

What's Your Diagnosis?®

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A Ruptured Erythematous Mass on a Teen's Cheek

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A 17-year-old boy developed a mass on the right cheek at the site of a mole that had grown slowly for a year. There was no known history of local trauma or infection. The mass ruptured a month ago, with discharge of a cheese-like white material.

Physical examination revealed an erythematous, dome-shaped mass on the right cheek. The mass was firm, nontender,

and not attached to the underlying structure. The rest of the examination findings were unremarkable.

What's your diagnosis?

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Answer: Epidermoid cyst

Epidermoid cyst, also known as epidermal inclusion cyst or epidermal cyst, is one of the most common benign cysts of the skin.^{1,2} The cyst is filled with keratin flakes or debris, and its wall is composed of keratinized, stratified, squamous epithelium.³

PREVALENCE

The exact incidence of epidermoid cyst is not known. Most cases are diagnosed between 15 and 50 years of age.⁴ The sex incidence is approximately equal.⁴

PATHOGENESIS

The condition can be congenital or acquired. Congenital cases are uncommon and may be caused by entrapment of ectodermal elements intradermally or subcutaneously during embryogenesis.^{4,5} Acquired cases of epidermoid cyst may result from traumatic or iatrogenic implantation of epithelial cells into the dermal or subcutaneous layer or from obstruction of a pilosebaceous unit in the hair follicle.^{5,6} Trauma is believed to be the main pathogenetic factor for acquired cases, although many patients might not recall the event.⁷ Occasionally, epidermal inclusion may occur as a result of a human papillomavirus infection.⁸

HISTOPATHOLOGY

Histopathologic examination of the lesion shows a lining consisting of keratinized, stratified, squamous epithelial cells with the inner surface lined with keratin lamellae.^{7,9} Hematoxylin-eosin staining of the content of the cyst shows loosely packed lamellae of degenerated keratins and crumbs, known as keratin pearls.⁹

CLINICAL MANIFESTATIONS

Typically, an epidermoid cyst presents as a fluctuant to firm, dome-shaped lesion that is not attached to the underlying structure.^{2,6} It has a tendency to grow slowly.¹ An epidermoid cyst usually is asymptomatic unless it becomes infected, ruptures resulting in inflammation, or is large enough to affect adjacent structures.^{3,7}

Epidermoid cysts occur mainly on hair-bearing areas.² Sites of predilection include the face, neck, scalp, and back.^{1,5} Rarely, they occur on the palms and soles where there are no hair follicles.^{2,10}

The condition usually is solitary but uncommonly can be multiple.¹¹ Most epidermoid cysts are 1 to 5 cm in diameter and are unilocular.^{1,12} Epidermoid cysts greater than 5 cm in diameter are considered as *giant*.⁹ Multilocular lesions are more



common in giant epidermoid cysts, are more commonly seen in elderly individuals, and have a higher risk of recurrence following treatment.^{7,12,13}

The occurrence is usually sporadic, but certain hereditary syndromes such as Gorlin syndrome, Gardner syndrome, and Lowe syndrome have epidermoid cysts as part of their constellation of features.^{14,15}

DIAGNOSIS

The diagnosis is mainly a clinical one. Rarely, ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI) may be performed to reveal the cystic nature of the mass and to differentiate it from other tumors.⁹

DIFFERENTIAL DIAGNOSIS

An epidermoid cyst should be differentiated from neurofibroma, eruptive vellus hair cyst, pilomatricoma, dermatofibroma, sarcoma, lipoma, and trichilemmal cyst.¹¹ In an older age group, the differential diagnoses would include basal cell carcinoma, squamous cell carcinoma, and Bowen disease.¹⁰

COMPLICATIONS

An epidermoid cyst may be cosmetically unsightly and socially embarrassing if it occurs in an exposed area.⁴ The cyst may rupture spontaneously or as a result of trauma with release of keratinous material, as illustrated in the present case.³ The keratin so released may act as an irritant, possibly leading to a foreign body giant cell reaction, granulomatous reaction, and

granulation tissue formation, which can be uncomfortable and mimic an infection.^{3,16}

An epidermoid cyst may become secondarily infected, which can result in abscess formation. Rarely, squamous cell carcinoma, basal cell carcinoma, Bowen disease, melanoma, and mycosis fungoides may develop in an epidermoid cyst.^{5,17-20}

MANAGEMENT

If removal of an epidermoid cyst is desired for cosmetic purposes or because of complications, complete excision of the cyst contents and cyst wall is the treatment of choice.^{1,6,9} Incomplete excision may lead to chronic inflammation and recurrence.^{1,6,9} Inflamed or tender cysts can be injected with intralesional triamcinolone acetonide, and infected cysts should be treated with oral antibiotics prior to excision.

This patient had complete excision of the cyst performed. The postoperative course was uneventful. No recurrence was noted in the follow-up after 6 months. ■

REFERENCES:

1. Im J-T, Park BY. Giant epidermal cyst on posterior scalp. *Arch Plast Surg.* 2013;40(3):280-282.
2. Lee KM, Park JH, Min KH, Kim EK. Epidermal cyst on the sole. *Arch Plast Surg.* 2013;40(4):475-476.
3. Alimoglu Y, Mercan H, Karaman E, Oz B. Epidermal inclusion cyst of external auditory canal. *J Craniofac Surg.* 2010;21(4):1290-1291.
4. Pereira-Santos D, De Melo WM, Brêda MA Jr, Sonoda CK, Hochuli-Vieira E. Epidermal cyst causing facial asymmetry. *J Craniofac Surg.* 2013;24(2):e112-e114.

5. Pérez-Guisado J, Scilletta A, Cabrera-Sánchez E, Rioja LF, Perrotta R. Giant earlobe epidermoid cyst. *J Cutan Aesthet Surg.* 2012;5(1):38-39.
6. Abdel-Aziz M. Epidermoid cyst of the external auditory canal in children: diagnosis and management. *J Craniofac Surg.* 2011;22(4):1398-1400.
7. Kang S-G, Kim C-H, Cho H-K, Park M-Y, Lee Y-J, Cho M-K. Two cases of giant epidermal cyst occurring in the neck. *Ann Dermatol.* 2011;23(suppl 1):S135-S138.
8. Haga T, Okuyama R, Tagami H, Egawa K, Aiba S. Demonstration of human papillomavirus type 60 in an epidermoid cyst developing in the finger pulp of the thumb [letter]. *Dermatology.* 2005;211(3):296-297.
9. Baek S-O, Kim S-W, Jung S-N, Sohn W-I, Kwon H. Giant epidermal inclusion facial cyst. *J Craniofac Surg.* 2011;22(3):1149-1151.
10. Gomi M, Naito K, Obayashi O. A large epidermoid cyst developing in the palm: a case report. *Int J Surg Case Rep.* 2013;4(9):773-777.
11. Hwang D-Y, Yim Y-M, Kwon H, Jung S-N. Multiple huge epidermal inclusion cysts mistaken as neurofibromatosis. *J Craniofac Surg.* 2008;19(6):1683-1686.
12. Fujiwara M, Nakamura Y, Ozawa T, et al. Multilocular giant epidermal cyst. *Br J Dermatol.* 2004;151(4):943-945.
13. Polychronidis A, Perente S, Botaitis S, Sivridis E, Simopoulos C. Giant multilocular epidermoid cyst on the left buttock. *Dermatol Surg.* 2005;31(10):1323-1324.
14. Morice-Picard F, Sévenet N, Bonnet F, Jouary T, Lacombe D, Taieb A. Cutaneous epidermal cysts as a presentation of Gorlin syndrome. *Arch Dermatol.* 2009;145(11):1341-1343.
15. Won JH, Lee MJ, Park JS, Chung H, Kim JK, Shim JS. Multiple epidermal cysts in Lowe syndrome. *Ann Dermatol.* 2010;22(4):444-446.
16. Peltola JC, Sarmad A, Pambuccian SE. Granulation tissue associated with a ruptured epidermal inclusion cyst: a potential pitfall in fine needle aspirates of neck masses. *Diagn Cytopathol.* 2013;41(4):344-347.
17. Bajoghli A, Agarwal S, Goldberg L, Mirzabeigi M. Melanoma arising from an epidermal inclusion cyst. *J Am Acad Dermatol.* 2013;68(1):e6-e7.
18. Kshirsagar AY, Sulhyan SR, Deshpande S, Jagtap SV. Malignant change in an epidermal cyst over gluteal region. *J Cutan Aesthet Surg.* 2011;4(1):48-50.
19. Swygert KE, Parrish CA, Cashman RE, Lin R, Cockerell CJ. Melanoma in situ involving an epidermal inclusion (infundibular) cyst. *Am J Dermatopathol.* 2007;29(6):564-565.
20. Terada T. Squamous cell carcinoma originated from an epidermal cyst. *Int J Clin Exp Pathol.* 2012;5(5):479-481.

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