

SPIDER PROCEDURE FOR SACRAL PRESSURE SORE RECONSTRUCTION: A CASE REPORT

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ABSTRACT Background: Many forms of management have been described to treat a sacral pressure sore when the sacral pressure sore is type 4 the surgical treatment becomes necessary. Myocutaneous and fascio-cutaneous flaps can provide stable coverage of pressure sores. We propose in this article the use of a fascio-cutaneous flap named Spider flap in the coverage of sacral pressure ulcer in a young ambulant patient. **Case report:** A 43-years-old ambulant woman was addressed to our department to assure the management of a sacral pressure sore developed after an extended immobilisation in intensive care unit, the coverage was assured with modified 5- fascio-cutaneous flap Z-plasty technique called the spider procedure, the follow-up was nine months, with no sign of recurrence. **Conclusion:** The spider procedure has the advantage of tension-free closure, simple dissection with short operative time and no sacrifice of muscles function which can make this flap a useful solution in sacral pressure sore reconstruction.

KEYWORDS Spider procedure, Sacral defect pressure sore.

INTRODUCTION

Pressure ulcers, also known as decubitus ulcers or bedsores, are defined as localised injuries to the skin and underlying tissue, usually over a bony prominence, as a result of pressure, or pressure in combination with shear and friction [1]. The sacral pressure sore is the most frequent form of pressure sores, and the treatment begins with prevention, but when it is classified as type 3 or 4 the surgical management is required, and it can be challenging especially for the ambulatory patients who developed this condition during an extended immobilisation in intensive care unit. For those patients, we should assure a good coverage of the wound with bulky and well vascularized healthy tissues to assure a good healing and assure a low rate of morbidity and disability.

A lot of surgical techniques were proposed to treat this condition, we present our experience in the coverage of sacral defect occurred after pressure sore, with a spider procedure, the aim of this article is to propose the use of this simple technique which uses local tissue with tension-free closure in the coverage of medium to large size sacral pressure sore defect. Until now there is no references in the medical literature for the use of this flap in pressure sore reconstruction.

CASE REPORT:

A 43 years old ambulant woman was addressed to our department to assure the management of a sacral pressure sore developed after an extended immobilisation in intensive care unit. At the time of consultation, the patient was on a physical therapy program to assure an optimal return of function. The clinical examination found a sacral pressure sore stage 4; the X-ray did not show any signs of osteomyelitis.

We scheduled surgery after a wound preparation with chemical and mechanical debridement, infection control, and improvement of nutritional parameters. The surgery was performed under spinal anaesthesia. We drew first the pattern of the spider procedure [Figure 1-2]. Then we realised a Surgical debridement until viable tissues were encountered.

The debridement consisted of a triangular incision of ulcer,

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Figure 1: The pattern of spider procedure.

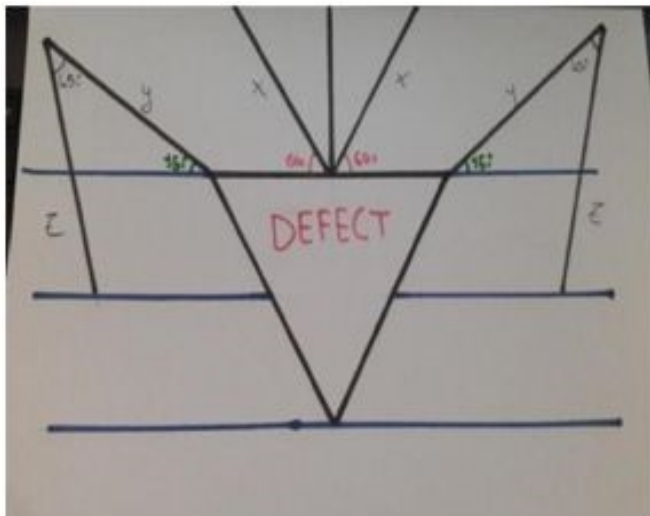


Figure 2: Technical drawing of spider procedure.

underlying bursa, surrounding calcifications, the final defect was an equilateral triangle each side had the size of 9 cm. In depth, the defect arrives until contact of the bone.

The closure was assured then with the spider procedure which includes the use of a modified 5-flap Z-plasty technique to obtain maximum tissue relaxation for the tension-free closure of skin defect [Figure 3] [2] [3]. The skin flaps were elevated as fascio-cutaneous flaps. To prevent any fluid collection under the flaps, we put two drains. The patient was immobilised in ventral position for two weeks after the surgery. An antibiotic treatment depending on bacterial culture realised in the debridement tissue was prescript; the dressing was changed three times a week.

The postoperative period was uneventful for the patient. Drains were used for five days. Follow-up of 9 months [Figure 4], did not show any recurrence.

DISCUSSION:

Sacral pressure sores are commonly seen in neurologically compromised patients and in those who have received prolonged



Figure 3: The final aspect after closure.



Figure 4: Nine months after surgery.

anaesthesia or in sedated patients that remain in the supine position. The pressure wound management demands a multidisciplinary approach. For the invasive type pressure sores (type 3 and 4), in which there is full thickness tissue loss with or without exposed muscle, bones or tendons, surgery remains the best option [4]. The goals of surgical management are to prevent progressive osteomyelitis, reduce protein loss, improve quality of life, improve function and hygiene, and reduce rehabilitation and wound care cost [1]. To achieve those goals, various methods are proposed to surgically treat the sacral pressure sore, depending on the size and the depth of the defect. The skin grafting is indicated if the defect is small and secondary to acute/short-term disability. However, the recurrence rate with this method is high (70%) [5]. Gluteus maximus flap remains the first choice for sacral pressure sore reconstruction [6]. Theoretically The advantages of using myocutaneous flaps are elimination of the dead space because they are bulky flaps, providing a well-vascularized and cushioning tissue over the pressure bearing area and their vascularity helps fighting infection at the local site [7], but it compromises muscle function and

should be avoided, especially in ambulatory individual [1]. It is also may be prone to postoperative skin breakdown because of tension [8], and the deneurotized muscle becomes atrophic and loses its dynamic function and the ability to absorb the pressure [9].

The fasciocutaneous flaps have the advantage of the reduction in donor site morbidity, minimal blood loss, decreased post-operative pain, shorter hospital stays, reduced costs, and preservation of muscle function.

Yamamoto et al. [10] reported that the use of the fasciocutaneous flap is expected to provide a better long-term result in the surgical reconstruction of pressure sores than the myocutaneous or muscle flap. Thiessen et al. [7] in their study showed that the complications and the recurrence rates were not associated with the type of the flap. Local fasciocutaneous flaps like Limber flap, Dufourmentel flap, are simple to realise and have stable circulation however they are inappropriate to cover a large skin defect in the sacral area because of the distortion and displacement of the adjacent mobile anatomic structures, so the defect closure is done with high tension [4]. Sapountzis and all proposed the use of the reading man flap to cover pressure sores with The advantage of tension-free closure and the minimal additional healthy skin excision, but this flap is not able to fill the dead space [4].

Several perforator flaps have been proposed to cover sacral pressure sores, but they are more tedious to dissect [11] [12] and are more prone to venous congestion [13]. The free flap coverage indications include the absence of local flap tissue especially in the multiple recurrent pressure sore [1].

In our cases we used the spider procedure based on Z-plasty concept to reconstruct a sacral pressure severe defect (size 9 cm). In this procedure, first, the existing defect is surgically converted to a triangle in shape, then using a modified 5-flap Z-plasty pattern. The flaps are outlined by transposing the elevated flaps in a Z-plasty manner. A tension free closure is achieved using tissue relaxation provided by opposing Z Plasty [3].

The advantage of this flap comparing to other local fasciocutaneous flaps indicated to cover large sacral defect with big cavity like bilateral VY advancement gluteal fascio-cutaneous flap and rotational gluteal fascio-cutaneous flap is that the tension in the mid-line is minime because of the extra tissue relaxation provided by opposing Z-plasty.

CONCLUSION:

The spider procedure has the advantage of tension-free closure, simple dissection with short operative time and no sacrifice of muscles function which can make this flap a useful solution in sacral pressure sore defect reconstruction, Especially in a non-paralyzed patient whom we want stable results with less donor site morbidity.

AUTHOR CONTRIBUTIONS

Sarah Sabur wrote this article. All authors have read and agreed to the final version of this manuscript and have equally contributed to its content and the management of the cases.

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COMPETING INTERESTS

The authors declare no conflict of interest.

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