

# Multiple Epidermal Cysts of the Scalp: Dermatological Approach with Favourable Outcome!

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## Abstract

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**BACKGROUND:** Epidermal cysts are subcutaneous tissue formations that are most commonly located in the area of scalp, trunk and face. In addition to single ones, the cysts may also be multiple, located near each other. Although they are considered to be a cystic ectasia of the hair infundibulum and mainly affect hairy parts, they can also be seen in the area of palms and feet as a result of trauma. Rare extracutaneous localisations are also described in the medical literature, affecting the oral cavity, intraosseous, cerebrum and sublingual epidermoid cyst. Although the majority of epidermal cysts are benign, a malignant transformation may also occur in the direction of development of squamous cell carcinoma, basal cell carcinoma or Merkel cell carcinoma. Clinically, they are presented as benign lesions, and only histological examination may reveal their malignant potential. Therefore, their surgical removal and subsequent histology are of paramount importance for the elucidation of their origin.

**CASE PRESENTATION:** An 88-year old patient was hospitalized for surgical removal of two tumorous formations in the head area which have been available for many years. During the dermatological examination in the frontal and parietal area of the head, the presence of two oval pink cystic neoplasms, clinically suspected for epidermal cysts, was found. The lesion located in the frontal area was removed by elliptical excision. The resulting surgical defect was closed by undermining the wound edges and mobilisation of the released skin to the middle of the defect, as the latter being closed by single interrupted sutures. In the second surgical session, the lesion located in the parietal region of the head was also removed under local anaesthesia. A so-called island flap was performed in which the tumour formation was removed by oval excision followed by contouring a triangle in the distal direction and transposition of the undermined triangle to the oval surgical defect. The resulting defect was recovered by single interrupted sutures.

**CONCLUSION:** First-line treatment of epidermal cysts is surgical excision, and it is important to remove the cyst wall to minimise the risk of relapses and recurrence. Other treatment options include laser therapy with CO<sub>2</sub>, erbium-YAG laser or intralesional drainage injection of triamcinolone acetonide.

## Introduction

Epidermal cysts are benign, asymptomatic neoplasms affecting intradermal or subcutaneous tissue [1]. Although they are mainly seen as a cosmetic problem, in some cases it is possible for the secondary infection to occur in case of rupture of the cystic wall [2].

Even rarely, there is the possibility of malignant transformation in epidermal cysts as in this respect cases are described as switching to

squamous cell carcinoma, basal cell carcinoma and Merkel cell carcinoma [2]. For this reason, histological examination is essential and obligatory for the correct interpretation and diagnosis of these epidermal formations [3].

## Case Report

We present an 88-year-old man with heart arrhythmia. The patient was hospitalised for surgical

removal of two tumorous formations in the head area which have been available for many years. During the dermatological examination in the frontal and parietal area of the head, the presence of two oval pink cystic neoplasms, clinically suspected for epidermal cysts, was found (Figure 1a, and 1b).



Figure 1: 1a) Clinical view of two epidermal cysts located in the frontal and parietal areas of the head; 1b) Outlining the surgical margins for the lesion in the frontal area; 1c) Elliptical excision of the lesion in the frontal area; 1d) Postoperative finding: surgical defect closed by single interrupted sutures

The lesion located in the frontal area was removed by elliptical excision (Figure 1c). The resulting surgical defect was closed by undermining the wound edges and mobilisation of the released skin to the middle of the defect, as the latter being closed by single interrupted sutures (Figure 1e).

The subsequent histological study found the presence of an epidermal cyst. In the second stage, the lesion located in the parietal region of the head was removed (Figure 2a, and 2f).

A so-called island flap was performed in which the tumour formation was removed by oval excision (Figure 2b) followed by contouring a triangle in the distal direction (Figure 2c, and 2d) and transposition of the undermined triangle to the oval surgical defect (Figure 2e). The resulting defect was recovered by a single interrupted suture (Figure 2e, and 2f).



Figure 2: 2a) Outlining the surgical margins for the lesion in the parietal area; 2b) Oval excision of the lesion in the parietal region; 2c), and 2d) Conducting island flap: contouring a triangle in the distal direction; 2e), and 2f) Transposition of the triangle to oval defect and closing the defect with single interrupted sutures; f) A small area of necrosis is observed in the area of the performed island flap

Postoperative histological verification has shown that it is an epidermal cyst with clear resection margins. Initially, we observed slight necrosis of a portion of the transposed flap (Figure 2e, and 2f), which healed secondary by topical application of silicone anti-scarring gel (Figure 3a, and 3b).



Figure 3: 3a), and 3b) Postoperative cosmetic result after two months

A smooth post-operative period passed, during which the necrotic tissue granulated, the relief evened and a good cosmetic result was observed (Figure 3a, and 3b).

## Discussion

The epidermal cyst is a benign subepidermal nodule filled with keratin material, and several interchangeable terms are used in the literature - epidermoid cyst, sebaceous cyst, infundibular cyst

and epidermal inclusion cysts [4], [5]. This type of cysts predominantly affects the hairy parts of the face, scalp and trunk, and is thought to be the result of cystic ectasia of the infundibular portion of hair follicles [5], [6]. However, it may also occur in the hairless skin (as in soles and palms) as a result of blunt, penetrating injury implanting epidermal fragments into the dermis [6]. Cases in which epidermal cysts have a size greater than 5 cm are referred to as giant epidermal cysts [7]. Depending on the location, epidermoid cysts should be distinguished from a lipoma, dermoid cyst, pilar cyst, furuncle, pilonidal cyst, calcinosis cutis, steatocystoma and cutaneous findings of Gardner syndrome [4]. It is important to note that there is also the so-called epidermoid cyst mimicry, describing seven cases of cyst mimickers: hidradenoma, cutaneous B-cell lymphoma, epithelioid sarcoma, Merkel cell carcinoma, metastatic adenocarcinoma of the lung, granular cell tumour, and cutaneous meningioma [8]. It is also possible that epidermal cysts grew to enormous sizes and misinterpreted as a soft tissue sarcoma [7]. However, in epidermoid cysts, there is a small but possible risk of switching to malignancy, and most often this is a development in the direction of squamous cell carcinoma (70% of the time) followed by basal cell carcinoma [2], [4]. Cases of malignant degeneration in epidermoid cysts are estimated to be approximately 2.2%, with giant epidermoid cysts believed to have a greater tendency to develop malignancy [5], [9]. Due to that reason, their timely treatment is important, and currently, the most effective approach to treating epidermal cysts is recommended to be complete surgical excision of the cyst with the cyst wall intact [4]. In cases of incomplete resection and inappropriate treatment, repeated recurrent epidermoid cysts may occur [10]. Alternative options for the treatment of epidermal cysts can be the use of carbon dioxide laser, erbium-YAG laser or Intralesional drainage injection of triamcinolone acetonide for epidermal cysts [2], [11]. The disadvantage of these methods versus surgical excision is the lack of possibility for subsequent histological examination and determination, on the one hand, of the histological character of the removed tissue, and on the other hand the guarantee of clean resection lines. Furthermore, in laser therapy, there is a greater risk of not removing the whole cyst along with the cystic wall.

It is believed that all cysts should be examined histologically, on the one hand, 1) for confirmation and proof that they are completely surgically removed, and 2) to exclude malignant degeneration [2], [9]. In this regard, a prior histological examination of the cyst is possible in the laser therapy, which determines the histological status in a

small part of the examined tissue and does not exclude malignancy in the rest.

In conclusion, first-line treatment for epidermal cysts should be surgical excision, which allows: 1) complete cyst removal along with the cyst wall and 2) postoperative histological examination of the entire epidermal cyst to determine the condition of the resection lines and to exclude malignancy.

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