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Case Report

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Difficulties Differentiating Between Basal Cell Carcinoma and Trichoepithelioma: A Case Report

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Kata kunci

Basal cell carcinoma, Trichoepithelioma, Histopathology, Skin tumor, Adnexal tumor

Abstract

Background. Basal cell carcinoma (BCC) is the most common type of malignant skin tumor with basal cell differentiation. Trichoepithelioma (TE), however, is a rare benign skin tumor with follicular differentiation. Both types of tumor have commonalities in terms of clinical and histopathological features. Some cases, in fact, require ancillary studies to distinguish between the two. Confusing the two tumors may result in different future outcomes for the patient, due to their vastly different prognoses and treatments. This case report outlines two different cases, and discusses how to distinguish between the two types of tumor without the use of an ancillary study.

Methods. We examined the cases of one patient with basal cell carcinoma and one patient with trichoepithelioma, comparing their clinical manifestations and characteristic histological features.

Results. Trichoepithelioma and BCC share several overlapping histopathological features. Trichoepithelioma and BCC share several overlapping histopathological features. The TE in this case report also exhibited a nodular pattern, connection to the epidermis, stromal cleft, and prominent nuclear palisading, which are more commonly found in BCC. However, scanty mitotic activity, the presence of non-atypia cells, and symmetry of the lesion, are favor TE.

Conclusion. Differentiation between BCC and TE is only possible using cytomorphological assessment with a high-power field of view.

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Introduction

Basal cell carcinoma (BCC) is the most common malignant cutaneous neoplasm, and shares both clinical and histological features with trichoepithelioma (TE). It is important to distinguish between these neoplasms as they require different prognoses and therapeutic planning.[1] BCCs are fast growing and mostly found in elderly patients. TE can be identified by the following features: an abundance of stroma as opposed to neoplastic aggregates, the inability of the tumor lobules to communicate with the surface epithelium, the presence of keratinous cysts, and finally the absence of ulceration and mitoses.[2]

Although clinical manifestation is important, histopathology remains the gold standard method for differentiating between TE and BCC.[2] Many studies have addressed the use of immunohistochemistry to improve the differential diagnosis of these tumors. However, not all anatomical pathology laboratories in Indonesia provide immunohistochemical examination services. This represents a challenge for Indonesian pathologists in being able to distinguish between basal cell carcinoma and trichoepithelioma using only hematoxylin eosin stains.

Case Report

This research examined the case of a 59-year-old male who presented with a mass in his right femur, which had been present for 6 years. Previously it was only a small mass, but it continued to grow, and was accompanied by pus. The patient also complained of pain. He had experienced hypertension for the past 10 years, and had only recently been taking amlodipine 1x5mg over a 1-week period. During the physical examination, a mass was found in the upper third of the femur, measuring 7x7 cm, with erythema. An excision biopsy was performed. Grossly, the specimen consisted of a skin mass measuring 6x4x2 cm, which contained a well-circumscribed tan-yellow nodule measuring 4x2x1 cm. Microscopically, the basal cells in the epidermis had transformed into a well-circumscribed nodular tumor penetrating the dermis (Figures 1 (a) and 1 (b)) displaying peripheral palisading with islands of mucin (Figure 1(c)). Epidermal erosion was also found (figure 1 (d)). The tumor cells were small, mostly uniform in shape, and hyperchromatic with a large number of mitotic figures (Figures 1 (e) and 1 (f)). The conclusion of the histopathological examination was Basal Cell Carcinoma with negative tumor mass within surgical margins. After surgery, the patient was referred to another hospital for further treatment.

The second case presented was a 54-year-old male with a suppurative wound in the lower back that he had only become aware of 2 days before being admitted to hospital. The surgeon suspected tuberculosis spondylitis. Excisional debridement was performed. Grossly, 3 specimens were removed consisting of skin, with the largest specimen measuring 6x2,5x2 cm and the smallest specimen measuring 1,5x1,5x1 cm. Microscopically, the tumor was located in the dermis and largely connected to the epidermis with a partial stromal cleft (Figures 2 (a-c)).

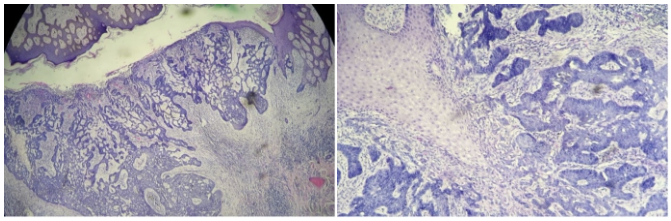

Figure 1(a) Figure 1(b)

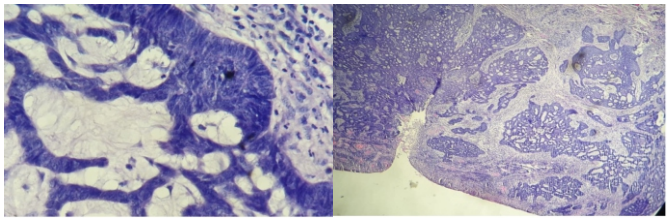

Figure 1c Figure 1(d)

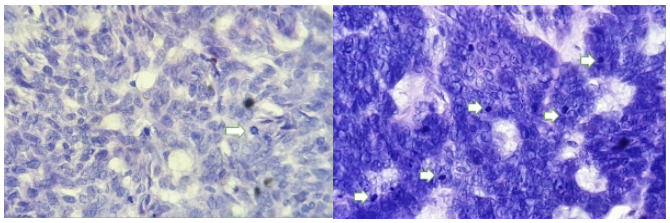

Figure 1(e) Figure 1(f)

Figure 1. (a-b) Basal cells of the epidermis transformed into nodular, adenoid, and well-circumscribed basophilic tumor cells. (c) Tumor with adenoid pattern, islands of mucin, and nuclear palisading. (d) Tumor cells with epidermal erosion. (e-f) Small, hyperchromatic, basaloid tumor cells, some of which have vesicular nuclei, with a large number mitotic figures (arrow). (a–f) Hematoxylin and eosin: (a) 40x, (b) 100x, © 100x, (d) 40x, (e) 200x, and (f) 200x.

The epidermis was normal, revealing some erosion with suppurative inflammation (Figure 2(d)). Tumor cells had uniform nuclei with only few typical mitotic figures (Figure 2 (e)). The diagnosis was trichoepithelioma with suppurative chronic inflammation.

Discussion

Basal cell carcinomas (BCC), a common malignancy, arise most often in sun-exposed areas but in rare cases occur in areas not exposed to the sun.[3] We described the case of a 59-year-old male patient with a mass in the upper third of the femur, which had been present for 7 years, and who was found to have a large BCC. The second case described is that of a 54-year-old male with a suppurative wound in his lower back that he only became aware of 2 days before being admitted to hospital, which was later diagnosed as Trichoepithelioma (TE). Trichoepitheliomas are mostly seen in the scalp, nose, forehead, and upper lip,[4] it was rarely found in trunk.

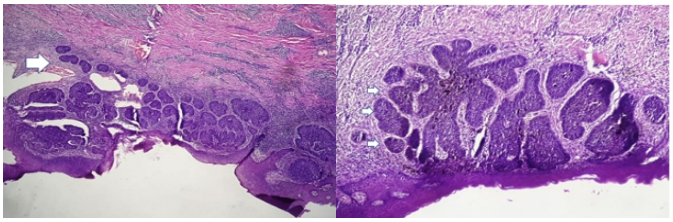

Figure 2(a) Figure 2(b)

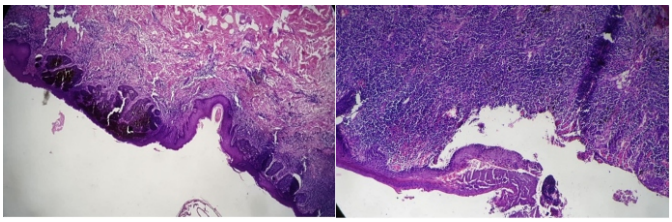

Figure 2c Figure 2(d)

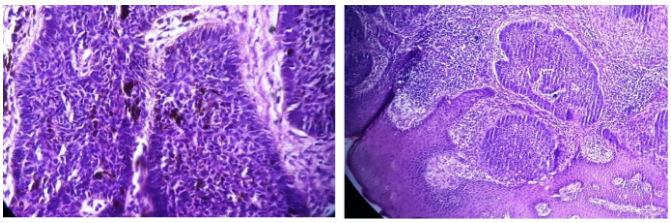

Figure 2(e) Figure 2(f)

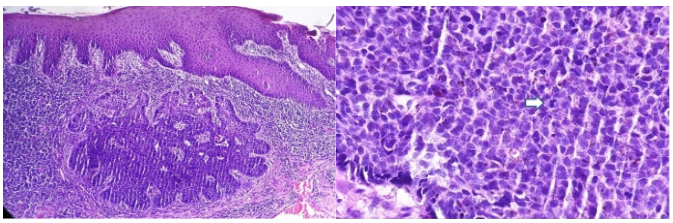

Figure 2(g) Figure 2(h)

Figure 2. (a-b) A nodular, well-circumscribed basophilic tumor involving the dermis and mostly connected to the overlying epidermis (arrow). (c) Several tumor nodules exhibited dark-brown pigmentation. (d) Suppurative inflammation with epidermal erosion. (e-f) Small, bland, basaloid tumor cells, which are mostly uniform. Nodules exhibiting peripheral palisading nuclei. (g) Nodule disconnected from the epidermis. (h) Few typical mitotic figures. (a–h) Hematoxylin and eosin: (a) 20x, (b) 40x, (c) 20x, (d) 40x, (e) 200x, and (f) 100x (g) 100x (h) 200x.

Both conditions were difficult to diagnosis based only on clinical manifestations, and both involved elderly patients. In the first case, the BCC progressed over a much longer period of time than the trichoepithelioma in the second case. Both cases exhibited suppurative wounds. It is uncommon for trichoepithelioma to occur in young patients. However, as seen in the above case, BCC exhibits notable gradual growth.

During gross examination of the cases, the BCC presented as a large mass, while the trichoepithelioma appeared only as a skin wound, with no clear signs of a mass. Microscopically, the BCC and trichoepithelioma in both cases exhibited almost the exact same pattern: a nodular, well-circumscribed mass. However, in the BCC mucin islands were

Table 1. Clinical and histopathological characteristic of Trichoepithelioma and Basal Cell Carcinoma

	Trichoepithelioma	Basal Cell Carcinoma
Natural History and clinical picture	Young patient Usually very slow enlargement	Middle age or individual Gradual but notable enlargement
Histopathological Features	Discrete aggregation in cribriform pattern	Large basaloid aggregation of varying shape and size form a relatively circumscribed mass
Connection to epidermis	Uncommon	Common
Stromal cleft	Absent	Present
Mitotic	Scanty but typical	Many, can be atypical
Atypia	Absent	Present
Symmetry of the lesion	Symmetry	Asymmetry
Peripheral palisading	Less prominent	Prominent

Source: Lazaridou et al., 2014; Patterson, 2021; Samaka et al., 2013; Teli et al., 2015

evident. This case of TE exhibited several common histopathological features with BCC. In this TE case, we found a large part of the tumor to be connected to the epidermis, prominent nuclear palisading, and stromal cleft, which are more commonly found in BCC. However, scanty mitotic figures, an absence of atypia, and symmetry of the lesion, are characteristic of TE.[2,5,6,7] BCC in this case consisted of a nodular and adenoid pattern of atypical basaloid cells, with scanty cytoplasm, as well as hyperchromatic and vesicular nuclei, prominent nucleoli, and a large number of mitotic figures.[8] In both of the cases examined, it would have been easier to diagnose BCC than TE, as TE has many overlapping histopathological features with BCC.

Conclusion

Distinguishing between BCC and TE is easy using immunohistochemistry. However, in cases where the health system does not provide immunohistochemical services, it is imperative to optimize Hematoxylin eosin stains to be able to differentiate between BCC and TE. In both cases, we found that it was impossible to provide the correct diagnosis without examining the cytomorphology of the TE and BCC in a high-power field. BCC and TE have overlapping clinical manifestations and may be confused even after performing a biopsy with a low-power field of view.

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