



Journal Homepage: - www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/12955

DOI URL: <http://dx.doi.org/10.21474/IJAR01/12955>



RESEARCH ARTICLE

PLASTIC SURGERY & ADVANCED SCALP TUMORS: EPIDEMIOLOGICAL PROFILE AND SURGICAL MANAGEMENT ABOUT 65 CASES

Sahibi Mohamed Elmehdi, Mahrouch El Mehdi, Yafi Imane, Elgueouatri Mehdi, Zineddine Ismail, Ait Benlaasel Oumnia, Moulay Driss Elamrani and Yassine Banchemkha

Manuscript Info

Manuscript History

Received: 30 March 2021

Final Accepted: 30 April 2021

Published: May 2021

Abstract

The scalp is the most frequent site of occurrence of malignant tumors. As an area that is generally neglected by the patient and not closely monitored during physical examinations. Plastic surgery has a double interest in the management of malignant tumors of the scalp: it allows oncologic tumor excision and coverage of defects induced. The present study reports 65 cases of giant malignant tumors of the scalp and who underwent surgical management, from January 2011 to June 2019. It included oncologic resection and repair of the defect. The average age in our series was 69.3 years, with a sex ratio of 5.1. Disease duration before consultation was on average 21 months. The location of the tumor was mostly parietal in 75%. The histological types were found in our series: 36 cases of squamous cell carcinoma, 16 cases of basal cell carcinoma, 6 cases of melanoma, 3 cases of trichilemmal carcinoma, 2 cases of dermatofibrosarcoma protuberans and one case of sarcoma and one case of adenoid cystic carcinoma. To cover the defect we used: skin graft in 44 cases and by local flaps in 21 cases. 42 patients benefited from radiotherapy and the evolution was marked by a reactivation in 3 cases of squamous cell carcinoma. The management of malignant tumors of the scalp is surgical and consists of two components: surgical excision and coverage. This repair is achieved through multiple techniques, facilitated by the vascular richness of this anatomical region.

Copy Right, IJAR, 2021.. All rights reserved.

Introduction:-

The scalp is the most frequent site of occurrence of malignant tumors. Those Malignant scalp tumors represent 2% of skin tumors. Plastic surgery has a double interest in the management of these malignant tumors, first by ensuring an early and carcinological excision to prevent the invasion of the underlying structures, recurrences and metastases thereafter covering the defects, and this by different means depending on the size of the defect, the location and its complexity.

Through this work, we will show the difficulty and complexity of repairing the defect after tumor excision, which is a real challenge for the surgeon.

Corresponding Author:- Sahibi Mohamed Elmehdi

Patients And Methods:-

Our study is retrospective, carried out at Mohamed VI University Hospital Center Marrakech. This study spanned a period 8 years and a half, from January 2011 to June 2019, it reports 65 cases, all with an advanced scalp tumor with a large diameter greater than 5 cm with or without bone invasion. The majority of patients reported a notion of excessive sun exposure which is an incriminated factor in the occurrence of certain tumors just as much as the sebaceous nevus of the scalp. Data collection has been made from hospitalization records of patients in the service of plastic and reconstructive surgery. All patients benefited biopsy or biopsy - excision of their scalp's lesions with histological study. The reconstruction of the scalp defect was either immediate in case of healthy histopathology limits, or carried out secondarily after recovery in case of tumor limits.

Results:-

Our study included 65 cases of malignant tumors of the scalp, 54 men and 11 women. The average age of our patients was 69.3 years. Two-thirds of our patients were from a rural environment (region of Marrakech). In our series, 55 patients had a clear phototype, and 88% reported a notion excessive sun exposure. About the pathological history, 40% of our patients have been followed for high blood pressure and 20% were type 2 diabetics under treatment. Furthermore, we have noted no previous history of radiotherapy, nor burn, trauma or scalp surgery. The main functional sign was represented by the bleeding, with an average duration of evolution which was around 21 months. Clinically, the appearance ulcerating lesions was the predominant, with a local infection found in half of the patients. The average size of the lesions observed in our series was 9cm, and who basically sat on the scalp parietal in 75%. The lesion was unique in the majority of cases. Cervical lymphadenopathy has been palpable in 60% of cases.

The anatomopathological study had objectified 36 cases of spinocellular carcinoma, 16 cases of basocellular carcinoma, 6 cases of melanoma (level V of Clark), 3 cases of trichelemmal carcinoma, 2 cases of dermatofibrosarcoma protuberans, one case of sarcoma and one case of adenoid cystic carcinoma. Cerebral computed tomography was performed in 44 patients, objectifying 5 cases of osteolysis without endocranial extension, required the creation of a cranial flap with bone reconstruction, in collaboration with the neurosurgery team.

Tumor excision was complete in depth and periphery in 92% of cases. The margin of excision was between 1 and 3 cm. Radiotherapy was indicated in 42 cases. None of our patients received chemotherapy courses. After excision the size of the defect varied between 9 and 17 cm.

We used the skin graft to cover the defect in 44 cases, and local flaps in 21 cases (5 cases of two rotational flaps focused on the temporal artery and occipital, 4 cases of helical rotation flap at vertex level, 4 giant frontal flap case peduncle on the left temporal artery and 4 flaps focused on the occipital artery). No case of free flap in our study.

Evolution was marked by the occurrence of recurrence in 3 cases of squamous cell carcinoma with an average follow-up of 8.3 months. 3 cases of metastasis deceased pulmonary. 3 cases of flap infection and another of distal epidermolysis which have evolved well under antibiotic therapy and local care. In no case vascular suffering of the flap has been reported.

Discussion:-

The scalp represents a characterized anatomical entity by its rich vascularity, its relative thickness and its low elasticity. It can be the site of malignant tumors which represent only 2% of all skin tumors [1]. These tumors see after the age of 50 in 69.8% of cases [2], with a male dominance. In the literature, the factors incriminated in the appearance of these tumors, are represented by: chronic solar exposure [2], presence of sebaceous nevus [3], history of ionizing radiation [4], history of burns, trauma or surgery of the scalp [5]. The epidermal tumors represented by basal and squamous cell carcinoma, make up the majority of these tumors in all series (approximately 80% in our series).

Spinocellular carcinoma was the most incriminated tumor in the series of Fon et al [6] and ours, unlike results of Katz et al, Chyi-yih Lin et al [2] and those of P.F.Soma et al where basal cell carcinoma was the leader. For scalp melanoma, the series of "Minor and Panje" from Illinois, demonstrated that the melanoma was the 3rd variety of malignant tumors of the scalp. Only 2% of this histological variety was found in the series of Chyi-yih Lin et al [2],

Three cases in our series and no case in that of Fong and al [6]. In our series, the most common location of tumors is located at the parietal scalp, which agrees with the results of B. Kruse-Losler et al [7].

Malignant Tumors of the scalp present a double problem: quality of the excision and the methods of reconstruction of the different resected tissues. The safety margins of skin excision differ according to the histological type of the tumors, they are of a few millimeters at 1 or 2cm for epitheliomas baso- and spinocellular. We have a panoply means to cover the defect generated by tumor excision, this in function of a certain number of parameters, namely: the size of the loss of substance, its location, its complexity, depth, breadth compared to remaining scalp then the quantity and quality of the remaining hair. Direct suturing is in principle reserved only for defects losses not exceeding 2 to 3 cm wide, given the poor elasticity of the scalp. Directed healing, alone, can only be applied to very small defects, why it is often only the preparatory time for the skin graft. other alternative is represented by the artificial dermis (Integra), which is used in the management of defects under local anesthesia, which is suitable for elderly people with multiples co-morbidities[8,9]. Skin grafting has the advantage of being simple and very reliable when the basement is good, but the transplanted area is alopecic and sometimes the grafted skin has tendency to ulcerate at the slightest trauma [10]. Due to the simplicity of this technique and the problem of operability of our elderly patients, it has been used in 44 patients. Local flaps always represent the best therapeutic solution that you should know how to prioritize over other more invasive techniques [11].

They experienced a great development in immediate reconstruction after tumor excision. Indeed, they bring a hairy tissue scalp with good quality of cell tissue subcutaneous and fascial that are richly vascularized. Among these flaps, therotational flaps seem best suited to the curved surface of the scalp. These are the most used in our series.

Despite the disadvantages generated by thin skin grafts from donor sites, these rags have many advantages [12]: a rapid realization in operating time, stability over time, low morbidity and an satisfying aesthetics result. Free flaps can become essential when others possibilities are exceeded and when it s required to cover byflap. All free flaps are theoretically possible provided that their size is sufficient: the grafted free omentum was one of the first used, the Latissimus Dorsi flap is the most employee. We can also use other flaps (inguinal, axillary, scapular, antibrachial,etc.). These kinds of flaps constitute a good alternative for cases requiring reconstruction of transfixing defects.

For defenders of free flaps when the defect is medium-sized, the microsurgery offers: The possibility of sampling composite which ensures the simultaneous reconstruction of the skin and bone (osteocutaneous flap of serratus anterior or latissimus dorsi) or skin and durian (flap of tensor of fascia lata).

The free osteocutaneous flaps seem to resist better to infection and some authors indicate them systematically on irradiated scalps [13]. The resistance to postoperative radiation therapy, even if no comparative study exists in the literature asserting the superiority of free flaps over local flaps in terms of resistance to radiation. They represent an alternative to local flaps on scalps that cannot be mobilized because of previous irradiation, interruptions of nourishing vessels by surgery or a previous trauma, or preepitheliomatous lesions on the scalp [13].

Free flaps leave in place an unscathed scalp at first, which make the skin expansion for a secondary hair reconstruction easy. Secondary expansion of the scalp is possible even if a local scalp flaps is used, but it is complicated by anterior incisions and by less elasticity less of the mobilized scalp. Microsurgery remains a heavy intervention for these elderly patients and its morbidity is not negligible. Failure to make the defect reconstruction by free flaps in our unit , is always explained by the problem of their operability (since it is a heavy intervention), by the unsatisfying aesthetic result and by the absence of cases of invasive tumors in our series requiring simultaneous reconstruction of the skin, bone and dura mater by providing a free flap from a distance.

Conclusion:-

Tumor pathology of the scalp is frequent the treatment is essentially surgical with the widest possible excision and immediate or delayed coverage depending on the macroscopic appearance of the tumor.

The diversification of the means of repair must respond to a satisfying reconstruction; must be reliable, and allows an adjuvant treatment. thus the partial defects of the scalp does not pose a problem of coverage since the remaining

scalp can be mobilized in full and axially on a single pedicle (temporal artery or occipital artery) if the bone is exposed, otherwise and when the basement allows it, a simple skin graft provides coverage.



Spinocellular carcinoma of the parietal scalp



Excision of the tumor



Defect coverage by a skin graft



Giant spinocellular tumor



Excision of the tumor



Excision and coverage of the defect by a local flap at the same operating time



A giant composite Carcinoma.



excision of the tumor and coverage the defect by a local flap

**References:-**

- 1- Conley JJ. Malignant tumors of the scalp. Analysis of 92 cases of malignant epithelial and somatic tumors of the scalp. *Plast Reconstr Surg* 1999;33:1-15.
- 2- Cheng-Sheng CH, Chyi-Yih Lin. Malignant cutaneous tumors of the scalp: A study of demographic characteristics and histologic distributions of 398 Taiwanese patients. *J Am Acad Dermatol* 2007;56:448-52.
- 3- Cribier B, Scrivener Y, Grosshans E. Tumors arising in nevus sebaceus: A study of 596 cases. *J Am Acad Dermatol* 2000;42:263-8.
- 4- Mongi M , Hatem F , Lotfi K. Radio-induced malignancies of the scalp about 98 patients with 150 lesions and literature review. *Plast Reconstr Surg* 2004;81:205-7.
- 5- Heather M, Richmond M ,Deborah F. Primary and Metastatic Malignant Tumors of the Scalp. *AmJ Clin Dermatol* 2010;11:233-46.
- 6- Fong PH, Lee ST, Lim Tan SK. Primary scalp cancer in Singapore. *Ann Acad Med Singapore* 1986;15:67-70.
- 7- Muhammad A. Use of Dermal Regeneration Template (Integra) for Reconstruction of Full-Thickness Complex Oncologic Scalp Defects. *J Craniofac Surg* 2010;21:905-909.
- 8- Corradino B. Reconstruction of full thickness scalp defects after tumour excision in elderly patients: Our experience with Integra-dermal regeneration template. *Journal of Plastic, Reconstructive & Aesthetic Surgery* 2010;63:245-7.
- 9- Leedy JE, Janis JE, Rohrich RJ. Reconstruction of acquired scalp defects: an algorithmic approach. *Plast Reconstr Surg* 2005;116:54-72.
- 10-Furnas H. Scalp reconstruction by microvascular free tissue transfert. *Ann Plast Surg* 1990;24:431-44.
- 11-Mustoe TA. Soft tissue reconstructive choices for craniofacial reconstruction. *Clin Plast Surg* 1995;22:543-54.
- 12-Wang HT, Erdmann D, Olbrich KC, Friedman AH, Levin LS, Zenn MR. Free flap reconstruction of the scalp and calvaria of major neuro surgical resections in cancer patients: lessons learned closing large, difficult wounds of the dura and skull. *Plast Reconstr Surg* 2007;119:865-72.
- 13-McCombe D, Donato R, Hofer S, Morisson W. Free flaps in the treatment of locally advanced malignancy of the scalp and forehead. *Ann Plast Surg* 2002;48:600-15.