An efficient single-layer suture technique for large scalp flaps

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SURGICAL CHALLENGE

Defects of the scalp after surgery can present a reconstructive challenge due to the inherently low elasticity of the scalp. Scalp rotation flaps are used for reconstruction of scalp defects that are not amenable to primary closure, second intention, or skin grafts.[1] Suturing scalp rotation flaps over large defects can be difficult and time consuming for complete closure and hemostasis.

THE SOLUTION

We suggest a simplified, single-layered closure for scalp rotation flaps that negates the necessity of time-consuming, double-layered closures. This technique can be executed using 3-0 polyglactin 910 (Vicryl; Ethicon, Somerville, NJ) with an RB-1 needle. It is a strong, braided suture that typically would be used for deeper layer closures and easily slides with pulley techniques without breaking, allowing large tight flaps to move while distributing tissue vectors. The RB-1 needle has a sharper curve allowing for enhancement of the wrist motion while trying to grab the galea up to the epidermal layer of the scalp in one bite. After pulley sutures position the flap into place distributing tension, top sutures can quickly be used to sew the remainder of the flap (Fig 1).

Fig 1. Sutured scalp rotation flap. Top sutures were placed at 4- to 6-mm increments using 3-0 polyglactin 910 (Vicryl; Ethicon, Somerville, NJ) with an RB-1 needle along the entire wound edge of the flap. Although not shown, wide undermining was done around the entire defect and most of the superior scalp. Key sutures, including pulley sutures, were placed at the anterior flap edge, and pulley sutures were placed at the midpoint of flap tension. The rule of halves was used to sew out the rest of the flap, distributing even tension with top sutures only.

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In our opinion, large defects can be efficiently closed with similar cosmetic outcomes with less risk of spitting sutures (Fig 2). Staples for wound closures on the scalp are efficient[2]; however, stapling requires the flaps to be set into place without any gaps and does not help with tissue movement unless staple width is greater than the distance between flap edges. Furthermore, our technique spares materials compared with multilayered or staple closures.

Fig 2. Scalp rotation flap 2 months postoperatively shows hair preservation and acceptable scarring in the hair-bearing scalp.

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