Basal Cell Carcinoma Arising from an Epidermoid Cyst: A Histopathological Surprise

Sir,

Epidermoid or infundibular cysts are the most frequent type of cutaneous cysts. Though typically benign, malignant transformation in epidermoid cysts has been exceptionally reported.\[1-3\]

A 42-year-old woman presented with an asymptomatic swelling on the right shoulder since 15 years. She noticed a gradual increase in the size of the lesion in the last one year. Cutaneous examination revealed a skin-colored to erythematous, firm, nontender nodule of size 2 × 2 cm on the right shoulder [Figure 1]. The nodule was completely excised and sent for histopathological examination with a provisional diagnosis of an epidermoid cyst. The resected specimen showed a cyst in the deep dermis, lined by a 4–5 cell thick layer of epidermal cells with thin granular layer and the lumen-containing proteinaceous fluid [Figure 2a-c]. The cyst lining showed a gradual increase in the thickness, with transformation into nests of basaloid cells showing peripheral palisading and peritumoral clefting. Many mitotic figures were also noted. Melanin pigment was present within the tumor cells and in the stroma [Figure 2d and e]. There was no extension of the tumor into the subcutaneous fat. The resected margins were free of malignant cells. Based on the histopathological findings, a diagnosis of pigmented nodular basal cell carcinoma arising from the wall of an epidermoid cyst was made. There has been no recurrence of the cyst or tumor after 1.5 years of follow up.

Malignant tumors arising from the wall of the epidermoid cysts are rarely reported in English literature, with an incidence of about 1.1%.\[1\] Majority of these (70%) have been described as squamous cell carcinomas (SCC) and...
only 10% as basal cell carcinomas (BCC). [4] It is estimated that the rate of BCC developing in epidermoid cysts is roughly 0.1%. [4] Cameron et al. reported the development of carcinoma in about 0.045% of all epidermoid cysts (total number = 2246), of which only one was SCC and there were no other carcinomas. [3] In a study of 637 excised epidermoid cysts, BCC was observed in six cases and SCC in one case. [1] All cases of BCC originated from cysts located on the exposed sites. In another study on tumors arising from cutaneous cysts, 51 comprised of SCC, 18 of BCC, three were basosquamous, and five were nonclassified. [2] Out of the 18 cases of BCC, eight developed from the epidermoid cysts, three from the pilar cysts, and the remaining seven were associated with unspecified cysts. [2]

The development of BCC from the lining of an epidermoid cyst may be explained by their common origin from the infundibular portion of the hair follicles. As BCC arising from the cyst lining is usually located in the deep dermis and does not show any epidermal connection, it may not be clinically identified as a tumor. [5] A sudden increase in the size of a long-standing cyst can serve as a useful indicator of an underlying neoplastic change. [7] Although epidermoid cysts are mostly benign, a thorough histopathological evaluation of all suspected cysts, especially those which have increased in size recently, should be performed to exclude malignant transformation.

Complete excision is the appropriate treatment for cysts with malignant transformation. Incomplete excision may result in recurrence in 30–50% of the cases. [7] Hence, patients should be followed up periodically for possible local recurrence.

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.