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Cutaneous Metastases of Ampullary Adenocarcinoma: Case Report and Literature Review

Rosales-Sotomayor A[1], Castro-Molina SA[1], Méndez-Flores S[1*], Durand-Muñoz[1], Carrillo-Cordova DM[1], Rosas-Camargo V[2], Dominguez-Cherit J[1] and López-Loya R[1]

[1]Department of Dermatology. Instituto Nacional de Ciencias Médicas y Nutrición "Salvador Zubirán, Avenida Vasco de Quiroga 15, Colonia Belisario Domínguez Sección XVI, CP 14080, Mexico City, Mexico.
[2]Department of Oncology. Instituto Nacional de Ciencias Médicas y Nutrición "Salvador Zubirán, Avenida Vasco de Quiroga 15, Colonia Belisario Domínguez Sección XVI, CP 14080, Mexico City, Mexico

[*]**Corresponding author:** Méndez-Flores S, Department of Dermatology. Instituto Nacional de Ciencias Médicas y Nutrición "Salvador Zubirán, Avenida Vasco de Quiroga 15, Colonia Belisario Domínguez Sección XVI, CP 14080, Mexico City, Mexico, Tel: 00212674029977; E-mail: silvia.mendezflores@gmail.com

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Abstract

Cutaneous metastases occur in 1% to 10% of patients with metastatic disease. Their recognition is important due to prognostic implications. The most frequently observed cutaneous metastatic cancers are breast, lung, colon, and melanoma with a wide variation in morphology of lesions, and generally they imply a poor prognosis. We present a rare case of a 64-year-old woman with cutaneous metastases on the scalp from ampullary carcinoma and long-term follow-up.

Keywords: Cutaneous metastasis; Cancer; Ampullary carcinoma

1. Case Report

A 64-year-old woman known for stage IIA (pT3 pN0 M0) ampullary adenocarcinoma with pancreatobiliary phenotype, underwent Whipple procedure in September 2014 and received gemcitabine as adjuvant chemotherapy. In July 2018, she developed systemic recurrence with mediastinal disease and superior vena cava syndrome and received first-line palliative chemotherapy with cisplatin/5-fluorouracil (5FU), the best response was stable disease. In October 2020 she presented with a 2-month history of rapidly growing scalp lesions on the occipital and left parietal region. Two erythematous nodules, with meliceric crust and firm consistency on palpation were found, the largest one measured 2 cm. (FIG. 1a, b) Dermoscopy revealed

a central ulcer, white and pink areas some structureless areas, serpentine, comma-shaped, and arborizing vessels (FIG. 1c). A skin biopsy showed nests of moderately differentiated neoplastic cells arranged in a glandular pattern (FIG. 1d,e). Immunohistochemical analysis was positive for CK2, CK19, CDX2, but negative for CK20, compatible with pancreatobiliary carcinoma (FIG. 1f,g). After skin involvement was confirmed, she started second-line chemotherapy with irinotecan.

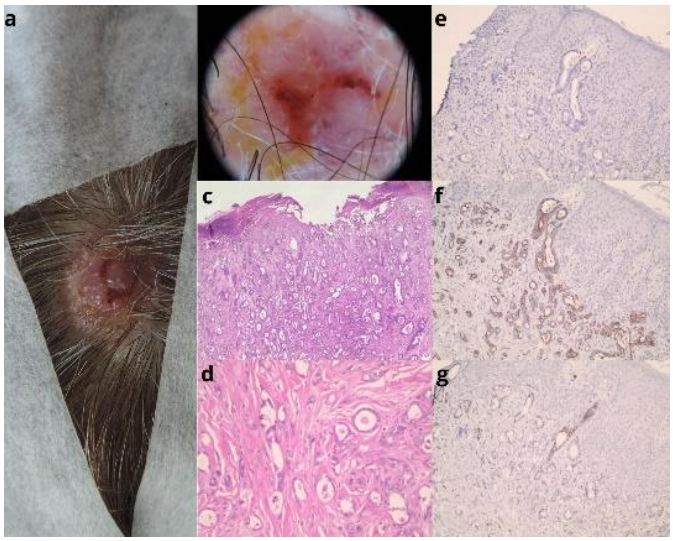

FIG. 1. **1a. Image on the occipital region with erythematosus nodule diameter of 2 cm, well defined borders with meliceric and hematic crust and firm consistency and irregular on palpation. 1b. Dermatoscopy, central ulcer, white and pink areas some structureless areas, as well as serpentine, comma-shaped, and arborizing vessels. 1c. Biopsy, nests of moderately differentiated neoplastic cells arranged in a glandular pattern. 1d. Close up of nests of moderately differentiated neoplastic cells. 1e. CD20 positive. 1f. CK7 positive. 1g. CDX2 positive.**

2. Discussion

Incidence of skin metastases from any cancer depends upon the particular malignancy. The highest incidence is observed in metastatic melanoma in which up to 45% of patients can develop skin metastases [1]. In general, they may appear as multiple or single nodules, plaques, ulcers, inflammatory or sclerodermoid lesions, it may be the first sign of recurrent disease, with 75% of patients also having visceral metastases [2]. Schulman et al. [3] recently reported the variation in the local immunologic environment. They demonstrated that regulatory T cell (Treg) density and CD4:CD8 ratio vary across regions. Since Tregs are localized in hair follicles, areas with relatively high Treg density and increased CD4:CD8 ratio include the head and neck. These areas may be permissive to tumor growth, making them sites most frequently affected per surface area unit. Dissemination may occur hematogenously or through the lymphatics, it has been suggested that the vascularity of the scalp and possible dissemination through the vertebral venous system may be contributing factors.

On dermoscopy skin metastases show a high prevalence of a vascular pattern composed mainly by serpentine or linear irregular vessels, followed by arborizing vessels, and polymorphous pattern, consistent with the ability of a tumor to produce and recruit new capillaries [2]. Cutaneous metastasis can cause considerable morbidity secondary to infection, bleeding, disfigurement, and pain. Systemic therapy alone often has limited efficacy, but skin directed therapy may be potentially useful for symptom palliation, although it will not change the prognosis.

Ampullary carcinoma represents less than 1% of gastrointestinal cancers. Curative surgery is possible for those with localized disease, however, most of the patients will eventually develop recurrent disease. Palliative chemotherapy has variable response rates ranging from 10%-40% and an overall survival of 8.1-20.4 months [4].

There are only a few cases of cutaneous metastases of ampullary carcinoma, most of them involved the head and neck except for the case reported by Cho et al. [5], in which the thumb and middle finger were affected. Recently, Fernandez-Flores [6] described the case of a 57-year-old woman with a scalp metastasis diagnosed 4 years before, she died 2 years after the diagnosis from widespread disease.

In our case, cutaneous metastases were seen 50 months after initial diagnosis. It suggests that skin involvement could be seen more frequently in long-term survivors. This emphasizes the importance of dermatological examination in these patients in order to identify and treat appropriately.

In conclusion, we presented a case with unusual metastatic spread in a patient with ampullary carcinoma. Despite the rarity, it is relevant to take into account that some patients with prolonged survival may develop skin metastases and is mandatory a high index of suspicion.

TABLE 1. **Cases reported by the literature review.**

Case	Age/Sex	Location	Immunohistochemistry	Time from initial diagnosis	Follow-up
Cho et al. [5]	71/M	Left thumb and right middle finger	TTF-12, PSA2, MUC22. CK202, MUC1+, CK7+	27 months	Death 8 months after cutaneous metastasis
Lamarca et al. [7]	72/M	Cervical and thoracic regions	-	16 months	3 years. Alive under systemic oncological treatment.
Liu et al. [8]	55/M	Neck (surgical scar), chest wall, flank, and back	CK7+, CK202	12 months	Death 8 months after cutaneous metastasis.
Bansal et al. [9]	45/F	Forehead	-	12 months	Lost to follow-up after 6 months
Fernandez-Flores et al. [6]	57/F	Frontal scalp	CK7+, p632, CK5/62, E-cadherin+, CDX2+	48 months	Death 2 years after cutaneous metastasis
Current case	64/F	Occipital and parietal scalp	CK2+, CK19+, CDX2+, CK20-	50 months	Alive in palliative radiotherapy, 22 months after cutaneous metastasis

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