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Dermatologic surgery rounds: double rotation (Yin-Yang) flap for reconstruction of a circular skin defect after basal cell carcinoma removal in the scalp region

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The case

An 84-year-old male came to the dermatology department with primary complaints of a tumor formation located on the vertex of the scalp. The surrounding skin showed mild sun damage, but no surgical scars or additional malignancies were noted. A clinical diagnosis of basal cell carcinoma was established, and surgical excision under local anesthesia with lidocaine was recommended.

Our choice

The tumorous lesion located on the vertex of the scalp was surgically removed. The resultant primary defect was round, with exposed periosteum.

Medium-sized defects on the scalp, especially in hair-bearing areas, present a significant reconstructive challenge due to the size of the defect, the limited mobility of the scalp, and the sensitivity of its hair-bearing function. When selecting a reconstructive technique, it is essential to consider the scalp's mobility, the need for functional preservation, vascular integrity, tissue sparing, redistribution of tension vectors, and the desired aesthetic outcome. The proximity of several important anatomical structures must also be considered, including the supraorbital and supratrochlear nerves (branches of CN V1), the superficial temporal and posterior auricular arteries, and the superficial temporal vein.

We present a case of a primary medium-sized defect following surgical excision of a tumor located on the vertex of the scalp (Figure 1). Due to the size, location, and involvement of a hair-bearing region, as well as the limited mobility and anatomical considerations of the scalp, our team decided against primary closure with single interrupted sutures or skin grafting. Potential risks such as functional impairment, aesthetic dissatisfaction, and increased tension on the wound edges were considered. Therefore, we opted for flap reconstruction using the patient's surrounding healthy tissue. This technique offers the advantages of maintaining similar anatomical integrity and preserving vascular supply while effectively reconstructing a medium-sized defect.

Procedure

The lesion was surgically excised under local anesthesia with 2% lidocaine. Careful hemostasis was achieved. The resulting primary defect was reconstructed using the double rotation (Yin-Yang) flap technique (Figure 2). The rotation flaps were designed to be twice the length of the primary defect. Flap elevation was performed within the plane of the galea aponeurotica fascia to ensure vascular preservation. The flap vascularity relied on the superficial temporal and posterior auricular arteries. Dissection and undermining of the flaps down to the hypodermis were carefully performed, ensuring the preservation of the vascular supply. The pedicles consisted of subcutaneous tissue beneath the flaps. Tension-free adaptation of the flaps was achieved, and the resulting secondary defect was closed with single interrupted 2-0 sutures (Figure 3a). The one-month postoperative period was uneventful, with no reported complications (Figure 3b).

Comment

Scalp defect reconstruction poses a challenge for every dermato- or reconstructive surgeon due to the often larger wound defects, limited mobility of the scalp, the need to preserve function, protect the calvarium, and ensure the integrity of adjacent anatomical structures, often while aiming for an aesthetically acceptable outcome.[1,2] Primary wound closure in this area is usually preferred over secondary healing or skin grafting due to the limited applicability and increased risks associated with these two techniques in certain patients, such as those with a history of smoking, prior local radiation to the area, or where preservation of the scalp's hair-bearing function is needed.[2,3]

A thorough understanding of surgical anatomy, defect size, individual patient considerations, reconstructive goals, and realistic expectations is essential when selecting the most appropriate reconstructive technique.[3] Various reconstructive techniques, including advancement, rotation, and transposition flaps, can be employed to help distribute the tension vectors generated by the defect.[1,3]

Challenging anatomical sites such as the scalp can be effectively managed using the bilateral rotation (Ying-Yang) flap, particularly when tension at the incision site is a concern.[4] The Ying-Yang flap is a double-opposing rotation advancement flap that allows for the redistribution of tension across multiple vectors.[4] Although not a novel approach, this method remains a safe, reliable, and effective reconstructive technique for managing primary defects of the scalp.

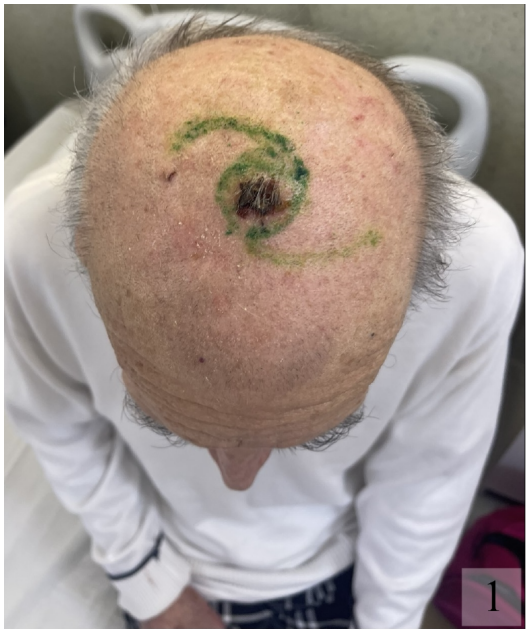

Figure 1. A rounded tumorous formation located in the vertex region of the scalp, prominent above the surrounding skin, with an ulcerated surface and covered in places with hemorrhagic crusts.

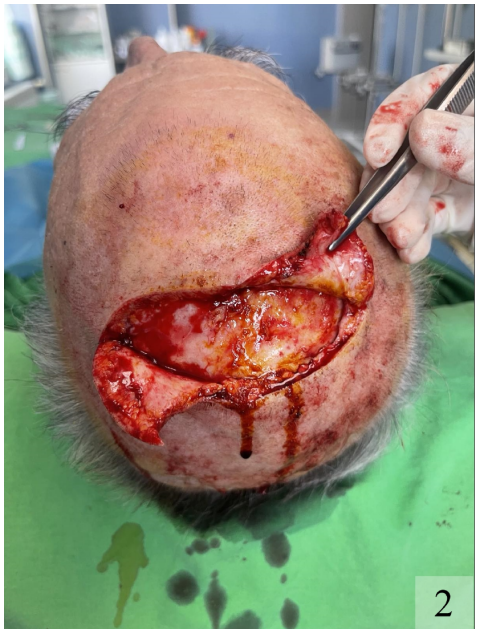

Figure 2. Intraoperative view: primary wound defect reconstructed using the double rotation (Yin-Yang) flap technique. The rotation flaps are designed to be twice the length of the primary defect. Flap elevation is performed within the plane of the galea aponeurotica fascia.

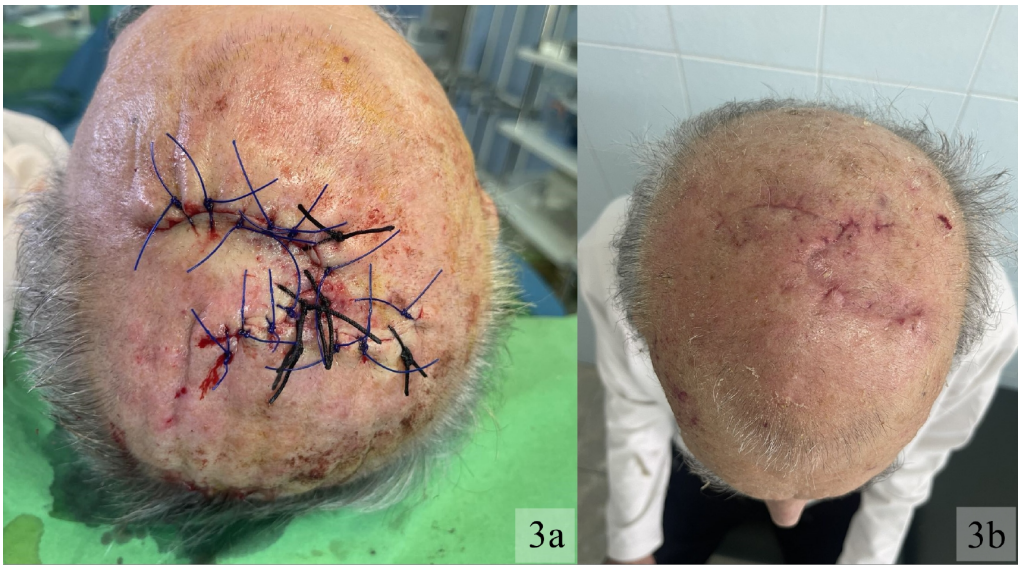

Figure 3. a) Intraoperative view: the secondary wound defect is closed with single interrupted sutures; **b**) one-month postoperative period.

The outcome

The outcome is shown in Figure 3b.

References

1. Talevi D, Torresetti M, Recchi V, Di Benedetto G. Moving from the O-Z flap to the O-S flap for scalp reconstruction: A new geometrical model. JPRAS Open 2024;42:178-85.
2. Bradford BD, Lee JW. Reconstruction of the Forehead and Scalp. Facial Plast Surg Clin North Am 2019;27:85-94.
3. Desai SC, Sand JP, Sharon JD, et al. Scalp reconstruction: an algorithmic approach and systematic review. JAMA Facial Plast Surg 2015;17:56-66.
4. Suárez Ortega HM, Ortega Landeros JJ, Mendoza Argáez JI, et al. Scalp Spinal Cell Carcinoma Managed with Resection and Ying Yang Flap. Int J Med Sci Clin Res Stud 2024;4:807-9.

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