The use of a suture retention device to enhance tissue expansion and healing in the repair of scalp and lower leg wounds

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INTRODUCTION

Dermatologic surgery defects on the scalp and lower leg present unique reconstruction challenges because of decreased skin laxity and excessive wound tension.[1] Several options avoid this adverse outcome, but when a patient declines flap or graft, there is a paucity of alternatives aside from second-intent healing. One promising method is the use of a suture retention device (SUTUREGARD, SUTUREGARD Medical, Portland, OR) that may allow for stress relaxation of wounds (Fig 1). After relaxation, the wound can then be closed under lower tension, avoiding flap or graft. The authors present 5 cases of large defects after Mohs micrographic surgery (MMS) that were closed successfully with this novel suture retention device method.

Abbreviations used:

MMS: Mohs micrographic surgery
BCC: basal cell carcinoma

CASE REPORTS

Case 1

A 91-year-old woman presented with a basal cell carcinoma (BCC) of the left temporal scalp. The tumor required 3 stages of MMS that resulted in a 2.0-cm-wide × 2.3-cm-long defect (Fig 2). The patient's scalp exhibited minimal laxity, and the patient did not wish to proceed with second-intention healing, flap, or graft. The decision was made to use a single suture retention device that was left in place overnight to enhance tissue creep in hopes of allowing for primary closure. A single USP 1 nylon retention suture with a 1.0-cm bites size was used in a simple interrupted fashion in conjunction with the device (Fig 3). A Xeroform dressing (Covidien, Dublin, Ireland) was applied under the device before use to absorb moisture. The suture was knotted and a dressing applied over the wound. The patient returned home with the retention suture in place. She tolerated the procedure well, and the device was removed the following day (approximately 23 hours). The defect was then reassessed, and the width was found to be significantly smaller (0.5 cm; 75% overall reduction [Fig 4]). There was no visible injury, and the skin under the device appeared normal. The wound was then cleansed and re-anesthetized, and a closure was performed with 4 simple interrupted 4-0 nylon sutures. The patient reported minimal pain and bleeding at the wound site. There was no dehiscence, necrosis, or wound infection throughout the 14 days of healing before suture removal.

Case 2

A 46-year-old man presented with a BCC of left side of the frontal scalp. The tumor required one stage of MMS that resulted in a 1.8-cm-wide × 1.8-cm-long defect (Fig 5). The patient's scalp exhibited minimal laxity, and the patient did not wish to proceed with second-intention healing or a large rotation flap. The decision was made to use 2 suture retention devices and 2 USP 2-0 nylon retention

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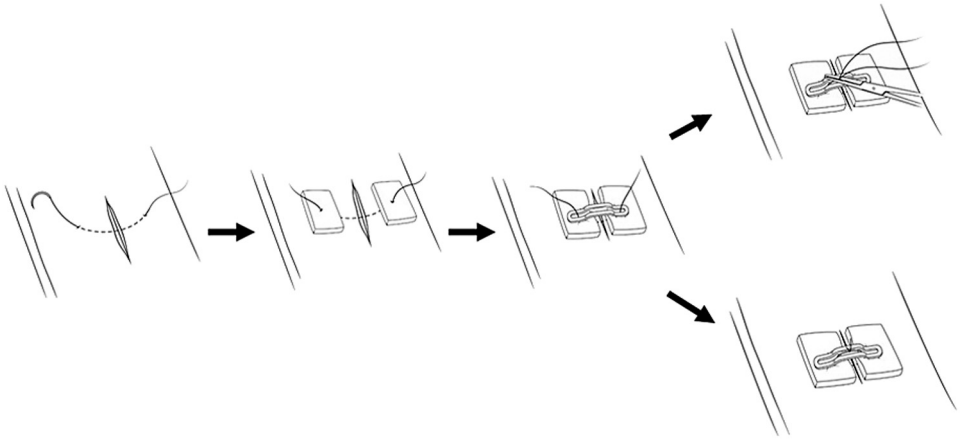

Fig 1. A large (1.0 cm or greater) bite-sized percutaneous retention suture is used on each side of wound with a large caliber suture (for example, USP 1 nylon). A dressing can optionally be placed under the device to absorb exudate. The retention suture is secured with either a clamp or knot to place the wound under tension. The device has flexible skin contact portions and a soft silicone covering to reduce the skin pressure of a high tension retention suture.

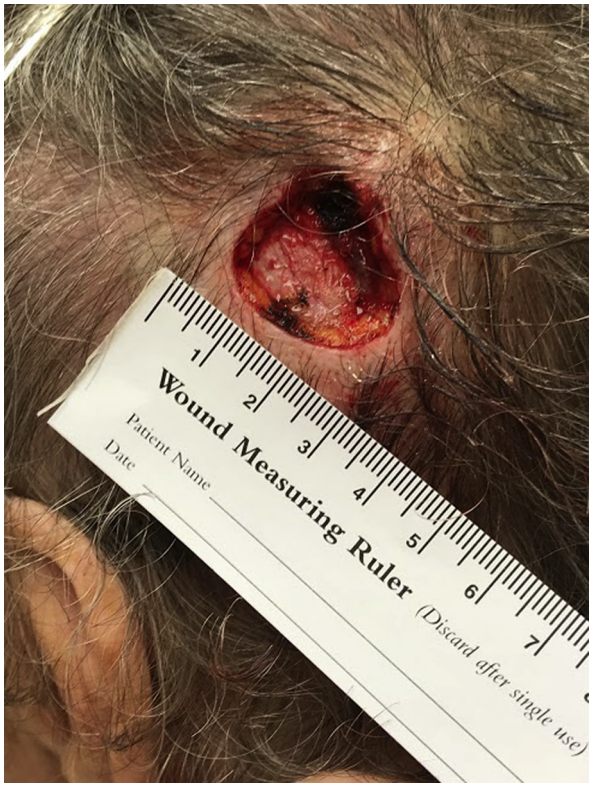

Fig 2. BCC on left temporal scalp. Defect was 2.3 cm × 2.0 cm.

Fig 3. Suture retention device secured with USP 1 nylon retention suture over Xeroform.

sutures with clamps for 45 minutes to enhance tissue creep in hopes of allowing for primary closure (Fig 6). A Xeroform dressing was applied under the device before use. The patient tolerated the device well, and the wound size decreased from 1.8 cm to 1.2 cm in diameter in 45 minutes (33% reduction). This decrease allowed the wound to be closed with 3-0 nylon simple interrupted sutures (Fig 7). The patient reported minimal pain and bleeding at the wound site. There was no dehiscence, necrosis, or wound infection during the 10 days of healing.