References

1. Afifi L, Sanchez IM, Wallace MM, Braswell SF, Ortega-Loayza AG, Shinkai K. Diagnosis and management of peristomal pyoderma gangrenosum: a systematic review. J Am Acad Dermatol. 2018;78:1195–204, e1.
2. Le ST, Wang JZ, Alexanian C, Ellis S, Martinez-Alvarado YC, Johng S, et al. Peristomal pyoderma gangrenosum: an exceedingly rare and overdiagnosed entity? J Am Acad Dermatol. 2019;81:e15.
3. Almutairi D, LeBlanc K, Alavi A. Peristomal skin complications: what dermatologists need to know. Int J Dermatol. 2018;57:257–64.
4. Barton VR, Le ST, Wang JZ, Toussi A, Sood A, Maverakis E. Peristomal ulcers misdiagnosed as pyoderma gangrenosum: a common error. J Eur Acad Dermatol Venereol. 2020;34:e108–10.
5. Limandjaja GC, Belien JM, Scheper RJ, Niessen FB, Gibbs S. Hypertrophic and keloid scars fail to progress from the CD34-/α-smooth muscle actin (α-SMA)+ immature scar phenotype and show gradient differences in α-SMA and p16 expression. Br J Dermatol. 2020;182:974–86.

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Is Merkel cell carcinoma associated with high and chronic arsenic dose exposure?*

Dear Editor,

Merkel cell carcinoma (MCC) is a highly aggressive primary cutaneous tumor of neuroendocrine origin. It occurs predominantly in Caucasian male adults in photo-exposed areas. Despite being a rare tumor with an incidence of 0.1–1.6 cases per 100,000 habitants, diagnostic yield has increased these numbers.[1] We present a Hispanic man in his 70 s from the Northern region of Mexico, known for high levels of arsenic in its water, presented at our clinic for evaluation of a localized dermatosis. He had a family history of maternal breast cancer and stomach cancer in his 2 sisters. Physical examination revealed multiple painless and rapidly growing flesh-colored and red-violaceous nodules on the right axillary region (Fig. 1). This began 2 months prior, accompanied by weight loss and fatigue. He had not sought medical attention before. Dermoscopic findings (polarized light) demonstrated milky pink and white structureless areas. An excisional skin biopsy was performed (Fig. 1). Histopathology revealed a flattened epidermis due to a nodular infiltrate located in the papillary and reticular dermis. At a higher magnification, the cluster of cells appeared monotonous with an epithelioid/lymphomyeloid appearance with abundant mitosis. Most cells had a loss of the nucleus-to-cytoplasm ratio, but they still retained an abundant cytoplasm with a prominent nucleus. Immunohistochemistry stained positive for AE1/AE3, CK20 (Fig. 2), and synaptophysin. Negative immunohistochemistry included CK7, SOX-10, S100, HMB45, CD45, TTF-1, vimentin. The clinical, pathological and immunohistochemical findings were consistent with Merkel cell carcinoma. Merkel cell carcinoma has been associated with exposure to ultraviolet radiation, immunosuppression, and polyomavirus infection.[2] Diagnosis is made with immunohistochemistry which also helps make a distinction from histologically similar tumors. Dermatopathology shows a nodular or diffuse infiltrate composed of small blue cells with hyperchromatic nuclei and scarce cytoplasm. Mitoses are frequently abundant, and apoptosis is often widespread. 2 AE1/AE3, CK20, synaptophysin chromogranin, neuron-specific enolase and neurofilament stains are positive; CK7, TTF1, CDX2, S100, CD45, and vimentin are negative.[2] The main differential diagnoses before immunohistochemistry include metastatic neuroendocrine carcinoma (TTF1+, CK7+, CK20−), small cell melanoma (S100+, Melan-A/MART1+, HMB45*, SOX10*, vimentin+, CK20−) and lymphoma (CD45+, CD43+, CD3+, CD20+, CK20−, chromogranin−, synaptophysin−).[2] Exposure to high rates of arsenic in the environment or from contaminated water has been associated with an increased incidence of malignancies. Very few MCC cases (a total of 14) have been associated with arsenic.[3–5] The treatment of choice in the early stages is surgical excision accompanied by radiotherapy. In advanced stages, there is no established curative therapy, relying on palliative chemotherapy.[2] It has a low survival rate even when tumors are localized or treated with new therapies such as immunotherapy targeting Programmed cell Death-1 (PD-1) or its Ligand (PD-L1).[1] Our patient refused to receive any therapies. He developed cutaneous metastasis and involvement of internal organs in one month and died two months later. The patient's family and personal history of malignancies made us rethink the relationship between the environment in his native region and the development of Merkel carcinoma. They were native to Torreon, Coahuila, Mexico, a geographic zone with high arsenic levels. More objective evidence is required regarding this possible association. We intend to awaken an interest on Merkel pathogenesis and environmental factors.

* Study conducted at the Dermatology Department, Universidad Autonoma de Nuevo Leon, Facultad de Medicina y Hospital Universitario ''Dr. José E. Gonzalez'', Monterrey, Mexico.

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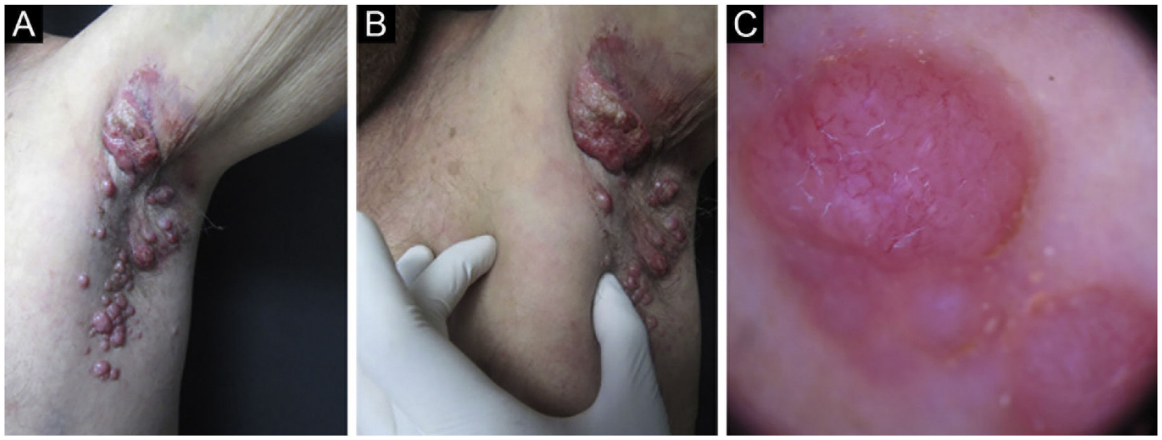

Figure 1 (A) Clinical image showing multiple flesh-colored nodules in the right axillary region. (B) The lesion a couple of weeks after initial presentation. (C) Dermoscopy of the axillary nodules showing irregular vessels.

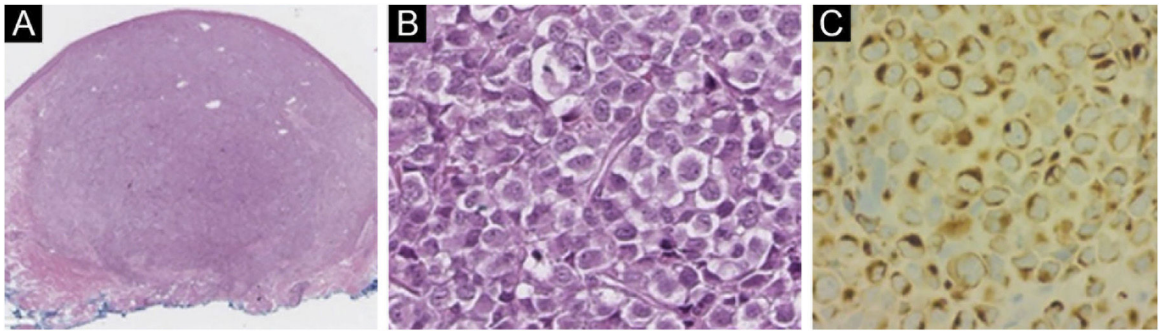

Figure 2 (A) Specimen (10× magnification) with hematoxylin-eosin showing a well-defined non-encapsulated tumor in the dermis (Hematoxylin eosin). (B) A magnification (200×) with hematoxylin-eosin showing small to medium monotonous cells with an epithelioid/lymphomyeloid appearance and abundant mitosis. (C) CK20 (200× magnification) immunohistochemistry in perinuclear dot-like pattern.

Authors' contributions

Irving Llibran Reyna-Rodríguez: The study concept and design; data collection, or analysis and interpretation of data; writing of the manuscript or critical review of important intellectual content; data collection, analysis and interpretation; intellectual participation in the propaedeutic and/or therapeutic conduct of the studied cases; final approval of the final version of the manuscript.

Valeria F Garza-Davila: Data collection, or analysis and interpretation of data; data collection, analysis and interpretation; effective participation in the research guidance; intellectual participation in the propaedeutic and/or therapeutic conduct of the studied cases; final approval of the final version of the manuscript.

Jorge Ocampo-Candiani: Data collection, analysis and interpretation; effective participation in the research guidance; critical review of the literature; final approval of the final version of the manuscript.

Sonia Chavez-Alvarez: The study concept and design; data collection, or analysis and interpretation of data; writing of the manuscript or critical review of important intellectual content; data collection, analysis and interpretation; effective participation in the research guidance; intellectual participation in the propaedeutic and/or therapeutic conduct of the studied cases; critical review of the literature; final approval of the final version of the manuscript.

Conflicts of interest

None declared.

References

1. Freeman MB, Holman DM, Qin J, Lunsford NB. Merkel cell carcinoma incidence, trends, and survival rates among adults aged ≥50 years from United States cancer statistics. J Am Acad Dermatol. 2019;80:1154–6.
2. Coggshall K, Tello TL, North JP, Yu SS. Merkel cell carcinoma: an update and review: pathogenesis, diagnosis, and staging. J Am Acad Dermatol. 2018;78:433–42.
3. Ho SY, Tsai YC, Lee MC, Guo HR. Merkel cell carcinoma in patients with long-term ingestion of arsenic. J Occup Health. 2005;47:188–92.
4. Chou TC, Tsai KB, Wu CY, Hong CH, Lee CH. Presence of the Merkel cell polyomavirus in Merkel cell carcinoma combined with squamous cell carcinoma in a patient with chronic arsenism. Clin Exp Dermatol. 2016;41:902–5.

5. Choudhury MIM, Shabnam N, Ahsan T, Ahsan SMA, Kabir MS, Khan RM, et al. Cutaneous malignancy due to arsenicosis in Bangladesh: 12-Year study in tertiary level hospital. Biomed Res Int. 2018;2018:4678362.

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Multiple nodules covering the forearm: a case of fish-sting granuloma☆

Dear Editor,

Mycobacterium marinum is one of the non-tuberculous mycobacteria that most often causes skin and soft tissue infections in patients, especially those exposed to aquatic environments or marine life, hence named pool granuloma and fish tank granuloma.[1] With the increased consumption of seafood, *Mycobacterium marinum* infection due to fish sting injuries is on the rise. Here, we report a postoperative breast cancer patient with local lymphatic reflux insufficiency who developed diffuse nodules on the right upper extremity after an accident, while handling fish.

A 78-year-old woman presented with diffuse swelling erythematous nodules and crusted plaques on her right upper extremity for eight weeks. The patient had a broken wound on her right index finger which was caused by fish handling. The patient underwent a right mastectomy and lymphatic dissection for breast cancer 12 years ago. The physical examination showed a wound on the right index finger and diffused nodules of the right upper extremity (Fig. 1). Blood test results were unremarkable. Histopathological examination showed epidermal hyperkeratosis, and intra-dermal epithelioid cell granuloma with lymphocytes, Ziehl-Neelsen staining reveals acid-fast bacillus. T-SPOT.TB was double-positive, and tissue culture suggested *Mycobacterium marinum* infection (Fig. 2), so the diagnosis of *Mycobacterium marinum* infection was made. After six months of combined oral rifampin (0.6 g/d) and clarithromycin (0.5 g/Bid) treatment, all nodules subsided, leaving scars.

Marine mycobacterium is widely distributed in water environments and used to be common among swimmers in swimming pools and workers in fishing grounds. In China, due to eating habits, cooks and housewives are vulnerable to infection when handling fish. *Mycobacterium marinum* was originally isolated from seabass. Fish infected with *Mycobacterium marinum* have been reported as sturgeon, seabass and so on.[2] This case was caused by an accident with seabass. In the past decade, outbreaks of *Mycobacterium marinum* in seabass have been reported in the United States.[3]

The typical clinical presentation is the formation of nodular or sporadic filamentous limb lesions, manifesting as deeper interstitial infections such as tenosynovitis and osteomyelitis.[2] Extensive dissemination may occur in a minimal number of immunocompromised hosts.[4] Previously reported cases of widespread dissemination have been associated with immunosuppression as well as the presentation with ulcers, skin nodules, and nodular lymphangitis. In the present case, there was lymphatic reflux disorder after the right mastectomy, so the patient developed widespread skin lesions along the right upper extremity after infection. Culture is still the gold standard for the diagnosis of this

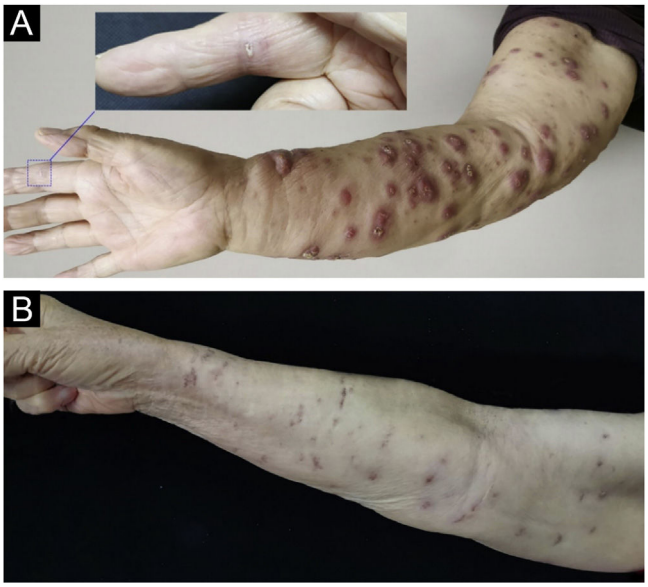

Figure 1 (A) The finger was injured while handling the fish and diffuse nodules of the right upper extremity (At the time of the visit). (B) After six months of combined oral rifampin and clarithromycin treatment, the nodules all subsided, leaving scars.

☆ Study conducted at the Shandong Provincial Hospital for Skin Diseases & Shandong Provincial Institute of Dermatology and Venereology, Shandong First Medical University & Shandong Academy of Medical Sciences, Jinan, Shandong, China.