CORRESPONDENCE

Langerhans cells in lining epithelia of epidermoid cysts

The epidermoid cyst is a common cyst of the skin that is lined by epidermis-like stratified squamous epithelium. Langerhans cell (LC) is an antigen-presenting cell that is very important for T cell-mediated immune reaction. A small number of LCs can be found in the normal oral mucosa and skin. LCs can also be specifically demonstrated by anti-CD1a immunostain in the lining epithelia of odontogenic cysts such as radicular cyst, dentigerous cyst, and odontogenic keratocyst. In this study, we attempted to examine whether LCs were also present in the lining epithelia of either an intact or a ruptured epidermoid cyst.

Two epidermoid cysts, including an intact epidermoid cyst from the skin of the left preauricular area of a 46-year-old female patient and a ruptured epidermoid cyst from the skin of the left cheek of a 42-year-old female patient, were included in this study. The pathological diagnoses of the two cysts were confirmed by examination of the hematoxylin and eosin (H&E)-stained tissue sections. Briefly, the intact epidermoid cyst was lined with a thin layer of stratified squamous epithelium resembling epidermis, shreds of keratin were found in the cystic lumen, and no inflammation was noted in the subepithelial connective tissue (Fig. 1A). The ruptured epidermoid cyst showed fragmented stratified squamous lining epithelium and leaked shreds of keratin in the subcutaneous connective tissue with the presence of hemorrhage and an infiltrate of polymorphonuclear leukocytes, lymphocytes, plasma cells, foamy histiocytes, and multinucleated foreign body giant cells (Fig. 1B). Anti-CD1a immunostain was used to demonstrate the LCs in the lining epithelia of these two epidermoid cysts. With anti-CD1a immunostain, a few LCs were discovered in the thin lining epithelium of the intact epidermoid cyst (Fig. 1C). However, an increased number of LCs was demonstrated in the fragmented lining epithelium of the ruptured epidermoid cyst (Fig. 1D).

Most epidermoid cysts of the skin are derived from the follicular infundibulum and often appear after localized inflammation of the hair follicle. However, the inflammation may or may not be present when the cyst is excised. If the cyst lining epithelium is ruptured, a prominent granulomatous inflammatory reaction, including foamy histiocytes and multinucleated foreign body giant cells, can be found in the fibrous cystic wall because the leaked keratin is recognized as a foreign material. Bone marrow-derived LCs may migrate from the bloodstream into the inflammatory subepithelial connective tissue and further into the cystic lining epithelium of the epidermoid cyst. The intact epidermoid cyst has no definite inflammation in the cystic wall. Thus, a small number of LCs is found in the lining epithelium. However, the ruptured epidermoid cyst elicited a severe acute and chronic inflammation in the adjacent subcutaneous connective tissue; thus, an increased number of LCs can be discovered in the fragmented lining epithelium. Our findings indicate that the presence of LCs in the lining epithelia of the epidermoid cyst is highly associated with the inflammation in the underlying or adjacent fibrous cystic wall. In addition, immunohistochemical staining is a valuable method that can be used to show the expression of different types of biomarker in oral cancers, oral precancers including oral verrucous hyperplasia, and oral lymphomas.
References


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Figure 1  Hematoxylin and eosin (H&E)-stained and immunostained histological microphotographs of two epidermoid cysts. (A) A H&E-stained tissue section showing an intact epidermoid cyst lined by a thin layer of stratified squamous epithelium resembling epidermis, shreds of keratin in the cystic lumen, and no inflammation in the subepithelial connective tissue. (B) A H&E-stained tissue section demonstrating a ruptured epidermoid cyst with fragmented stratified squamous lining epithelium (arrows) and leaked shreds of keratin (arrowheads) in the subcutaneous connective tissue. Hemorrhage and an infiltrate of polymorphonuclear leukocytes, lymphocytes, plasma cells, foamy histiocytes, and foreign body giant cells are present in the adjacent subcutaneous tissue. (C) Anti-CD1a-immunostained tissue section exhibiting a few Langerhans cells in the thin layer of stratified squamous lining epithelium of the intact epidermoid cyst. (D) Anti-CD1a-immunostained tissue section showing an increased number of Langerhans cells in the fragmented lining epithelium of the ruptured epidermoid cyst. (Original magnification, A, C, and D, 50×; B, 25×).
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