

## The V-Y Fascio-Cutaneous Flap for Coverage of Pre-Sacral Pressure Sores: A Reliable Solution for a Major Problem

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### ABSTRACT

This study was conducted on 14 patients with pre-sacral pressure sores. They were 10 males and 4 females with an age range 35-80 (mean 67.7) years. Three cases were orthopedic patients while all the others were neurology cases with paraplegia or senile confinement in bed. All patients were initially debrided and all suspiciously viable tissue removed. Culture and sensitivity samples were taken from all wounds. Packs with Betadine and Hydrogen Peroxide were applied twice daily for a period of 5-10 days. Under general anesthesia, bilateral V-Y fascio-cutaneous flaps were done in 12 cases and a unilateral flap was done in two cases. Suction drains were applied in all cases for a period of 7-10 days and non-weight bearing sustained for a period of at least two weeks or until complete healing occurred. Superficial infection occurred in 3 cases and responded to drainage and repeated dressings. Wound gaping occurred in 1 case and secondary sutures were taken under local anesthesia. No flap loss occurred in all cases. The technique has the merit of simplicity and rapidity which are of great value in these multi-problematic patients.

### INTRODUCTION

9% of hospitalized patients develop pressure sores with an alarming incidence of 62% in patients over 70 years old. 11% of intensive care patients develop pressure sores with the higher incidence blamed on the critical condition of these patients [1]. The vast improvement in rehabilitation medicine contributed to the reduced incidence together with the better understanding and supplementation of the nutritional requirements of critically ill patients [2]. The best approach to management of pressure sores is prevention of their occurrence in the first place. This is achieved by avoiding prolonged pressure, prevention of contamination and quick treatment of any established infection [3]. Treatment of established pressure sores is a challenge requiring collaboration of medical, neurological, psycho-

logical and reconstructive services [4]. As the pre-sacral area presents the commonest site of all pressure sores, it has been the subject of extensive research. Many musculo-cutaneous and fascio-cutaneous flaps are described to cover defects in this area [5]. In this work an attempt will be done to achieve the best possible coverage with the least compromise to the patient general health and well-being.

### PATIENTS AND METHODS

Fourteen patients complaining of pre-sacral pressure sores stages III and IV (accordind to the National Pressure Sore Advisory Panel Consensus Development Conference, 1989) were registered in this study. Their age range was 35-80 years with a mean of 67.7 years. Three patients (21.4%) were orthopedic cases and the other eleven patients (78.6%) were either paraplegics or senile cases confined to bed. Defect size was estimated after debridement with the largest being 15 cm in its transverse diameter (Fig. 1) & the others ranging between 5-10 cm (Fig. 2).

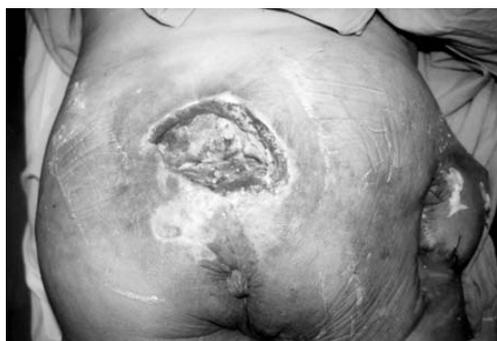


Fig. (1): The largest pressure sore in this work with a diameter of 15 cms and severe secondary infection.



Fig. (2): An early pressure sore in a 34 year old paraplegic male.

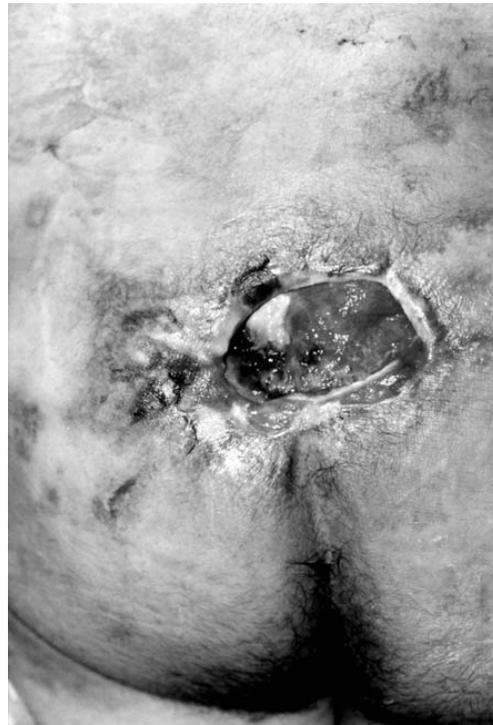


Fig. (3): An apparently small pre-sacral pressure sore with extensive subcutaneous devitalisation.

#### *Operative technique:*

All patients were initially debrided under general anaesthesia. Necrotic tissue was removed and all pockets were opened to expose healthy tissues underneath. Wound edges were freshened and the wounds were packed with Betadine and Hydrogen Peroxide dressings. Dressings were applied twice daily for a period of 1-2 weeks until fresh granulation tissue started to appear in the wound. Patients were all put on air mattresses and weight bearing not allowed on the back completely. Patients were then taken again to the operating theatre for definitive repair. Patients were put in the jack-knife position and the wound area draped. The design of the flap was bilateral in 12 cases and unilateral in 2 cases. Size of the flap was decided so that the final length of the flap will cover the defect in unilateral cases and half of it in the bilateral cases. Decision to do a uni- or bilateral flap was decided intra-operatively after testing tissue pliability in

relation to the defect size. The skin incision was carried down to the gluteus fascia with complete separation on all sides. No undermining was done and mobilization was tried to see if the flap will completely occlude the defect. After checking hemostasis, the wound was closed in 2 layers with suction drains. No weight bearing was allowed for a period of 2-3 weeks or until complete healing of the wound edges.

#### **RESULTS**

No flaps were lost in all cases. Mild infection occurred in 3 cases and responded to repeated dressings. Wound gaping occurred in 4 cases with healing by secondary intention in 3 cases (Fig. 4) and secondary sutures in 1 case. Suction drains were kept until minimal drainage was found (Fig. 5) and weight bearing allowed intermittently after complete healing (Fig. 6) within 2-3 weeks (average 17 days).



Fig. (4): A small diameter deep pressure sore.



Fig. (5): The final outcome of the patient in Fig. (1) where bilateral V-Y flap was done. Infection and minor gapping occurred in the flap but subsided on repeated dressings.



Fig. (6): Unilateral V-Y flap for the patient in Fig. (2) was enough to cover the defect.



Fig. (7): Bilateral V-Y flap for the patient in fig. 3.



Fig. (8): Late result of the flap done for the patient in fig. 4.



Fig. (9): Late result of the flap done for the patient in fig. 7.

## DISCUSSION

The pre-sacral area is the commonest site of pressure sores contributing to 36% of all sores followed by the heel area 30% [1]. This is largely due to the prolonged recumbancy in bed with inadequate mobilization. Pressure sores start in the deeper tissues nearest to bone with the apex of the ulcer being on the skin surface. This has an important bearing on management as the skin represents a small fraction of the problem and extensive debridement of all suspiciously viable tissue is strictly required if healing is to be achieved [6]. In the management of pressure sores correction of any form of malnutrition e.g. low albumen, iron and copper is important as these are critical for collagen activity and consequent wound healing. Of paramount importance in the management is the avoidance of local contamination and cure of systemic infection. The source of any bacteraemia whether urinary, pulmonary or otherwise should be controlled. Fecal contamination of the wound area can increase the collagenolytic activity on the skin and underlying tissues aggravating the problem.

During debridement assessment of the maximum wound volume should be done so that on repair no tension will be laid on the tissues predisposing to gaping and recurrence.

When choosing between different modalities of repair, the choice between musculo-cutaneous and fascio-cutaneous flaps relies on the wisdom of the operating surgeon in every individual case. The former flaps offer more bulk and reliable padding [8]. However, muscle is usually atrophic in elderly and paraplegic patients. Muscles are also most sensitive to external pressure being vulnerable to ischemia, atrophy and consequent recurrence. The last argument is the possibility of inducing a functional disability by mobilizing muscle but this is not a major concern in most of these cases [9]. On the other hand, fascio-cutaneous flaps provide adequately vascularised tissue that is durable and with a minimum functional morbidity. The lack of bulk is

not a major concern especially in the pre-sacral area [10].

The V-Y fascio-cutaneous flap is a valuable workhorse in management of lesions in this area. It is easy to master the technique, is not time consuming (a major concern in these possibly critically ill patients) and provides cover of matching quality to the original skin. The incidence of complications in this flap is rather low in the form of infection in 3 cases (21.4%) and gaping in 1 case (7%). No flap loss was encountered in this study. The V-Y fascio-cutaneous flap is thus a recommended flap as a first line of management in pre-sacral pressure sores.

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