



CASE REPORT

Treatment of multiple scalp cylindroma

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Abstract: Cylindroma is a rare, benign adnexal tumor of the skin. The most frequent tumor location is the head, especially the scalp, and neck area. This type of tumor can occur as solitary or multiple tumors. Tumor diagnosis is relatively easy and is based on clinical findings and biopsy. The therapy of choice is surgical excision with parts or entire scalp excision depending on whether it is solitary or multiple tumor. We presented a 65-year-old male patient with multiple scalp tumors of 0.5–6 cm in diameter. An entire scalp excision was performed and the postoperative wounds (i.e., the periosteum of the skull and the fascia galea) were covered with free skin graft of partial thickness. In order to prevent profuse bleeding, we placed a tourniquet around his head and performed bilateral temporary ligation of temporal artery prior to surgery. During the nine-year follow-up, there were no new tumors or tumor recurrence reported.

Keywords: Skin tumors; cylindroma; turban tumor; scalp defects; scalp reconstruction

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Introduction

Dermal cylindroma is a benign tumor of the sweat glands differentiating toward either the eccrine or apocrine line^[1-11]. The most frequent location is the head, especially the scalp, and neck area. It can occur as solitary or multiple lesions. The name cylindroma originated from the specific appearance of tumor cells with cylindrical pseudolumina. Cylindroma is a tumor of uncertain etio-pathogenesis. There is a familial (i.e., genetic) base for the development of this tumor^[1-5]. Due to its appearance on the scalp, multiple cylindromas are also called the ‘turban tumor’. Malignant transformation of the tumor has been described in literature^[3-8].

Cylindroma diagnosis is relatively easy and is based on clinical findings and biopsy. Cylindroma is characterized by circumscribed or poorly circumscribed dermal tumor without attachment to the epidermis, movable from the underlying surface, and with characteristic histological and immunohistological findings. The treatment

of choice for cylindroma is surgical excision. Other treatments include electrodesiccation with curettage, cryotherapy, carbon dioxide laser treatment, and irradiation therapy. Multiple cylindromas usually require extensive plastic surgery in single or multiple procedures.

Materials and methods

Case Report

A 65-year-old male patient had a long-standing history of multiple scalp tumors of 0.5–6 cm in diameter, with progressive growth over the past two years (**Figure 1**). The skin over the tumors looked like normal skin. The tumors were painless, circumscribed, and movable from the underlying surface. There were no palpable lymph nodes in the head and neck area. Routine laboratory panel results were normal. One small tumor was removed via deep biopsy and submitted for histological examination. Histological findings confirmed clinical diagnosis of cylindroma. Since there were a number of tumors found on

the scalp, we decided to excise the entire scalp. In order to prevent profuse bleeding, a tourniquet was placed around the head (around the forehead and below the nape) and bilateral temporary transcutaneous ligation of superficial temporal artery was performed prior to surgery. The excision of the scalp was completed with minimal bleeding. Surgical wounds (*i.e.*, skull periosteum and fascia galea) were covered with free split-thickness skin graft (Figure 2). Upon completion of the operation, ligation of temporal arteries were removed.



Figure 1. Before surgery



Figure 2. One month after surgery

Results

The entire scalp was excised via extensive surgical procedure with minimal bleeding. Numerous scalp tumors

were removed (Figures 1 and 2). Good—even excellent—long lasting, therapeutic, functional, aesthetic, and hygienic results were achieved after six weeks of surgery. During the nine-year follow-up, there were neither new tumors in the region of the excised scalp nor tumor recurrence reported.

Discussion

There is already substantial consensus, both in literature and in practice, regarding the main characteristics of cylindroma—its clinical picture, diagnosis, prognosis, histological, and immunohistological image; thus, these will not be discussed. Tumor therapies discussed were usually within the scope of surgeons and dermatologists; hence, no full consensus was reached with respect to therapy.

Surgeons would advocate and implement surgical treatment almost exclusively. Dermatologists often implement non-surgical methods of treatment (cryotherapy, laser treatment, electrodesiccation with curettage, and irradiation therapy). Both surgical and nonsurgical methods have advantages and disadvantages.

The advantage of surgical therapy is that it achieves radical removal of the tumor, which implies minimal risk of recurrence and malignant tumor transformation. In addition, surgical therapy significantly reduces treatment time. However, surgical therapy is considered an aggressive and invasive method which requires anesthesia and special conditions. Nonsurgical methods for treating cylindroma in appropriate cases often achieve good, even excellent, results but there is a possibility of malignant transformation or recurrence, as well as the possibility of basal or squamous cell skin cancer occurrence due to the application of these nonsurgical methods. Moreover, nonsurgical methods would prolong tumor treatment.

In cases of numerous large cylindromas, the only real therapy is via surgery. In such cases, applying nonsurgical methods would be a professional error, a '*vitium artis*'. It is often emphasized that nonsurgical methods are applied when patients are in poor general health and thus are unsuitable for surgery. For contemporary surgery with modern anesthesia and resuscitation (preoperative, intraoperative, and postoperative), rarely are there contraindications for surgery due to patients' poor general health. Cylindroma, even multiple ones, do not require large surgical procedures that last a long time. An entire scalp excision is not a large and risky procedure if proper procedures are applied, such as methods to prevent profuse bleeding. By placing a tourniquet around the patient's head and performing temporary transcutaneous

temporal artery ligation, an extensive operation—which is always accompanied by extensive bleeding—can be safely performed with minimal bleeding. It is often stated that nonsurgical methods are applied when a patient refuses surgical treatment. If a conscientious physician sufficiently explains the advantages and disadvantages of the treatments, a patient will usually accept the safest method.

Conclusion

In cases of scalp cylindromas, especially in cases of multiple scalp cylindromas, surgical therapy is the therapy of choice. It is possible to achieve good results by utilizing different nonsurgical methods of treatment but there is always a risk of tumor recurrence and malignant transformation.

Conflict of interest

The author declared no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

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