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# Epithelioma Cuniculatum in Leprotic Foot

To the Editor:

In 1954, Aird, *et al.* ([1]) reported three cases of a previously undescribed, fungating, low-grade carcinoma occurring on the sole of the foot to which they gave the name epithelioma cuniculatum.

There are scanty references about this tumor in the literature. In this study, we report two interesting cases of epithelioma cuniculatum on top of leprotic plantar ulcers in Egypt.

**Case I.** A man of 38 presented in 1977 as a case of old borderline leprosy with a perforating plantar ulcer. In 1982, he complained of swelling in his left foot. On examination, a tumor in the form of cauliflower mass, measuring 20 × 15 × 5 cm, with multiple sinuses was found on the lateral side of the left foot (Fig. 1). Both discharge and culture revealed nothing, and the biopsy showed a well-differentiated squamous cell carcinoma (Fig. 2).

**Case II.** A 44-year-old man had had borderline leprosy since the age of 14. He complained of a boggy mass in his left foot. He had had a plantar ulcer for 10 years on his left foot, and 2 years ago a mass had started on top of this ulcer. On examination, there was a large, fungating, cauliflower mass, 10 × 12 × 3 cm, oozing thick pus from multiple points. This mass had an irregular verrucous surface. There was no metastasis (Figs. 3 and 4).

**Comment.** Verrucous carcinoma was first described by Aird, *et al.* ([1]) who reported three cases of tumor of the foot for which there appeared to be no description in the literature. These cases were similar macroscopically and microscopically to our cases. Amputation was carried out in all three patients. The authors used the term epithelioma, in the noncommittal sense of any tumor derived from epithelium; cuniculatum was chosen because of the branching and intercommunicating tunnels and clefts in the lesions which were compared to the (cuniculate) burrows in a rabbit warren. In 1965, three additional cases of epithelioma cuniculatum were reported by Thompson ([9]); wide excision was curative in two cases and amputation was required in the third case. Thorne ([10]) reported a seventh case of

FIG. 1. Case I, perforating plantar ulcer with cauliflower mass.

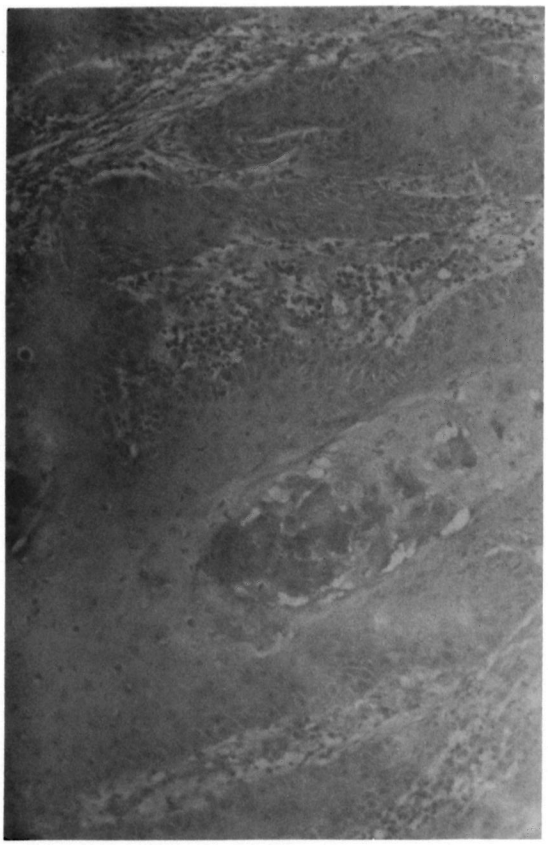

FIG. 2. Case I, an area of the tumor tissue showing a well-differentiated squamous cell carcinoma (H&E ×100).

epithelioma cuniculatum in which amputation was performed after curettage, radiotherapy, and excision and grafting had failed. In 1976, Brownstein and Shapiro ([2]) reported the eighth example of this unusual tumor of the plantar aspect of the foot. In 1979, Seehafer, *et al.* ([6]) reported the ninth example of this type of tumor.

Reports from India by Job and Riedel ([4]), Riedel ([5]), and Srinivasan and Desikan ([7]) had described similar tumors in neuropathic ulcers on the heels and soles of leprosy patients, some of which showed the clinical and histologic pattern of verrucous carcinoma. This coincides with our Egyptian cases, and confirms their importance. Dermatologists should be aware of this type of tumor and should expect it when plantar warts persist for many years or fail to respond to conventional therapy (Brownstein and Shaprio[2]), and leprologists should suspect epithelioma cuniculatum in neuropathic ulcers which persist for many years and resist treatment. These lesions must be adequately biopsied, and a diagnosis made by a pathologist as to the seriousness of the lesion. It must be borne in mind that ver-

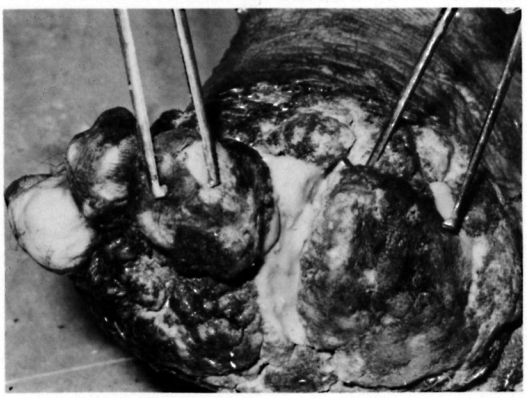

FIG. 3. Case II, showing large, fungating, cauliflower tumor mass.

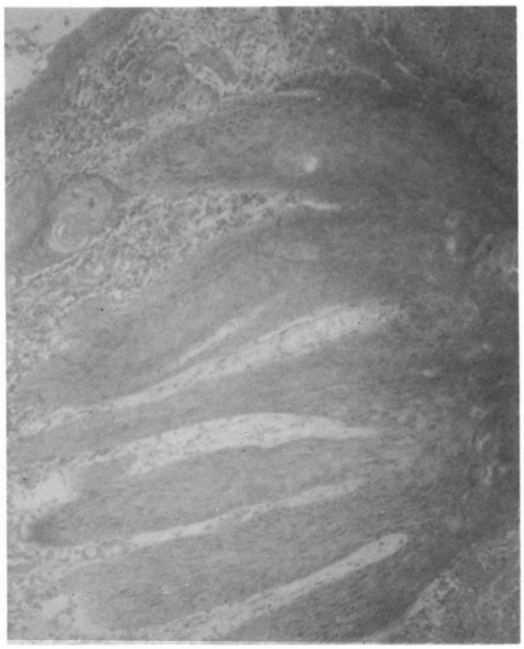

FIG. 4. Case II, showing acanthosis with atypical pseudo-epitheliomatous hyperplasia with finger-like elongations of the tumor masses invading the dermis (H&E ×100).

rucous carcinoma can occur in plantar skin, otherwise such cases may be misdiagnosed as benign hyperplasia. Although it is not malignant, surgical excision must be done as early as possible before it becomes advanced and not amenable to excision, in which case an amputation may be necessary.

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# A More Malignant Course of Leprosy Infection in Armadillos After Inoculation with Sonicated Suspension of *Mycobacterium leprae*

TO THE EDITOR:

After 15 years of experience with the armadillo as a model for experimental leprosy, the rate of positivity and the yield of *Mycobacterium leprae* from organs still represent a matter of concern.

As in most mycobacterial species, *M. leprae* form large aggregates in suspensions