Pilomatricoma with Apocrine Poroma: A Novel Cutaneous Collision Tumor

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Abstract

The term “collision tumor” implies the occurrence of two or more neoplasms in a single biopsy specimen. This is a rare feature in skin biopsies, with most of the reported combinations involving melanocytic lesions or basal cell carcinomas. Combinations of adnexal tumors are found very sporadically. We report a 67-year-old woman with a scalp nodule, clinically suspected to be verrucous carcinoma, who underwent a wide excision. Histopathology showed apocrine poroma with adjacent regressing pilomatricoma.

Keywords: Apocrine poroma, cutaneous collision tumor, pilomatricoma

Case Report

A 67-year-old woman presented with a nodule over the scalp for 2 years. On examination, there was a 3 cm × 2 cm nodule that was smooth, pinkish with a verrucous appearance in one part [Figure 1]. There was no regional lymphadenopathy. With a provisional diagnosis of verrucous carcinoma, a wide local excision was performed.

Histopathology findings

The wide local excision showed a gray-white verrucous lesion on the skin surface measuring about 2 cm × 1.8 cm. The closest margin was 0.6 cm away. Cut section showed a solid gray-white, firm-to-hard lesion involving the dermis. The deep resection margin appeared uninvolved.

On microscopy, sections from the verrucous area showed an exophytic, circumscribed neoplasm that was present in the epidermis, with interspersed dilated infundibular structures [Figure 2]. There were broad columns and nests of darker poroid and paler eosinophilic cuticular cells [Figure 3]. Within the pale cells, there were numerous ductal structures [Figure 3]. Some of the pale cells showed cytoplasmic vacuoles. There were mitoses distributed throughout the lesion (5–6 per 10 hpf). There was no nuclear atypia. Infundibular differentiation was also noted. Beneath this lesion [in the bottom part of Figure 2], there were clusters of eosinophilic shadow cells that were surrounded by an intense lymphoplasmacytic infiltrate and numerous multinucleate giant cells along with fibrosis [Figures 2 and 4]. Small foci of matrical cells were seen [Figure 5]. Areas of calcification were present [Figure 5]. All the margins were free. Based on the cytoarchitectural features, a diagnosis of collision tumor with components of apocrine poroma and pilomatricoma was made.

Discussion

Cutaneous collision tumors are not often seen. Boyd and Rapini have reported a series of 69 cases, the largest so far.[1]
The most common combinations in this series were basal cell carcinoma with nevus and basal cell carcinoma with seborrheic keratosis. Among the four adnexal neoplasms they encountered, three were combined with nevi. One case showed cylindroma and spiradenoma.[1] Some of the other reported combinations include desmoplastic trichoepithelioma and chondroid syringoma, trichofolliculoma and basal cell carcinoma, tricholemmal carcinoma and trichoblastoma, and trichoepithelioma and spiradenoma.[3-6] Some of these, for example, cylindroma/spiradenoma, share a common histogenesis. Multiple adnexal tumors are seen in patients with familial syndromes such as Brooke-Spiegler syndrome (cylindroma, spiradenoma, and trichoepithelioma), but these are unusual in a single specimen.[7]

Pilomatricoma is a common skin adnexal neoplasm in the young. They present as smooth, cystic, or firm nodules, hardening over time. They preferentially involve the head and neck followed by upper limbs.[7] Histologically, it is a proliferation made up of matrical and supramatrical cells. It begins at the base of an

![Figure 1: Preoperative clinical photograph showing 3 cm × 2 cm scalp nodule that was smooth, pinkish with a verrucous appearance in one part](image1.png)

![Figure 2: Top half of the image shows an epidermal proliferation composed of dark and pale areas in continuity with infundibula (poroma component). The lower half of the image shows groups of shadow cells surrounded by giant cells and a dense lymphoplasmacytic infiltrate (pilomatricoma component) (H and E, ×40)](image2.png)

![Figure 3: Poroma showing darker poroid cells (P) and paler cuticular cells (C) with ductal structures (D) (H and E, ×100)](image3.png)

![Figure 4: Pilomatricoma showing shadow cells (S) surrounded by giant cells, lymphoplasmacytic infiltrate (H and E, ×100)](image4.png)
infundibulum with the matrical and infundibular components becoming progressively dilated, giving it a cystic appearance in the initial stages.[7] Kaddu et al. classified these tumors into four distinctive stages: early, fully developed, early regressive, and late regressive.[8] Early lesions are smaller with cystic structures surrounded by matrical and squamoid cells with small foci of shadow cells. The fully developed lesions are larger and show abundant central masses of shadow cells with the matrical epithelium pushed to the periphery. Early regressive lesions are dominated by the hair matrix material and surrounded by inflammatory cells and giant cells (similar to the present case).[8] The late lesions show marked calcification and little inflammation. Rarely, they may show features of malignancy.[7]

Poromas are neoplasms with prominent ductal differentiation, comprising darker poroid and paler cuticular cells.[6] There are three architectural variants: hidroacanthoma simplex (groups of poroid and cuticular cells confined to the epidermis and sharply demarcated), classic poroma (aggregates that protrude into the upper dermis), and dermal duct tumor (tumor cells situated within the reticular dermis).[6] Poromas can be eccrine or apocrine. Eccrine poromas classically occur on the extremities.[7] Apocrine poromas are common in head and neck. They may be identical histologically, but contiguity with infundibular structures and evidence of follicular/sebaceous differentiation favor apocrine nature.[6] The present lesion is a good example of apocrine poroma, being located on the scalp and continuous with infundibula. It is important to note that necrosis en masse and mitoses are a common finding in poromas and should not be construed as signs of malignancy.[6,7]

The infundibulo-follicular-sebaceous-apocrine unit has a common embryologic derivation.[6] Both these tumors, i.e., poroma and pilomatricoma fall within this spectrum and therefore, could have a common multipotent precursor cell.[3]

**CONCLUSION**

Adnexal tumors occurring as collision tumors are a rare phenomenon. This is the first instance of poroma and pilomatricoma being reported in combination. It is important to document these neoplasms as their association may not always be fortuitous and could provide insights into their histogenesis.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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