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A case report

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Management of a nipple-areolar complex complications in skin-sparing mastectomy with prosthetic reconstruction. A case report

INTRODUCTION AND OBJECTIVES: Venous congestion of the NAC (Nipple-Areola Complex) is not an uncommon complication of Skin-Reducing Mastectomy (SRM). The correct and prompt evaluation of the NAC's vitality in the first hours after surgery is important for the survival of the same, in fact the possibility of early intervention allows avoiding the use of invasive and radicals techniques to the advantage of simpler rapid procedures.

MATERIALS AND METHODS: DM, 57yr, multiple invasive ductal carcinoma of the right breast, underwent a SRM and immediate reconstruction with implant in August 2014. In the immediate post-operative appeared a venous stasis of the NAC. Treatment started with Negative Pressure Wound Therapy (NWPT) through VAC-Systems to 75 mmHg.

RESULTS: The use of the VAC-Therapy was in total 12 days and allowed the partial rescue of the NAC (85%). the vacuum pump is put into a portable bag so the patient's mobility is not limited.

DISCUSSION: NWPT permitted a rapid resolution of NAC's complication in SRM in order to guarantee an optimal timing for the start of adjuvant chemotherapy. The VAC-Therapy is a cost effective and simple to use in cases of suffering venous NAC in patients undergoing breast surgery.

KEY WORDS: NAC, NWPT, Skin-Reducing Mastectomy, VAC-Therapy

Introduction

Breast cancer is the neoplasia with the highest incidence in the female population with a huge physical and psychological impact.

Venous congestion of the NAC (Nipple-Areola Complex) is not an uncommon complication of Skin-Reducing Mastectomy (SRM) with immediate implant. This

oncoplastic technique allows preserving the NAC, obtaining a good skin coverage of the implant and ensures the oncological radicality. The correct and prompt evaluation of the NAC's vitality in the first hours after surgery is important for the survival of the same, in fact the possibility of early intervention allows avoiding the use of invasive and radicals techniques to the advantage of simpler rapid procedures.

Materials and Methods

We present the case of a patient, DM, 57, suffering from multiple invasive ductal carcinoma of the right breast, who underwent a SRM and immediate reconstruction with implant in August 2014. NAC was based on a

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supero-medial dermal flap, width 7cm. In the immediate post-operative the clinical breast examination it appeared in good condition except for a slight venous stasis of the NAC (Fig.1). Treatment was started with Negative Pressure Wound Therapy (NWPT) through VAC-Systems to 75 mmHg for a period of 7 days¹ (Fig. 2). Following the treatment, the NAC appeared well-perfused and vital except for the superior-lateral margin of the same, which showed a residual superficial



Fig. 1



Fig. 2



Fig. 3

necrosis. After surgical debridement of the necrosis the NWPT was continued for further 5 days in order to promote drainage of blood-serum and to stimulate granulation from the margins of the loss of substance. The result was a dehiscence of the lateral portion of the upper margin of the areola healed by secondary intention in 11 days (Fig. 3).

Results

There are various factors that influence the vitality of the NAC after breast reconstruction such as smoking, obesity and advanced age (> 30° ys); these factors are frequent in cancer "type" patient candidate for SRM. In literature, there are studies about the variability of diagnostic imaging neurovascular anatomy of NAC and how it can be evaluated pre and intra-operatively in order to ensure its vitality after breast surgery². According to Irwin et al in a case series of 104 breast reconstructions using this technique, the complication rate to NAC is around 9.6% and it is the highest rate of complication of their series³. These minor complications may lead to a delay in the start of the healing surgical and adjuvant chemotherapy and/or radiotherapy, compromising the survival rate of these patients. A quick resolution and easy execution of the complications is a top priority for the health of these patients.

In the literature, various techniques are described to reduce venous congestion of the NAC after breast reconstruction but few reports describe the use of the VAC-Therapy. NPWT has amply demonstrated to reduce significantly perilesional tissue edema in different wound types^{4,5}, including after breast reconstruction^{6,7}. Dian et al reported, in a paper on the treatment of difficult wounds of the breast, that the total costs of NPWT were approximately EUR 210.28 / week⁸. Although the daily costs are higher, the shorter duration of therapy with improved patient convenience, in addition to its documented faster healing rates when compared to traditional dressing changes make this approach attractive

and its use economically efficient⁹. The use of the VAC-Therapy was in total of 12 days and allowed the partial rescue of the NAC 85%. The vacuum pump can be put into a portable bag so that the patient's mobility is not limited. Indeed the VAC system we used is contained in a portable bag, enables the not limited mobility of the patient, and therefore increasing the compliance to treatment.

There are data on the quality of life of patients under VAC-therapy versus the conventional therapy for the treatment of open wounds. They show an improvement of the quality of life¹⁰.

Discussions

NPWT, which has found wide use in this years in Plastic Surgery, in our experience has proved to be effective in successfully resolve a case of suffering of NAC in patients undergoing SRM with prosthetic reconstruction. This treatment had permitted a rapid resolution of the complication in order to guarantee an optimal timing for the start of adjuvant chemotherapy.

The VAC-Therapy is a cost effective and simple to use in cases of suffering venous NAC in patients undergoing oncoplastic techniques.

Riassunto

Presentiamo il caso di una paziente, D.M. 57 anni, affetta da carcinoma duttale infiltrante multiplo della mammella dx e sottoposta, nell'Agosto del 2014, a intervento di Skin-Reducing Mastectomy (SRM) con tecnica a T invertita e ricostruzione immediata con protesi. Nell'immediato post-operatorio all'esame clinico la mammella appariva in buone condizioni eccetto per una lieve stasi venosa del Complesso areola capezzolo (CAC). Sull'areola è stata applicata NPWT Negative Pressure Wound Therapy attraverso VAC-System a 75 mmHg per la durata di 7 giorni. Al termine di quest'ultima il CAC appariva ben irrorato e di colorito vitale se non per una parte che comprendeva il margine supero-laterale dello stesso, andato in necrosi. La terapia a pressione negativa è stata applicata per ulteriori 5 giorni per favorire il drenaggio siero-ematico e stimolare la granulazione dai margini della area necrotica dopo debridement della stessa. Il risultato è stato una deiscenza della porzione laterale del margine superiore dell'areola avviata ad una guarigione per seconda intenzione.

Il risultato è stato un recupero di circa l'85% del CAC con circa 12 giorni di terapia a pressione negativa. L'impiego della NPWT permette di gestire rapidamente una complicanza minore come la congestione venosa del CAC in pazienti sottoposte a tecniche oncoplastiche di ricostruzione mammaria. L'impiego di VAC-System ha permesso alla paziente di rispettare i timing d'inizio dei trattamenti adiuvanti.

References

1. Morykwas MJ, Argenta LC, Shelton-Brown EI, McGuirt W: *Vacuum-assisted closure: A new method for wound control and treatment: animal studies and basic foundation*. Ann Plast Surg, 1997; 38(6):553-62.
2. Colombo G, et al.: *Necrosis of the nipple-areola complex in breast reduction. Our personal way to solve problem*. Ann. Ital. Chir, 2015; 86: 156-62.
3. Irwin GW, Black A, Refsum SE, McIntosh SA: *Skin-reducing mastectomy and one-stage implant reconstruction with a myodermal flap: a safe and effective technique in risk-reducing and therapeutic mastectomy*. J Plast Reconstr Aesthet Surg, 2013; 66(9):1188-194.
4. Chen SZ, Li J, Li XY, et al.: *Effects of vacuum-assisted closure on wound microcirculation: An experimental study*. Asian J Surg, 2005; 28:211e7.
5. Yang CC, Chang DS, Webb LX: *Vacuum-assisted closure for fasciotomy wounds following compartment syndrome of the leg*. J Surg Orthop Adv, 2006; 15:19e23.
6. Erba P, Rieger UM, Pierer G, Kalbermatten DF: *Vacuum-assisted closure (VAC) for venous congestion of the nipple-areola complex*. J Plast Reconstr Aesthet Surg, 2008; 61(7):852-54.
7. Heller DR, Rohde C, Ananthakrishnan P: *Staging resection and reconstruction with temporary wound VAC coverage in a case of giant cystosarcoma phyllodes of the breast*. Int J Surg Case, Rep. 2015; 6C:84-7.
8. Dian D, Bodungen V, Himsl I, Drinovac V, Mylonas I, Sommer H, Fries K: *Worldwide first experiences with vacuum-assisted closure as alternative treatment method to repair defects of an extended thoracic wall recurrence of breast cancer*. Arch Gynecol Obstet, 2010; 281(5):927-32.
9. Stoeckel WT, David L, Levine EA, Argenta AE, Perrier ND: *Vacuum-assisted closure for the treatment of complex breast wounds*. Breast, 2006; 15(5):610-13.
10. Philbeck Jr. TE, Whittington KT, Millsap MH, Briones RB, Wight DG, Schroeder WJ: *The clinical and cost effectiveness of externally applied negative pressure wound therapy in the treatment of wounds in home healthcare Medicare patients*. Ostomy Wound Manage, 1999; 45(11):41-50.