis of signet-ring cells colorectal adenocarcinoma. A case report.

Arianne I. Lupián Angulo M.D.  
 Gabriela Rodríguez Ruíz M.D.  
 Cynthia Mariel Lupián Angulo M.D.  
 Christian Enrique Soulé Martínez M.D.

Mexico City, Mexico.

## Case Report

General Surgery



**BACKGROUND.** Colorectal cancer (CRC) is a common tumor in the general population, however the overall incidence has decreased due to the implementation of early detection guidelines. The presence of cutaneous metastasis in colorectal adenocarcinoma occurs in only 0.5% of cases, without specific characteristics, and can be underdiagnosed as benign lesions. The presence of cutaneous lesions secondary to colorectal adenocarcinoma implies advanced stages of the disease. The histopathological study accompanied by an immunohistochemical panel is essential to differentiate CRC. Unfortunately, the presentation of cutaneous metastasis confers a poor prognosis for the patient and high short-term mortality. We report the case of a female patient with a single skin lesion on the right arm as the initial manifestation of colorectal adenocarcinoma.

**Key words:** Cutaneous metastasis, colorectal adenocarcinoma, signet-ring cells.

**KEY WORDS:** Colorectal cancer, signet-ring cells, cutaneous metastasis.

## Introduction

Colorectal cancer (CRC) is a tumor with high mortality, it is the fourth most frequent cancer in the general population, is the second in women and the third in men worldwide. The overall incidence of CRC has decreased in recent decades due to the implementation of effective screening guidelines and detection of primary tumors.<sup>1</sup> Its dissemination can be through contiguity, lymphatic, peritoneal and hematogenous routes, being the liver the site of greatest metastatic involvement.<sup>2</sup> The incidence of cutaneous metastasis in colorectal adenocarcinoma is extremely rare, occurring only in 0.5% of cases.<sup>3</sup> These skin manifestations occur most frequently in the abdomen, periumbilical region, scalp, and face as erythematous, skin-colored, and often painful nodules.<sup>4</sup> It is generally expressed as a late event in the course of the disease and only in 0.8% appears as the first manifestation of the disease.<sup>5</sup> This often indicates a poor prognosis, further complicating treatment. Clinically, skin metastasis do not present specific characteristics, so they can be underdiagnosed by mimicking simple cysts, benign connective tissue lesions, granuloma, or subcutaneous nodules. The histopathological study of the skin lesion, the presence of elevated CEA (carcinoembryonic antigen), accompanied by an immunohistochemical panel,

cytokeratin 20 (CK20) may be useful for the differentiation of CRC.<sup>6</sup>

We comment the case of a patient with colorectal adenocarcinoma who presents a single skin lesion on the right arm, without prior knowledge of a primary tumor.

## Case report

A 77-year-old female was seen in general surgery service for a 3-month dermal lesion on the right arm, nodular, 3x3 cm oval, stony-hard and painful on mobilization. An ultrasound was performed, reporting a heterogeneous image of predominantly hypoechoic alternating with anechoic areas, irregular edges, with posterior sonic enhancement, approximate volume 7ml, which infiltration to biceps brachii (Figure 1). The study protocol for excisional biopsy began; however, she went to the emergency department a week later due to abdominal pain in the left hemiabdomen without added symptoms. Abdominal CT scan with contrast was performed where Hinchey Ia diverticulitis was reported, as well as multiple hypodense images (15 HU in simple phase) lobulated with peripheral enhancement to the passage of contrast, located in the peritoneum and

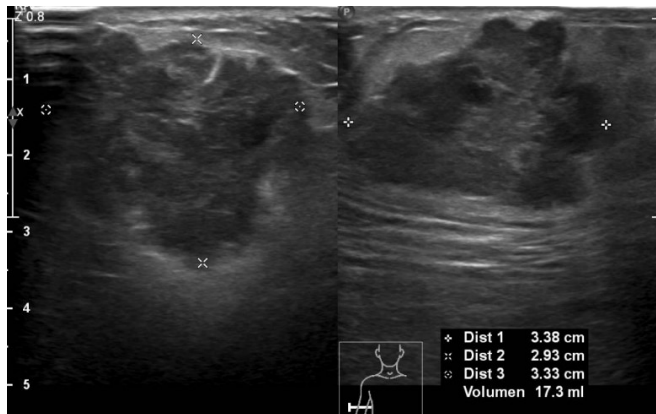


Figure 1. Right arm ultrasound

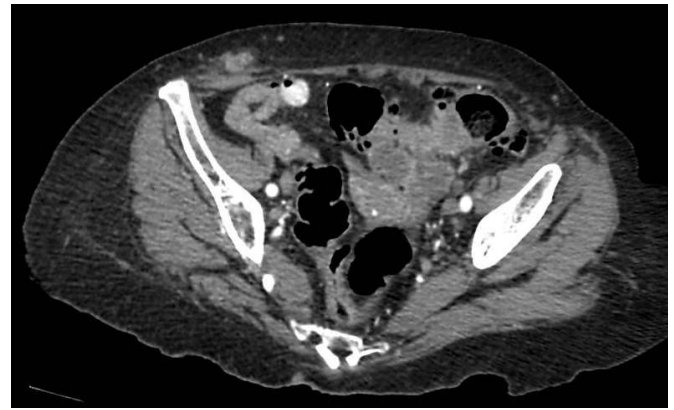


Figure 2. Abdominal CT scan with metastatic disease.

retroperitoneal cavity with a variable diameter of up to 19.7x17.7mm in relation to neoplastic implants from a primary unknown (Figure 2). An extension tomography was performed, showing a nodule at the level of the soft tissues of the right arm with a metastatic appearance (Figure 3). An excisional biopsy of the skin lesion on the right arm was performed (Figure 4), histopathological reports of poorly differentiated adenocarcinoma with signet-ring cells and necrosis of 70% with infiltration of subcutaneous cell tissue and skin, immunohistochemical techniques CK 20 positive, CDX2 positive (Figure 5A, B, C). Tumor markers were performed, alpha-fetoprotein 844.1ng/ml, CA19.9 2.06 U/ml, CA 125 18.2ng/ml and rectosigmoidoscopy showing a tumor at the sigmoid level that occluded 80% of the intestinal lumen. During her hospitalization with poor evolution, she presented cardiorespiratory arrest and death during the same hospitalization.

## Discussion

In CRC, cutaneous metastasis generally present after identification of the primary tumor, it is extremely rare before identification of the primary tumor, and in the absence of liver metastasis; however, few cases with only cutaneous metastasis have been described.<sup>7</sup> Soft tissue constitutes approximately 55% of our body mass, however, metastasis in these areas are rare. The prevalence of cutaneous metastasis of visceral tumors represents only 2% of skin tumors and they frequently appear together with metastasis in other organs.<sup>8</sup> The mechanism of cutaneous metastasis is not well understood, however, several theories have been proposed, including direct, hematogenous or lymphatic dissemination, along ligaments of embryonic origin, and implantation of tumor cells.<sup>9</sup> The frequency of cutaneous metastasis has increased due to the improved survival of cancer patients, better therapeutic alternatives and the increase in the life expectancy in the general population. According to the literature, it is reported that melanoma, breast cancer

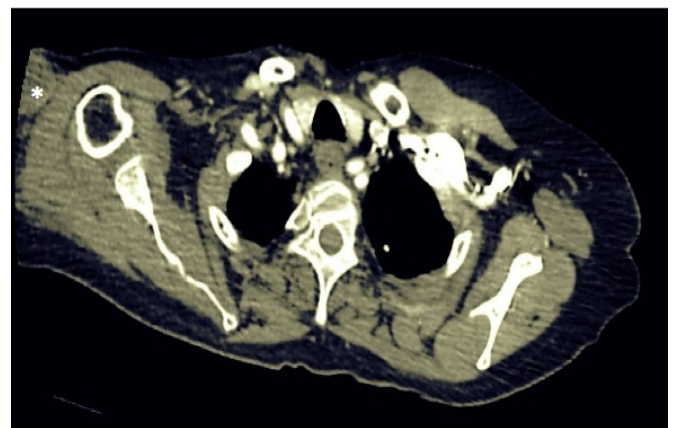
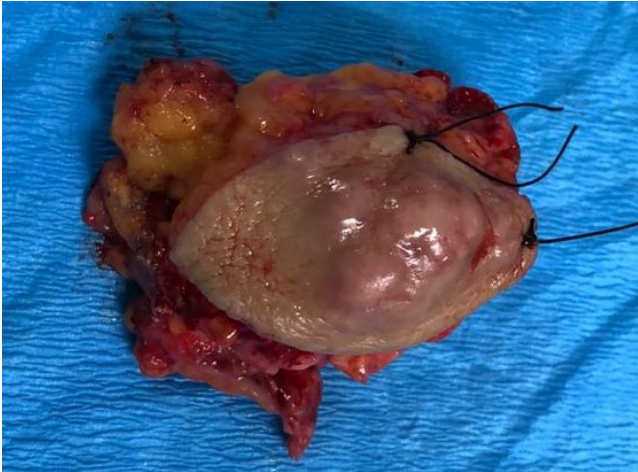


Figure 3. Thoracic CT scan showing right arm a subcutaneous nodule. It measured 3.5 x 2.9cm.

and cancers of the upper respiratory tract are the ones that most frequently metastasize to the skin, on the contrary, CRC rarely causes cutaneous metastases. The presence of cutaneous metastasis from colorectal adenocarcinoma is considered a poor prognosis because at the time of diagnosis there is an advanced neoplastic stage, with a survival after diagnosis of 1 to 34 months.<sup>10</sup> These lesions do not present specific characteristics; they are generally subcutaneous or intradermal nodules of 1–2cm in diameter, initially asymptomatic, without epidermal changes, which can be confused with benign skin pathology.<sup>11</sup>

The diagnosis and follow-up of solitary nodules, cellulitis, and other skin disorders in an apparently healthy person may mark the difference between a timely diagnosis of an unknown primary tumor and specific treatment.<sup>12</sup>

When skin involvement is suspected, excisional biopsy or fine needle aspiration may be used to obtain a histopathological diagnosis. Occasionally, the histopathological report can only classify the lesion as metastatic adenocarcinoma, squamous cell carcinoma or undifferentiated, making it impossible to determine the site of the primary tumor; however, there are certain histological clues that suggest the site of the primary cancer. The presence of signet-ring cells is seen mainly in



**Figure 4.** Surgical specimen after radical excision with margins free of neoplastic infiltration.

metastasis of the gastrointestinal tract, although it can occur in lung carcinoma, breast, bladder and melanoma.<sup>13</sup> Currently there are a wide variety of antibody panels, genetic tests and immunohistochemical panels such as CK7+ and CK20- that can be useful for the diagnosis of colorectal adenocarcinoma.<sup>14</sup> Presenting skin manifestations associated with CRC represents in most cases an advanced stage of the disease, and the treatment is usually palliative. A multidisciplinary approach is crucial to avoid unnecessary surgical procedures and ensure optimal patient management.

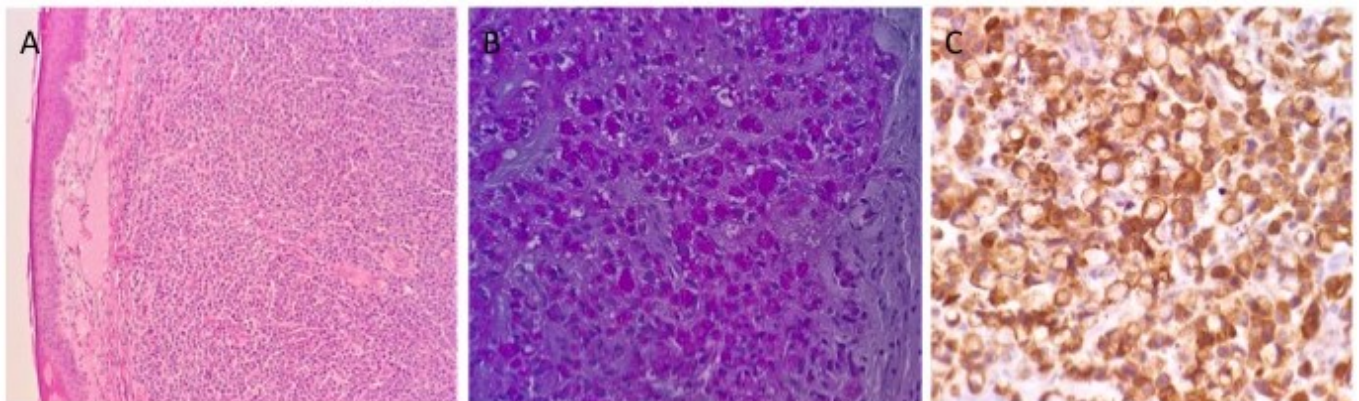
## Conclusion

Cutaneous CRC metastasis are extremely rare, it is necessary a high index of suspicion for early detection as they may remain unnoticed for a long period. Given the suspicion of skin metastasis, it is essential to perform a biopsy to confirm the diagnosis and thus stage the disease and consider the best therapeutic management, which may be medical or

surgical. We experienced a rare case of cutaneous metastasis to the right arm at the initial diagnosis of colorectal adenocarcinoma. Consideration of the possibility of internal malignancy when diagnosing skin tumors is important. Treatment options should include wide local excision if it is a solitary lesion or systemic chemotherapy if there are multiple sites of metastasis. Unfortunately, the presentation of cutaneous metastasis confers a poor prognosis for the patient and high short-term mortality.

## Conflicts of interests

There was no conflict of interest during the study, and it was not funded by any organization.



**Figure 5.** Histopathologic findings of the surgical resected sample. A. Poorly differentiated adenocarcinoma was detected. B. Adenocarcinoma with signet-ring cell, PAS staining. C. Immunohistologic staining of CK20 positive.



## References

1. Junak M, Jecius H, Erdrich J. Cutaneous metastasis in the setting of both colon and breast primary malignancies. Case report. *Gastrointest Med*. 2020;29:8852459.
2. de Miguel Valencia MJ, Fraile González M, Yagüe Hernando A, Oteiza Martínez F, Ciga Lozano MA, Armendáriz Rubio P, de Miguel Velasco M, Ortiz Hurtado H. Cutaneous metastases of rectal cancer. *An Sist Sanit Navar*. 2013;36(3):557-61.
3. Fragulidis GP, Vezakis A, Derpapas MK, Michalaki V, Tsagkas A, Polydorou AA. Cutaneous metastatic adenocarcinoma of the colon to the scalp. *world j oncol*. 2015;6(1):304-307.
4. González-Lois C, Rodríguez-Peralto JL, Serrano-Pardo R, Martínez-González MA, López-Ríos F. Cutaneous signet ring cell carcinoma: a report of a case and review of the literature. *Am J Dermatopathol*. 2001;23(4):325-8.
5. Martínez-Luna E, Puebla-Miranda M, Vega-Memije ME. Skin metastasis of gastric adenocarcinoma. Case report. *Rev Gastroenterol Mex*. 2009;74(4):362-5.
6. Liao XY, Liu CY, Liang LB, Du JR, Zhang T. Cutaneous and breast metastasis from colorectal adenocarcinoma: A rare case report. *Mol Clin Oncol*. 2019;11(2):143-146.
7. Gupta SS, Singh O. Carcinoma colon presenting as cutaneous metastasis to an old operative scar of hysterectomy. *J Cancer Res Ther*. 2010;6(3):316-7.
8. Wright PK, Jha MK, Barrett PD, Bain IM. Colonic adenocarcinoma presenting as a cutaneous metastasis in an old operative scar. *J Postgrad Med* 2003;49:157-8
9. Wang DY, Ye F, Lin JJ, Xu X. Cutaneous metastasis: a rare phenomenon of colorectal cancer. *Ann Surg Treat Res*. 2017;93(5):277-280.
10. Nashan D, Müller ML, Braun-Falco M, Reichenberger S, Szeimies RM and Bruckner-Tuderman L: Cutaneous metastases of visceral tumours: A review. *J Cancer Res Clin Oncol* 2009;135: 1-14
11. Frías G, Hierro, Hierro S, Miranda A. Metástasis cutáneas, *Dermatología Rev Mex* 2006;50:60-68
12. Schwartz RA. Histopathologic aspects of cutaneous metastatic disease. *J Am Acad Dermatol*. 1995;33(4):649-57.
13. Cytokeratins 7 and 20 expression in differentiating colorectal adenocarcinomas from extraintestinal gastrointestinal adenocarcinomas: Cytokeratin 7-/20+ phenotype is more specific than CDX2 antibody. *Diagn Pathol* 2012;7:9

Arianne I. Lupián-Angulo  
Mexico City, Mexico  
arianne.lupian@gmail.com