

ORIGINAL RESEARCH**Incidental finding of collision tumors in Seborrheic Keratosis: A series of five cases**¹Dr.Mehak Kashyap, ²Dr.Preeti Joseph John, ³Dr.Neelam Gupta¹Senior Resident, Department of Pathology, MMMCH, Solan, Himachal Pradesh, India
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ABSTRACT

Seborrheic keratoses (SK) are common, benign, pigmented epidermal tumors. Collision tumors with seborrheic keratosis has been reported only in a few studies which include both benign and malignant tumors. Malignant change arising within seborrheic keratoses is rare. Here we are presenting a series of five cases of collision tumors arising in association with seborrheic keratosis. These include seborrheic keratosis with keratoacanthoma, bowen's disease, dermal nevus and malignant melanoma.

Key words: Seborrheic keratosis, collision tumor, keratoacanthoma, bowen's disease, nevus, malignant melanoma.

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Introduction

Seborrheic keratoses (SK) are common, benign, pigmented epidermal tumors¹. Besides seborrheic keratosis, they are also known as senile warts, basal cell papillomas and senile keratoses¹. Clinically, they appear as coin-like, sharply demarcated, exophytic lesions with "stuck on the skin" appearance².

The etiology is not well-known, although risk factors like hereditary, sunlight and human papilloma virus (HPV), somatic mutations in Fibroblast Growth Factor Receptor 3 (FGFR3) gene are important in the development of these lesions².

Collision tumors are characterized by the coexistence of two neoplasms at the same anatomical site and their pathogenesis remains contentious. Malignant change arising within seborrheic keratoses is rare. However, previous reports have documented malignancies arising adjacent to or less frequently within seborrheic keratosis³. Other miscellaneous lesions such as keratoacanthomas, trichilemmoma and eccrine porocarcinoma have also been described. The coexistence of associated lesions with seborrheic keratosis has been reported only in a few large prospective studies, ranging from 0.14% to 1.4%⁴.

Case 1

A 68 years female presented with a solitary, slow growing, nodular lesion of size 3 cm on the anterior aspect of right thigh since three years. Clinically, the

following differential diagnoses i.e basal cell carcinoma, malignant melanoma and nevus were considered. Microscopic examination showed crater filled with keratotic plug, multiple horn cysts along with upward and downward proliferation of squamous cell. Diagnosis of Keratoacanthoma with Seborrheic Keratosis was given (Fig.1)

Case 2

A 69 years male presented with single, ill-defined verrucous growth measuring 3x4 cm on left areola of nipple for the past one year. Clinical diagnoses of Seborrheic Keratosis and melanoacanthoma were made. Histology revealed features of Seborrheic keratosis. The keratinocytes showed full thickness dysplastic changes with increased melanin pigmentation and brisk mitosis. Basement membrane was intact. Histopathological diagnosis of Seborrheic Keratosis with pigmented Bowen's disease was made (Fig. 2).

Case 3

A 42 years male presented with a pigmented swelling on scalp since 10 years. Microscopic examination showed features of Seborrheic keratosis with elongated and thin anastomosing strands of basaloid cells. Superficial dermis showed nests and cords of epithelioid like cells with intracytoplasmic melanin pigment (Type A). Mid dermis was comprising of

Type B cells. Deep dermis showed maturation and the cells resembled Schwann cells (Type C cell). No junctional activity was seen. The final diagnosis was given as Seborrheic keratosis reticulated type with Intradermal nevus (Fig. 3)

Case 4

A 60 years female presented with a painless swelling in parietal region. It was firm in consistency and blackish in colour. Cut section of the biopsy showed a nodular black, firm lesion. Microscopy revealed a circumscribed nodule covered by epidermis. The nodule was composed of tumor cells having epithelioid morphology, moderate amount of eosinophilic cytoplasm with brownish black coarse granules (melanin) in it. Nucleus was round, pleomorphic with vesicular chromatin and conspicuous eosinophilic nucleoli. Overlying

epidermis showed features of seborrheic keratosis. Histopathological features were suggestive of Seborrheic keratosis with Nodular Melanoma (Fig. 4). On IHC, the neoplastic cells were positive for HMB-45 and S-100.

Case 5

A 70 years male presented with dark coloured plaque on posterior aspect of left thigh for the last two years. The patient recently noticed ulceration and bleeding in the lesion. Microscopy showed features of Seborrheic keratosis. In addition, keratinocytes showed moderate nuclear atypia, increased mitosis, loss of polarity and foci of dyskeratotic keratinocytes. Occasional squamous pearls were also seen. There was no evidence of invasion in the underlying dermis. The opinion was given as Seborrheic keratosis and Bowen disease.

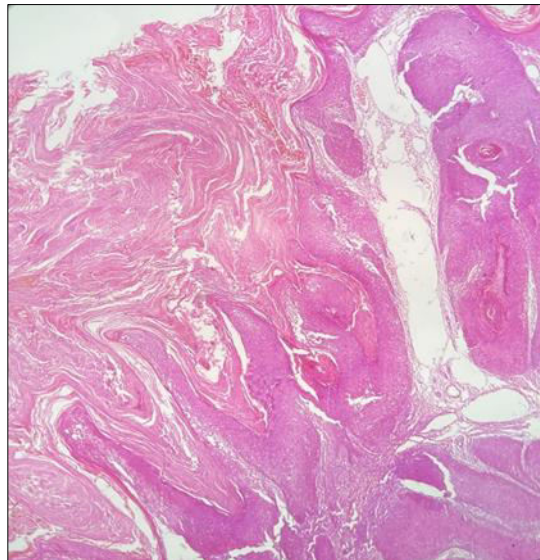


Fig. 1- H&E stain shows central keratin filled crater (Keratoacanthoma). On the right, seborrheic keratosis is seen.

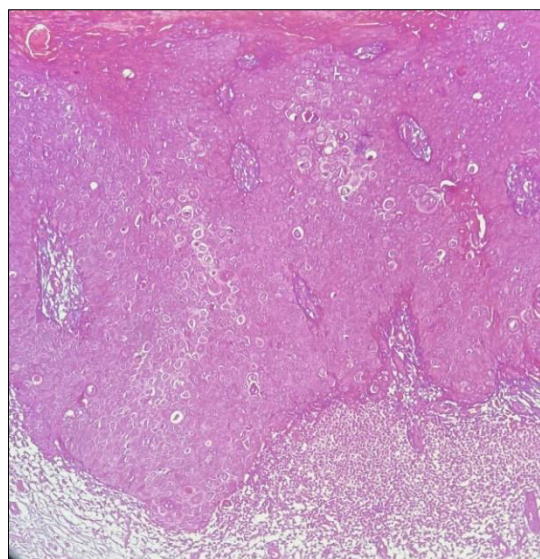


Fig 2: H&E stain shows in-situ carcinoma (Bowen disease) arising in a case of seborrheic keratosis.

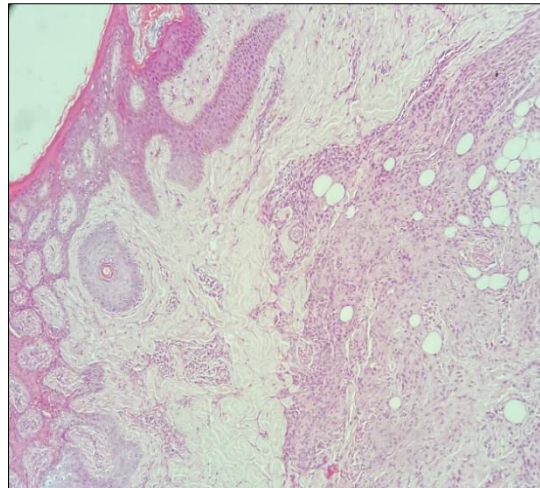


Fig 3: H&E stain shows seborrheic keratosis arising in association with dermal nevus.



Fig 4: H&E stain shows seborrheic keratosis with nodular malignant melanoma in the dermis.

Discussion

Collision tumor corresponds to the histologic discovery of two or more neoplasms in a cutaneous lesion generally of different histological lineage. Collision tumors in seborrheic keratoses were most commonly found in chest, head and neck region, since these are the Sun exposed areas⁴.

It is unclear whether the association of seborrheic keratoses with malignant neoplasms is a random event or if there is, in fact, a pathogenic relationship in the development of two distinctive neoplasms together. Therefore, the term compound tumor is proposed to designate the finding of two distinctive neoplasms either directly contiguous or immediately adjacent to each other⁵. Kwittken believes that malignant transformation of seborrheic keratoses does occur. He observed seborrheic keratoses "transforming" into basal cell carcinomas and in situ carcinomas⁶.

Malignant change seems to occur in lesions typically exposed to solar degeneration. Various malignant neoplasms associated with seborrheic keratoses may arise from the 3 different cell types that make up a seborrheic keratosis. Basaloid cells, spinous cells and melanocytes may give rise to basal cell carcinoma,

squamous cell carcinoma and malignant melanoma, respectively⁶.

We reported two cases of SK with Bowenoid transformation in the present study. Sloan and Jaworsky noted 60 cases of in-situ squamous cell carcinoma occurring among 4310 cases (1.4%) of clinically diagnosed seborrheic keratosis. Malignant change of mostly in-situ carcinoma is detected on the microscopic examination of a long-standing seborrheic keratosis as was seen in our cases, with a recent history of ulceration and increasing size. Though occasional Bowenoid transformation of the benign growth does occur, it has not been widely recognized due to probably lack of documentation⁷.

The seborrheic keratosis and the keratoacanthoma are both relatively common skin tumors, but in the literature there are only three reported cases of the growth of a keratoacanthoma on a seborrheic keratosis⁸.

The association of malignant neoplasms arising contiguous with or adjacent to seborrheic keratoses has been previously documented. Cascajo *et al* in their retrospective analysis of 54 cases of SK with malignant neoplasms found 43 cases (79.6%) of basal cell carcinomas, six (11.1%) were Bowen's disease,

three (5.5%) were keratoacanthomas and two (3.7%) were malignant melanomas. The average age of the patients was over 65 years. Men were affected more frequently than women. In their case series, posterior thorax was the most common site for malignant neoplasms associated with seborrheic keratoses⁵.

Yin Yun observed in their retrospective study of 813 cases, 43 (5.3%) cases of SK associated with non-melanoma skin cancer. Intraepidermal carcinoma (IEC) was the most common of these (36/43). There were five basal cell carcinomas and two invasive squamous cell carcinomas. No melanomas were reported. The head and neck was the commonest site⁹.

Lim *et al* in their retrospective study done over 12 months period studied 639 cases of seborrheic keratosis of which 85 cases (9%) were found to be associated with other lesions including premalignant lesions, malignancies, melanocytic lesions and miscellaneous lesions. Seborrheic keratosis associated with other lesions were found most commonly on the head and neck⁴.

One case of collision tumor of SK and intradermal nevus was observed in our case series which is extremely rare. Combined SK and melanocytic nevus in the same lesion was first described by Requena *et al* in 1989. Boyd and Rapini, in their retrospective study of 40,000 cutaneous biopsies, reported 14 cases of melanocytic nevus juxtaposed with SK. Intraepidermal, junctional and compound types of melanocytic nevus can be involved with SK either in overlying or juxtaposed manner. Authors in one of the studies found that the BRAF mutation status of SK and melanocytic nevus varied from each other, which suggested independent pathogenic mechanisms of each component¹⁰.

The occurrence of a malignant melanoma arising in a seborrheic keratosis is rare. Few authors concluded that this association is coincidental and does not represent a malignant transformation of seborrheic keratosis. Their co-existence is of great clinical importance, given that seborrheic keratosis can be treated with cryotherapy or excision without histological confirmation⁶.

In conclusion, as seborrheic keratoses are composed of several cell types, the transformation to a variety of epithelial tumours derived from similar cell types could occur. Therefore, histopathologic examination of all seborrheic keratoses and lesions that have undergone recent clinical change or appear inflamed or irritated should be considered for biopsy and histological examination.

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