

Epidermal Cyst with Malignant Transformation: A case report

Rathna S^{1,*}, Ketav R. Desai², Kanhaiya Lal Mishra³

¹Professor, Sri Venkateshwara Medical College, Hospital & Research Centre, Puducherry, ^{2,3}PG Student, Dept. of Pathology, Sri Manakula Vinayagar Medical College & Hospital, Puducherry

***Corresponding Author:**

Email: rathnashivanna7@gmail.com

Abstract

Epidermal cysts are the commonest tumors of the skin. Malignant tumor arising from a cyst is extremely rare. A 30 years old male patient presented to surgical OPD with a cystic swelling over the forehead of 3 years duration. A clinical diagnosis of sebaceous cyst was made and was surgically excised. Microscopic examination revealed squamous cell carcinoma arising from a cyst wall. Clinically, it is difficult to differentiate a benign lesion from a malignant cystic lesion. We present this case because it is rare for a benign epidermal cyst to transform in to a malignant tumor and also recommend that entire resected cystic skin tissue to be subjected for histopathological evaluation.

Keywords: Epidermal cyst, Benign, Squamous cell carcinoma, Malignant transformation.

Introduction

Epidermal cyst (EC), also known as infundibular cyst is the most common benign cystic lesion of the skin.⁽¹⁾ It is encountered in all age groups with predilection for head and neck region. Microscopically, cyst is lined by stratified squamous epithelium with intact granular layer and filled with keratin. Incidence of malignant transformation of a benign cyst is extremely rare. The most common tumor seen arising in a benign cyst includes squamous cell carcinoma followed by basal cell carcinoma. Clinically, it is difficult to distinguish a benign cystic lesion from that of a malignant tumor.

Hence, entire excised tissue should be subjected for histopathological evaluation. Surgical treatment includes wide excision with adequate free margins to avoid recurrence.

Case History

A male patient aged about 30 years presented to surgical OPD with cystic swelling over the forehead of 3 year's duration. On clinical examination swelling was mobile and non-tender measuring 2 cms in diameter. There were no palpable lymph nodes. The diagnosis of sebaceous cyst was made clinically and was surgically excised. Gross examination revealed a skin covered cyst measuring 2 cms in diameter. Cut section revealed a unilocular cyst filled with keratinous material.

Microscopically, the cyst was lined by stratified squamous epithelium with intact granular layer and filled with keratin (Fig. 1). One of the foci showed dysplastic features like increased stratification, hyperchromatic, pleomorphic nuclei, high nucleo/cytoplasmic ratio, necrosis and atypical mitosis (Fig. 2, 3, 4). Tissues were extensively re-sampled and subjected for microscopic study to rule out invasion. However tumor showed no stromal invasion. Hence the diagnosis of epidermal cyst with transformation to

squamous cell carcinoma (in situ) was made. Surgical margins were free of tumor. Patient did not receive any further therapy and was followed- up for 8 months post operatively. No recurrence or metastasis observed in the last follow- up care.

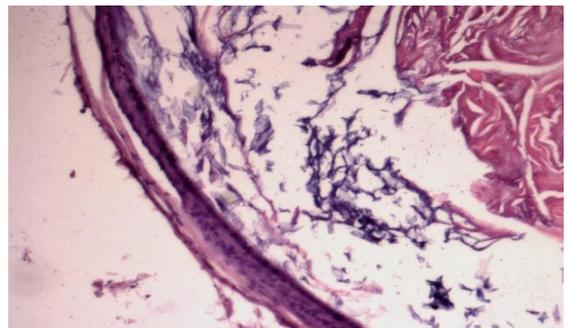


Fig. 1: Cyst wall with stratified squamous epithelial lining with granular layer and keratin flakes (H&E, 10x)

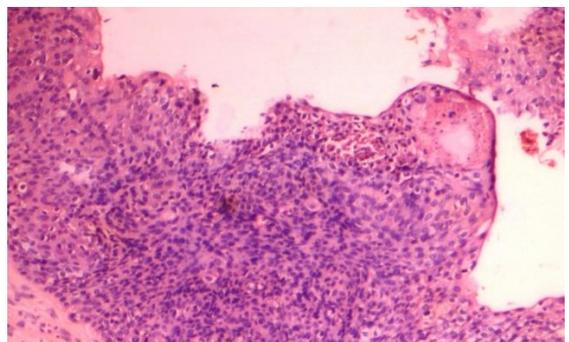


Fig. 2: Cyst with malignant transformation into squamous cell carcinoma (H&E, 10x)

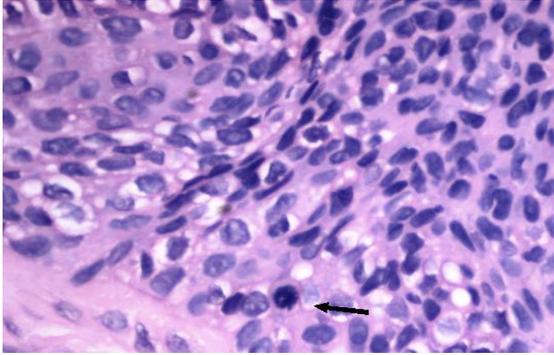


Fig. 3: Tumor cells showing pleomorphic, hyperchromatic nuclei, increased nucleocytoplasmic ratio and atypical mitosis (arrow) (H&E, 40x)

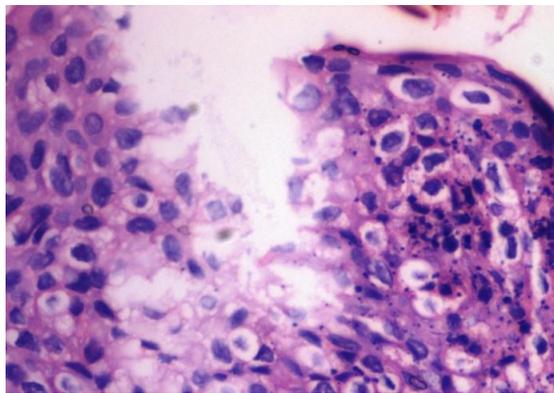


Fig. 4: Tumor with necrosis (H&E, 40x)

Discussion

ECs are the commonest benign lesions of the skin. Malignant tumor arising in a benign cyst is extremely rare. According to the previous literature, incidence ranged from 0.011% to 0.045%.^(2,3) Majority of the cases occur over a wide age group ranging from 21-80 years (mean, 43.2 years). In the present case, patient was aged about 30 years. The lesions occur commonly on head and neck region, followed by trunk and limb with male preponderance (70%).⁽⁴⁾ The size of the lesion varies from 1.5 cms to 10cms (mean, 5 cms) and the duration of the lesion ranges from 2 to 132 months (mean, 33.5 months).⁽⁵⁾ Squamous cell carcinoma is the most common tumor seen arising in an EC, followed by basal cell carcinoma.⁽⁶⁾ Previous studies revealed metastasis in only 3 out of 19 cases.⁽⁴⁾ In the present case, tumor showed no stromal invasion.

UV rays exposure and chronic irritation to the lining epithelium of the cyst acts as a trigger for malignant transformation.^(7,8)

The differential diagnosis includes trichilemmal proliferating cyst and pseudoepitheliomatous hyperplasia in a ruptured cyst.⁽⁹⁾

Surgical management includes wide excision with adequate margins to prevent recurrence.⁽¹⁰⁾

To conclude, the incidence of a malignant tumor arising in a benign epidermal cyst is extremely rare.

Clinically, it is difficult to distinguish a benign lesion from a malignant tumor. Hence we insist that all the excised cutaneous cystic tissues to be subjected for detailed histopathological study.

References

1. Bhatt V, Evans M, Malins THE. Squamous cell carcinoma arising in the lining of an epidermoid cyst within the sublingual gland--a case report. *Br J Oral Maxillofac Surg* 2008;46:683-685. [PubMed]
2. Chiu MY, Ho ST. Squamous cell carcinoma arising from an epidermal cyst. *Hong Kong Med J*. 2007;13:482-484. [PubMed]
3. Lopez-Rios F, Rodriguez-Peralto JL, Castano E, Benito A. Squamous cell carcinoma arising in a cutaneous epidermal cyst: case report and literature review. *Am J Dermatopathol*. 1999;21:174-177. [PubMed]
4. Anton-Badiola I, San Miguel-Fraile P, Peteiro-Cancelo A, Ortiz-Rey JA. Squamous cell carcinoma arising on an epidermal inclusion cyst: a case presentation and review of the literature. *Actas Dermosifiliogr*. 2010;101(4):349-353. [Pub Med]
5. Cameron DS, Hilsinger RL., Jr Squamous cell carcinoma in an epidermal inclusion cyst: case report. *Otolaryngol Head Neck Surg*. 2003;129:141-143. [PubMed]
6. Beuer BS, Lewis VL. Carcinoma arising in sebaceous and epidermoidcysts. *Ann Plast Surg* 1980;5:222-6.[Pub Med]
7. Alam M, Ratner D. Cutaneous squamous cell carcinoma. *N Eng J Med*. 2001;344(13):975-983.[Pub Med]
8. Davies MS, Nicholson AG, Southern S, Moss AH. Squamous cell carcinoma arising in a traumatically induced epidermal cyst. *Injury*1994;25:116-7.
9. Lever WF, Lever GS. *Histopathology of skin*. 6thedn. Philadelphia: JB Hippincott Company;1983.
10. Shabbir A, Loss L, Bogner P, Zeitouni NC. Squamous cell carcinoma developing from an epidermoid cyst of the ear. *Dermatologic Surgery*. 2011;37(5):700-703.[PubMed]