

Surgical Excision of Scalp Invasive Squamous Cell Carcinoma and Reconstruction of Scalp Defect by Rotation Flap

Vijay Kumar Raut*, Akhlaque Hossain Khan and Bipin Chaurasia

Department of Neurosurgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

***Corresponding Author:** Vijay Kumar Raut, Department of Neurosurgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.

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Abstract

A thirty years old female presented with history of swelling over left parieto-occipital region. Gradually enlarging in size for one year. Left sided cervical lymph node palpable. Biopsy of lesion revealed invasive squamous cell carcinoma (WHO grade II). Excision of lesion was done and reconstruction of defect with rotation flap was done under general anesthesia. Wound was healthy on one month follow up.

Keywords: *Squamous Cell Carcinoma (SCC); Rotation Flap; Wound; Ultraviolet (UV)*

Introduction

Squamous cell carcinoma (SCC) is the result of uncontrolled growth of abnormal cells in the upper layers of the skin. It is the second most common form of skin cancer, with more than 1 million cases diagnosed each year in the United States. It is mainly caused by cumulative ultraviolet (UV) exposure and therefore is most commonly found on areas frequently exposed to the sun such as the scalp, ear, lip, face, neck, hands, arms, and legs. Risk factors include fair skin, light hair, light eyes, male gender, age over 50 years old, history of excessive sun exposure, or those with an inherited UV-sensitive condition such as xeroderma pigmentosum. Clinically, SCC of the scalp can appear as scaly red patches, open sores, ulcerations, or warts which can crust or bleed. The diagnosis is mainly clinical, based on history and skin exam, and then confirmed with biopsy.

The repair of large scalp defects extending to the calvarium is especially challenging for several reasons. The primary closure of any large scalp wound is complicated by the relative inelasticity of scalp tissue and the convexity of the scalp. Rotation flaps are the mainstay technique of re-approximating large scalp wounds.

Case Summary

A thirty years old female lady presented with history of gradually enlarging scalp lesion over left parieto-occipital region for one year. She had history of lesion excision twice at initial stage of lesion when the size of lesion was small. The lesion was excised one year back at local hospital and no histopathological examination was done. When the lady presented to us the lesion was shiny, erythematous and irregular margin. 8 x 6 cm in size, mild tender on palpation, soft in consistency, overlying skin was adherent, no history of discharge from lesion. Patient was clinically stable. On examination we found left sided cervical lymph node was palpable. CECT of head was done

to exclude intracranial extension. Baseline investigations were found normal. A biopsy was taken and histopathology revealed invasive squamous cell carcinoma WHO grade II. Further we planned excision of lesion with reconstruction of gap with rotation flap and surgery was proceeded accordingly.

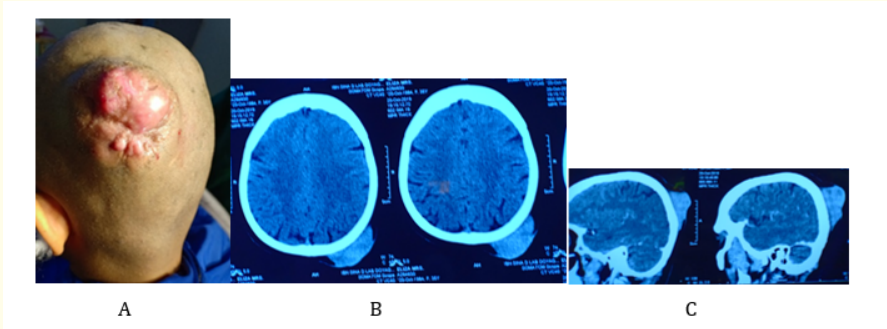


Figure 1A-1C: Showing lesion over left parieto-occipital region with CECT head axial and sagittal view.

Surgical technique: The scalp is a common site of skin cancer. Rotation flaps are considered workhorses when it comes to reconstructing scalp defects following skin cancer surgery or after surgery to correct alopecia. The initial steps-patient positioning, marking, anesthesia and incision. Patient was positioned right lateral and head tilted downwards in such way to make the lesion at highest point. The lesion was marked with planning of rotation flap. The lesion with unhealthy margin was incised, blood supply to lesion was coagulated and en bloc excision of lesion was done bisecting lesion from periosteum. The skull bone underneath lesion was normal. The rotation flap for gap reconstruction of scalp was proceeded as shown in below figure.

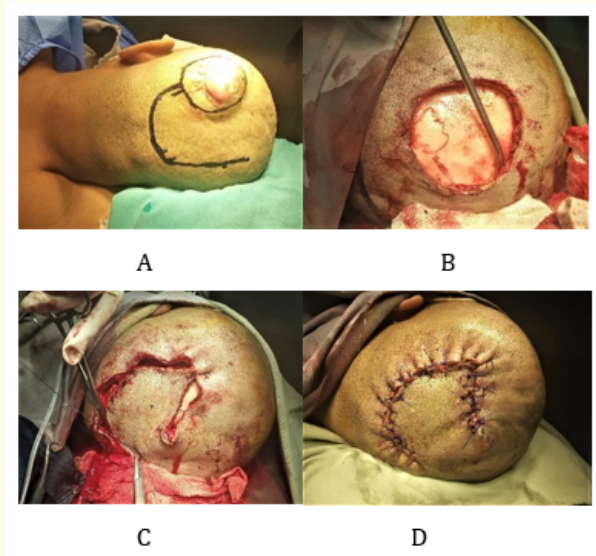


Figure 2A-2D: Showing the rotation flap technique for scalp reconstruction accordingly.

Discussion

Reconstructing large scalp defects with exposed bone is a unique challenge for the surgeon, and the recent literature reflects several different approaches to this problem. One of them is reconstruction of scalp by rotation flap. This technique can all be performed in a single-stage procedure as shown in above figures [1-3]. A vascular bed was needed on the exposed bone, therefore the authors decided to use a galeal rotation flap. The flap was performed by separating the pericranium tissue and galea, bisecting the galea and then free margins of rotation flap sutured covering it over the defect. The flap is designed to include axial vessels in its base. Usually, the occipital artery provides the basic blood supply to this flap. Wound was found healthy on follow up at one month after rotation flap reconstruction [4-6].

Conclusion

Defects arising from excision of lesion due to squamous cell carcinoma of scalp cannot be closed primarily. A basic idea of simple flap closure like a rotation flap can enable proper excision of the lesion with negative margins and good cosmetic outcome. However, for defect with previous scars or more extensive defects, plastic surgery help may be required.

Ethics Approval and Consent to Participants

Not applicable.

Consent for Publication

An informed written consent was obtained from the patient.

Availability of Data and Materials

Not applicable.

Competing Interest

None.

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Authors Contribution

Conception, Diagnosis and design, Radiological diagnosis and Final approval of manuscript: Bipin Chaurasia.

Manuscript preparation, Technical revision, Manuscript editing and revision: Akhalaque Hossain Khan, Vijay Kumar Raut.

Literature search: Bipin Chaurasia.

Bibliography

1. Kotamarti VS., *et al.* "Invasive Squamous Cell Carcinoma of the Scalp". *Eplasty* (2015): 15.
2. Lam T, *et al.* "The Reverse Galeal Hinge Flap: Another Valuable Technique in the Repair of Scalp Defects Extending to the Calvarium". *Dermatologic Surgery* 41.4 (2015): 533-536.
3. Paul SP. "Rotation flaps of the scalp: study of the design, planning and biomechanics of single, double and triple pedicle flaps". *In Clinical Cases in Skin Cancer Surgery and Treatment* (2016): 31-43.
4. Rosenkrantz LL and Matthews R. "Squamous Cell Carcinoma of the Scalp". *In PET/MR Imaging* (2018): 263-264.

5. Umman P, *et al.* "Rotation flap closure of moderate size scalp defects–technique and outcome". *Journal of Clinical and Diagnostic Research: JCDR* 10.11 (2016): PD21.
6. Ansari, A., *et al.* "Co-existence of arterio-venous malformation and saccular bifurcation aneurysm of a 48years old patient, presented with massive intracranial hemorrhage: case report". *Journal of Neurology and Stroke* 9.4 (2019): 189-194.

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