2. Hu JZ, Billings SD, Yan D, Fernandez AP. Histologic comparison of tumor necrosis factor-α inhibitor-induced psoriasis and psoriasis vulgaris. J Am Acad Dermatol 2020;83:71-77. Erratum in: J Am Acad Dermatol 2020;83:1237.
3. Brown G, Wang E, Leon A, Huynh M, Wehner M, Matro R, et al. Tumor necrosis factor-α inhibitor-induced psoriasis: Systematic review of clinical features, histopathological findings, and management experience. J Am Acad Dermatol 2017;76:334-341.
4. Li SJ, Perez-Chada LM, Merola JF. TNF inhibitor-induced psoriasis: proposed algorithm for treatment and management. J Psoriasis Psoriatic Arthritis 2019;4:70-80.
5. Puig L, Morales-Múnera CE, López-Ferrer A, Geli C. Ustekinumab treatment of TNF antagonist-induced paradoxical psoriasis flare in a patient with psoriatic arthritis: case report and review. Dermatology 2012;225:14-17.

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Pedunculated Porocarcinoma Arising from Eccrine Poroma

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Dear Editor:

An asymptomatic 86-year-old female presented with a red-colored soft mass on her right upper arm that had persisted for 20 years. The mass was approximately 5 cm in diameter and had a thick asymmetrically located pedicle. The tumor surface was generally smooth, but the focal area near the pedicle was erosive (Fig. 1). An incisional biopsy was performed on the pedicle and distal-free part of the mass. Histopathological examination of the distal-free part of the mass showed uniformly small cuboidal tumor cells proliferating from the

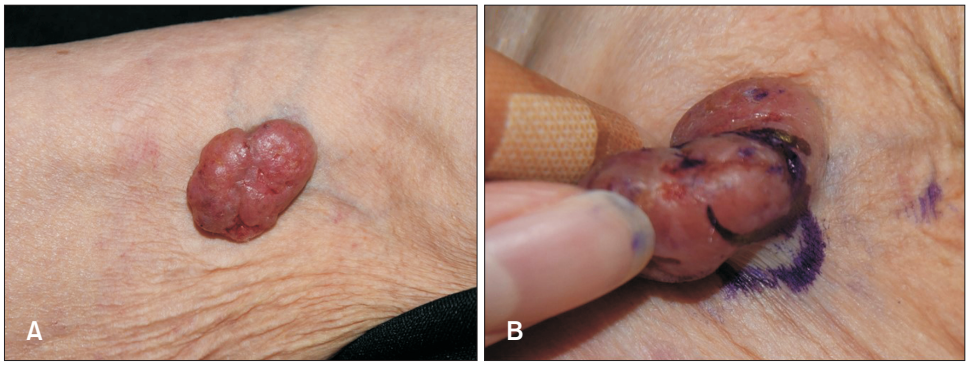

Fig. 1. (A) 5 cm sized soft mass with smooth surface on left upper arm. Some eroded areas were observed on proximal side. (B) Asymmetrically located thick pedicle under the tumor mass. We received the patient's consent form about publishing all photographic materials.

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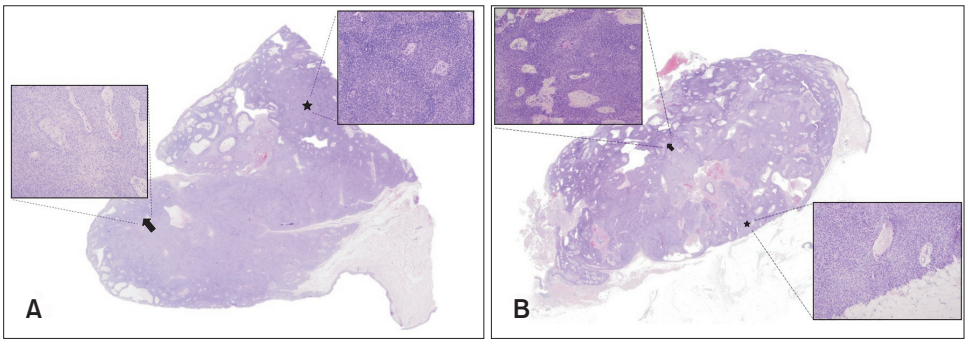

Fig. 2. (A) Histopathological findings on pedicle and distal free part of tumor. The distal free part of the mass showed uniformly small cuboidal tumor cells proliferating from the lower epidermis to the dermis (arrow). Near the pedicle of the mass, however, pleomorphic tumor cells with a hyperchromatic nucleus and mitotic figure were observed (star), and a mixed area wherein benign and malignant tumor cells coexisted was identified. (A: H&E, ×10) (right upper inset indicates star: H&E, ×100; left upper inset indicates arrow: H&E, ×100). (B) Histopathological findings after complete excision. The remnant tumor was a sessile part of the mass comprising pleomorphic cuboidal cells with hyperchromatic nuclei. Focal eosinophilic necrosis and hyperchromatic tumor cells were noted (arrow). On the tumor base, tumor cells infiltrated the subcutaneous fat (star). In the center of the tumor, many nutrient arteries were observed. (B: H&E, ×10) (left upper inset indicates arrow: H&E, ×100; right lower inset indicates star: H&E, ×100).

lower epidermis to the dermis. No mitotic figures were found, and immunohistochemical staining for S-100 was negative. In addition, a sweat-duct-like tubular structure was observed in the tumor (Fig. 2A; arrow). Moreover, near the pedicle of the mass, pleomorphic tumor cells with hyperchromatic nuclei and a mitotic figure were observed. A mixed area of coexistent benign and malignant tumor cells was also identified (Fig. 2A; star). Thus, a diagnosis of eccrine porocarcinoma (EPC) arising from an eccrine poroma (EP) was made, and wide local excision was performed. The remnant tumor was located in a sessile part of the mass of pleomorphic cuboidal cells with hyperchromatic nuclei. The tumor cells were stained using an epithelial membrane antigen. Many nutrient arteries were observed at the center of the tumor. Erosion of the epidermis and focal necrosis of the dermis were noted. On the tumor base, tumor cells infiltrated the subcutaneous fat (Fig. 2B). To exclude tumor metastasis, chest computed tomography was performed, revealing no abnormalities.

In case of pedunculated EPC reported in the Korean dermatology literature in 2013[1], unlike our case, the surface of the mass was irregular and the entire tumor was composed of malignant cells. This difference may be dependent on whether EPC occurs de novo or originates from EP. Although the exact mechanism of the development of a pedunculated tumor is unknown, vascular supply is an important factor in the development of a pedicle[2]. Considering the tumor location in our case, we speculated that sun exposure may play a role in the development of the pedicle. The clinical clue for transformation of EP to EPC is a long-term history of a previous benign-looking lesion with recent secondary changes, including tumor growth, bleeding, or ulceration[3]. In our case, an intermingled area of benign and malignant tumor cells was identified around the pedicle, and the EPC was mainly located in the sessile part of the mass. We speculated that changes in the proliferative pattern into sessile growth may be associated with malignant changes. Despite its heterogeneity, EPC has a greater mutation burden than EP and occasionally exhibits mutation profiles similar to those in EP[4]. Accumulation of genetic mutations, such as RAS and TP53, is similar to the development of colonic adenocarcinomas derived from adenomas. In addition, a recent study has suggested that YAP1 fusions are specific to EP and EPC and can drive transformation[5]. We suggest that the co-occurrence of EPC should be excluded when diagnosing long-lasting EP in sun-exposed areas.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

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REFERENCES

1. Lee KT, Kim JH, Park SW, Shin HT, Yang JM, Lee JH, et al. Pedunculated Eccrine Porocarcinoma. Korean J Dermatol 2013;51:196-198.
2. Wollina U, Goldman A. Giant pedunculated tumors of skin. Georgian Med News 2020;(301):44-49.
3. Kim HJ, Kim A, Moon KC, Seo SH, Kim IH, Kim A, et al. Eccrine porocarcinoma: a multicenter retrospective study with review of the literatures reported in Korea. Ann Dermatol 2020;32:223-229.
4. Bosic M, Kirchner M, Brasanac D, Leichsenring J, Lier A, Volckmar AL, et al. Targeted molecular profiling reveals genetic heterogeneity of poromas and porocarcinomas. Pathology 2018;50:327-332.
5. Sekine S, Kiyono T, Ryo E, Ogawa R, Wakai S, Ichikawa H, et al. Recurrent YAP1-MAML2 and YAP1-NUTM1 fusions in poroma and porocarcinoma. J Clin Invest 2019;129:3827-3832.