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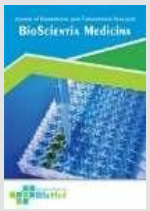

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# Advancement Flap for Removing Seborrheic Keratosis on the Helix of Ear: A Case Report

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**A B S T R A C T**

**Background:** Seborrheic keratoses are benign intraepidermal neoplasms arising from epidermal keratinocytes. Age and UV exposure have a role in the course of the disease. Seborrheic keratosis consists of several types of cells, and transformation into various epithelial tumors originating from the same cell type can occur. Therefore, basal cell carcinoma may arise from the basaloid cells, which is the most commonly reported malignant neoplasm in seborrheic keratosis. Various treatment modalities are available to treat seborrheic keratoses. We report a case report of seborrheic keratosis resembling basal cell carcinoma and treated using surgical excision with the advancement flap technique. **Case presentation:** A 76-year-old man came with complaints of itchy, blackish-brown lumps on his left ear 3 months ago. On examination of the dermatological status on the helix auricula sinistra, there was a solitary nodule of blackish brown color with a diameter of 1cm x 1cm x 1cm and an ulcer with an uneven surface, well-defined, telangiectatic (+). An examination of the biopsy showed the results of seborrheic keratosis, keratotic type. The management of this case is excision with an advancement flap. **Conclusion**: Seborrheic keratosis is one of the most common benign skin tumors that occur in old age. Excision with an advancement flap showed good clinical improvement.

## 1. Introduction

Seborrheic keratosis is a benign intraepidermal neoplasm arising from epidermal keratinocytes. Seborrheic keratoses, also known as senile warts, are very common in aging skin, typically developing on the torso, head, and neck and in skin folds.[1] Seborrheic keratosis is very common in the older population and appears to increase with age. An epidemiological study in Brazil stated that 89% of lesions occurred in patients aged 80 years and over.[2] While age is a known risk factor, the precise role of UV exposure is considered to be the most important etiology. Other possible causes being investigated include genetic and metabolic factors.[1]

The mechanisms underlying these benign tumor disorders are paradoxically driven by oncogenic mutations and may have profound implications for our understanding of the malignant state. Advances in molecular pathogenesis suggest that there is a theory regarding the inhibition of Akt and APP.[3] Seborrheic keratoses appear to be the result of clonal expansion of FGFR3-mutated epidermal keratinocytes and the p110 catalytic subunit of phosphatidylinositol 3 kinases (PI3K).[1]

Diagnosis of seborrheic keratosis can be made only by physical examination, but in some cases, histopathological examination is necessary.

Histopathological examination of seborrheic keratosis shows proliferative basaloid keratinocytes with a papillomatous architecture on a flat base, and in its classic form, shows contiguous broad columns of the hyperplastic epidermis.[1] Seborrheic keratosis consists of several cell types, and transformation into various epithelial tumors originating from the same cell type can occur. Therefore, basal cell carcinoma may arise from the basaloid cells, which is the most commonly reported malignant neoplasm in seborrheic keratosis.[4]

Various treatment modalities are available to treat seborrheic keratoses. Seborrheic keratosis is benign and usually doesn't require any treatment. One of the modalities for the treatment of seborrheic keratoses is surgical excision. This treatment modality is usually intended for skin conditions that are mainly located in the epidermis without involving the dermis. Currently, many techniques exist to reconstruct full-thickness helical rim defects, including skin, chondrocutaneous, or tubed mastoid flaps and composite grafts. The choice of procedure is usually determined by the dimensions and location of the defect and the skill level of the dermatologist.[5] This study aims to present a case of seborrheic keratosis that underwent surgical excision using the advancement flap technique.

**2. Case Presentation**

A 76-year-old male presented with a complaint of a brown lump on his left ear 3 months ago. The lump was initially small, the size of a pea, but as time went on, the lump became bigger and bigger. The patient admitted that he had never had a similar complaint before and denied a family history of a similar illness.

Physical examination revealed that the general condition of the patient was good, with normal vital signs. Inspection examination found that the helix auricula sinistra appeared to be a blackish brown solitary nodule with a diameter of 1cm x 1cm x 1cm and an ulcer with an uneven surface, well-defined, telangiectatic (+) (Figure 1).

Based on history and physical examination, our patient was diagnosed with seborrheic keratosis, DD, and basal cell carcinoma. We treated surgical excision with the advancement flap technique, and a histopathological examination was carried out in this case. Biopsy examination revealed hyperkeratotic epidermis, parakeratosis, some papillomatosis with irregular elongation of the rete ridges, monomorphic keratinocytes, sufficient cytoplasm, round, oval nuclei, and fine chromatin. The epidermis shows pseudohorn cysts with a cutaneous horn impression. The dermis was partially swollen with quite a lot of lymphocytes, few neutrophils, and histiocytes. Histopathological examination showed the results of seborrheic keratosis, keratotic type**.**

Before performing the operative procedure, the patient signed informed consent. The patient was planned for the reconstruction of the defect in the medial 1/3 of the auricle with a flap advancement technique. The flap design was designed on the right posterior auricle. Incision and undermining were performed on the right posterior auricular until the flap could cover the defect. Performed flap suturing and fitted with a bolster using gauze. The surgical wound was closed with a pressure bandage (Figure 3).


Figure 1. (A-B) Examination of the helix area of auricula sinistra appears a solitary mass of blackish-brown color with a diameter of 1cm x 1cm x 1cm and an ulcer with an uneven surface, telangiectasis (+), firmly bordered.

Figure 2. Excision procedure with advancement flap technique.

**3. Discussion**

Seborrheic keratosis is a benign epidermal tumor that usually grows in old age. Seborrheic keratoses can cause cosmetic complaints, especially if they occur on the face. Factors that may influence the etiology of this disease include exposure to ultraviolet light, human papillomavirus infection, heredity, and the hormone estrogen. Lesion change from benign to malignant is possible but is very rare.[6] Neel et al. in 2016 investigated seborrheic keratoses that frequently acquire oncogenic mutations in the receptor tyrosine kinase/phosphatidylinositol 3-kinase/Akt signaling cascade. Seborrheic keratoses indicate that seborrheic keratoses have hypersensitivity to Akt inhibition. FoxN1 is a novel biomarker of an oncogenic-activated but benign phenotype in seborrheic keratosis. Seborrheic keratoses also established that inhibition of Akt leads to increased expression of p53 protein, but not RNA expression and that Akt-mediated apoptosis is dependent on p53 and FoxO3, the target of Akt.[7]

Seborrheic keratosis is considered a benign skin tumor mainly resulting from follicular differentiation in the follicular infundibulum. For that reason, previous studies have speculated that there may be a pathogenic association between BCC and seborrheic keratosis due to a common follicular origin.[4] Seborrheic keratosis develops in hairy areas, most often in the head, neck, trunk, and extremities, while the mucous membranes and palms, and soles do not occur. Rare cases of lesions of the external ear and pedunculated tumors of the perigenital region have been reported, as well as truncal lesions along the Blaschko line.[8] Irwandanon in 2018 in Indonesia also reported the incidence of seborrheic keratosis in 1/3 of the medial auricle and carried out a Dieffenbach flap management procedure.[6]

The ear is divided into three by a cartilaginous framework of the conchal, antihelix-antitragus, and helix-lobule complexes. The auricular blood supply comes from the branches of the external carotid, namely the posterior auricular artery and the superficial temporal artery. The sensory supply to the ear comes from the contributions of the auriculotemporal, great auricular, lower occipital, vagus, and glossopharyngeal nerves. Knowledge of this anatomy facilitates proper blocking using local anesthesia. With age, cartilage calcification increases with the resulting stiffness.[9] Important factors to consider when choosing a reconstructive method are the size and complexity of the wound, the exposed structure, and whether local tissue is available. Small defects can usually be closed mainly by various wedge resections. For moderate-sized defects, a chondrocutaneous advancement flap, rotational flap, or contralateral composite graft can be used. Large defects usually require a bipedicled tubed flap or a temporoparietal fascial flap with skin and cartilage grafts.[10] In this case, because the tumor size was

about 1cm x 1cm x 1cm, the researcher performed a chondrocutaneous advancement flap.

The Antia-Buch chondrocutaneous advancement flap is ideal for small to medium-sized helical defects. This surgical technique can also be used with larger defects when helical crus V-Y advances are incorporated into the design. The Antia-Buch flap is designed by making an incision along the helical sulcus that extends through the anterior skin and cartilage, dissecting the helix and scapha free from each other. The posterior auricular skin is raised to the superficial perichondrium. The resulting anterior chondrocutaneous flap is then advanced into the defect. If extra length is required, V-Y advancement of the crus of helix and trimming of the scapha cartilage can reduce tension on the re-approached wound edge.[10]

Antia-Buch flap reconstruction is a simple and convenient technique that provides a superior esthetic auricular appearance.[10] Another advantage of the Antia-Buch flap is that it can be applied to facilitate bilateral advance flap movement and to cover lateral skin defects. The postauricular subperichondral flap is richly vascularized by the posterior arterial network of the external carotid artery. These flaps can enhance the benefits of the Antia-Buch flap by preserving natural cosmetic auricular markers, minimizing loss of helical diameter, and reducing the risk of flap necrosis by preserving its vascular tissue.[11] In this case, excision was performed using an advancement flap. At 4 weeks postoperative control, the patient had no complaints. On physical examination, the surgical wound was good, and there was no hyperemia. The tissue already appeared to be fused.

## 4. Conclusion

The management of this case is excision. Seborrheic keratosis is one of the most common benign skin tumors. However, because of the wide variation in the clinical picture, and especially when the manifestations and dermoscopic findings of the lesions are atypical, it may be difficult to distinguish seborrheic keratotic lesions from other benign or malignant skin tumors. Excision with an advancement flap showed good clinical improvement.

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