P13

Negative Pressure Wound Therapy in a Frontal Scalp Defect

S Seow , S Durairajanayagam
Department of Plastic and Reconstructive Surgery, Hospital Kuala Lumpur

INTRODUCTION

Reconstruction of scalp defects is required for acute trauma, tumor extirpation, radiation necrosis and repair of traumatic alopecia or cosmetically displeasing scars. Several factors should be considered in the planning of scalp reconstruction. Scalp defects in old patients with multiple co-morbids are a therapeutic challenge for reconstructive surgeons. Negative pressure wound therapy (NPWT), has been increasingly used in health care for the management of a wide variety of wounds over the last 2–3 decades. It is an advanced therapy that can be helpful to accelerate wound healing in both acute and chronic wounds. The use of NPWT via a vacuum-assisted closure (VAC) device has been reported to be effective in the management of scalp wounds. [1]

CASE REPORT

We present a case of a 65-year-old female with underlying diabetes mellitus, hypertension and end stage renal failure, who had a recurrent infected scalp wound post-trauma. Initial surgical debridement and primary closure by the referring hospital resulted in infection, wound breakdown and subsequently exposure of cavarial bone. The patient was then admitted to our centre and underwent wound debridement, burring of skull bone and primary closure after her medical conditions were optimized at day 17 post-trauma. Intra-operatively, the upper and lower scalp flap tissue which were unhealthy with thick slough, were debrided and scored 1.5cm apart. The wound edges were trimmed before primary closure [Figure 1]. However, 12 days after the operation, there was pus collection underneath the scalp and this resulted in wound breakdown again. We decided to use NPWT after multiple bone trephinations, to improve growth of new vital tissue in bone exposed area. [Figure 2]. This maneuverer, followed by a split thickness skin graft (SSG) coverage, allowed for progressive wound healing. After 3 cycles of NPWT which we changed weekly, the patient underwent wound debridement and split skin graft. Subsequently, wound inspection at post-op day 5 showed graft take of 100%. She was then discharged well 10 days after the surgery.

Figure 1: Picture showing the cranial view of patient's wound over frontal scalp after the debridement of unhealthy scalp tissue. (Day 17 post-injury where patient underwent wound debridement, burring of skull bone and primary closure)

Figure 2: NPWT over the scalp

DISCUSSION

Scalp defects in the anterior region correspond to the area posterior to the anterior hairline and anterior to the plane of the superficial temporal artery[Figure 1]. The principal goal of reconstruction in this area is the restoration of hair-bearing skin and to re-create the anterior hairline.[2] However, in this patient, despite multiple attempts of scalp reconsturction technique using locoregional flap, she still experienced recurrent wound infection most likely due to her old age and multiple co-morbidities. Therefore,a NPWT device was used after multiple bone trephinations to improve growth of new vital tissue in bone exposed areas,followed by SSG. This allowed progressive wound healing. NPWT is a widely utilized treatment for many different wound types. NPWT has been shown to be effective in accelerating wound healing. [3] Chang.Y et al. [1] has reported the use of negative pressure wound therapy (NPWT) via a vacuum-assisted closure (VAC) device to be effective in the management of scalp wounds.

CONCLUSION

The management of the scalp wound in this patient was supported by NPWT which demonstrated positive outcomes and enabled wound healing. This case report suggested an alternative management for older patients with multiple comorbidities who have moderately large scalp defects where skin flaps had not been successful.

Figure 3: Three months after SSG over frontal scalp showed good graft take with minimal contraction.

REFERENCES

1. *Chang, Y. and A. Tay, A case series on management of complex scalp wounds. Wound Practice & Research: Journal of the Australian Wound Management Association, 2015. **23**(4): p. 174.*
2. *KOSS, N., M.C. ROBSON, and T.J. KRIZEK, Scalping injury. Plastic and reconstructive surgery, 1975. **55**(4): p. 439&hyhen.*
3. *Huang, C., et al., Effect of negative pressure wound therapy on wound healing. Current problems in surgery, 2014. **51**(7): p. 301-331.*