THE FLAPS WE USED IN THE SURGICAL TREATMENT OF THE CHRONIC DECUBITUS WOUNDS

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Abstract

Pressure wounds are generally necrotic wounds that appear on the bone processes of the body and deepen to the bone. The reason why we chose the surgical treatment is; first of all, it has a shorter recovery period, and secondly it makes a positive effect on the patient economically, socially and psychologically. TFL (2), M. Vastus Lateralis (2), Anterolateral thigh flap (1), M. Gluteus Maximus (1), free M. Latissimus Dorsi (1) flaps and split thickness skin graftings were used to cover eight pressure wounds of various depths on four paraplegic patients. In this study, our aim is to discuss the positive and negative aspects of the method chosen for the flaps we used.

Key Words: Pressure sore, Surgical treatment.

Introduction:

Pressure wounds usually apear on the bone processes of the body, effecting life quality negatively. They may become deeper causing serious problems (which could lead to the patient's death.) both for the doctor and the patient.

The muscle weaknesses in the paralysed areas, atony, sensitive and autonomic loss, together with pressure and humidity proceeding all these; constitute the most important etiological factors. Anemia, bacterial infections, malnutrition, incontinance and insufficient care are often observed on these patients and they cause the deepenning of the pressure wounds were tried to be cured with various solutions applied systemic and/or local, which include enzymes, vitamins, antibiotics, dried blood plasm, gold, aluminium wounds and published a series of four cases. In the following years, due to the improvements on flap surgery and microsurgery, the conservative methods which were suggested especially for the treatment of deep wounds, lost their actuality. The structure, volume, place and depth of the pressure wounds are factors that determine the reconstruction type to be applied. We used toh Shea Grading to evaluate the wounds, as it is useful for selecting the efficient treatment and determining the prognose.

TABLE I

GRADE	ANATOMIC LIMIT
I	Skin
II	Subcutoneus fat tissue
III	Deep fascia
IV	Joint and/or bone
Closed pressure wound	Deep fascia

The basic principles for the surgical treatment of the pressure wounds were explored by Conway and Griffith in 1956. These can be summarized as exision of the infected and devitalized tissues, straightening of the bone process -if there is any-, careful hemostasis, sufficient vacuum drainage and selection of the sufficient flap that will not form dead space.

In this study, our target is to emphasize the superior and the inconvenient aspects of the treatment method we used, and the results of the flaps used in cases which were admitted due to wounds that have been formed in various depths because of paraplegy and had not healed although conservative methods had been applied beforehand.

The Patients and the Methods:

The details of the surgical methods we applied to cover the eight pressure wounds of for paraplegic pati-

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ents between 1987-1993 are indicated in Table II.

Case I: 41 years old male patient. Fell down from a high place two years ago. Paraplegy is developed as a result of burst type fractures in the 11th and 12th thoracal vertebra. Grade II pressure wounds of 8 cm in diameter on the right throcanteric area an 7 cm in diameter on the left throcanteric area are observed. Infection is taken unde control with dressing and antibiotics appropriate to the Culture Antibiogram before surgery. A two-session surgical treatment is carried out with a one month interval in between. The defects are covered by using a flap 9 cm in diameter for the left throcanteric area and another flap 10 cm in diameter for the right throcanteric area after an intensive debridman including necrotic tissues, infected bursa and the bone process. The secondary defects that arise in donor area covered with split thickness skin grafting. Vacuum drainage is done continuously for 2 days. Split thickness skin grafting is applied for the Grade II sacral wound.

Case II: 25 years old, male patient. Had an occupational hazard 4 years ago. Paraplegy is developed as a result of burst type fracture in the 1st lombar vertebra. Because of the injury in the same accident right upper knee amputation is done. The patient is admitted with sacral wound complaints. A Grade 4 pressure wound of 4x5 cm in the sacral area and chronic osteomyelitis in the sacrum are found in his examination. The stabilization of the wound is acquired by dressings and antibiotics appropriate to the Culture Antibiogram in the postoperative period. Gluteus Maximus muscle-skin flap is planned. After the radical resection of the wound and the curetage of the sacrum, the defect is covered with a M.Gluteus Maximus V-Y advancement flap of 6x7 cm which was prepared for the right side.

Case III: 33 years old, male patient. Hemipelvicctomy is done on the left side because of malign Schwannoma which diagnosed 10 years ago. Paraplegy has developed because of a fracture in the 12th thoracal vertabre after a traffic accident 3 years ago. For the last 6 months there were Grade III pressure wounds of 7x8 cm in the right heel and another Grade III wound of 6 cm in diameter in the right ischial area. The defect in the right heel was covered with the left M. Latissimus Dorsi free muscle-skin flap of 10x7 cm. The supporting artery of the fascia-skin thigh flap (the subsiding branch of the lateral famoral circumflex artery which was planned for the left ischial wound was dissected. By making an instant anastomoze, the blood support of the flap was provided. The ischial wound was covered by transferring the prepared flap under the skin bridge on the posterolateral of the thigh. The donor area is closed primarly.

Case IV: 38 years old, male patient. As a result of occupational hazard 20 years ago, burst type fracture and paraplegy have developed in the 12th thoracal vertebra. Gade III pressure wounds of 5x5 cm were observed in both of the ischial areas. The tissues around the wound were extremely atrophic. After the radical rection of the necrotic and infected tissues, M. Vastus Lateralis muscle-skin flap of 9x10 cm was applied with a oneweek interval. It was noticed during the dissection that the muscle was fibrotic operation. This dead space was filled with M. Gluteus Maximus rotational muscle flap 3 months after the first operation. The Vastus Lateralis flap was protected during this operation. The donor areas were closed with split thickness skin grafting.

Results

The postoperative follow up period of our cases is at least 6 months, at most 7 years with a mean of 3 years 9 months. In the first case on which we applied TFL

TABLE II

PATIENT	AGE	OP. YEAR	SITE OF LESSION	PRIMARY DISEASE	TYPE OF TREATMENT	TYPE OF STAGE	FOLLOW UP	RESULT
Ş.Ö.	41	1987	RIGHT TROCHANTER	PARAPLEGIA	TFL	GRADE III	1 YEAR	RECOVERY
			LEFT TROCHANTER	PARAPLEGIA	TFL	GRADE II	1 YEAR	RECOVERY
			SACRAL	PARAPLEGIA	SKIN GREFT	GRADE III	1 YEAR	RECOVERY
Ö.Ü.	25	1987	SACRAL	PARAPLEGIA	GLUTEUS MAXIMUS	GRADE IV	7 YEARS	RECOVERY
R.E.	38	1993	RIGHT HEEL	PARAPLEGIA	FREE LAT.DORSI FLAP	GRADE III	6 MONTHS	RECOVERY
			RIGHT ISCHIAL	PARAPLEGIA	ANTEROLATERAL FEMORAL FLAP	GRADE III	6 MONTHS	NECROSIS
G.T.	38	1993	RIGHT ISCHIAL	PARAPLEGIA	VASTUS LAT.MUSCLE-SKIN	GRADE III	6 MONTHS	RECOVERY
			LEFT ISCHIAL	PARAPLEGIA	VASTUS LAT.MUSCLE-SKIN	GRADE III	6 MONTHS	INFECTION

facia-skin flap for the pressure wounds on both of the throcanteric areas, the defects are covered. However, this patient died after a year due to chronic renal insufficiency. The second case which had Grade IV wound and chronic sacral osteomyelitis had no problem due to the applied M. Gluteus Maximus flap and bone infection in the 7 years of follow up period.A sufficient healing is provided with the free flap we applied on the right heel of the third case. The anterolateral thigh flap we used to cover the left ischial wound had necrosis in the postoperative first week. We planned a M. Gluteus Maximus rotation flap M. Vastus Lateralis muscle-skin flap was applied for both of the ischial wounds, healed while infection due to dead space appeared under the flap on the left side. However the flap preserved its vitality. In the third postoperative week, this dead space was filled with Gluteus Maximus rotational muscle flap and a sufficient healing was obtained.

Discussion:

The application of pediculated or free flaps for pressure wounds is not a new concept. The conservative methods that were suggested for the wounds other than Grade I hove lost their importance. Skin grafting for the Grade II wounds and pediculated flap application for the Grade III and IV wounds in our cases are in accordance with the literature (1,2,3,4,5,6,8).

The most preferred methods for closing the sacral pressure wounds are M. Gluteus maximus muscle-skin advancement and islad flaps (5) which were identified by Ger. The reason why we did not observe any bone infection during 7 years of follow up period on our case in which Grade IV pressure wound jwas treated with M. Gluteus maximus V-Y muscle-skin advancement and also chronic sacral osteomyelitis was observed, is because the muscle that was transposated had not only filled the defect, but also increased the total vascularity and the tissue oxygen pressure. This event is both experimentally and clinically produced by Richard and Fischer.

Tensor Fascia Lata fascia-skin flap is generally used to cover the throcanteric pressure wounds. M. Vastus Lateralis muscle-skin, gluteal thigh and M. Rectus Femoris muscle flaps are the alternatives (1,5). The reason for our choosing TFL'in our case which had two sided throcanteric pressure wound is that the injury was not seriously deep and dissection was easy. The application of flaps in ischial area defects are still being discussed, as more complications are observed compared to the other areas. Likewise, we also faced complicati-

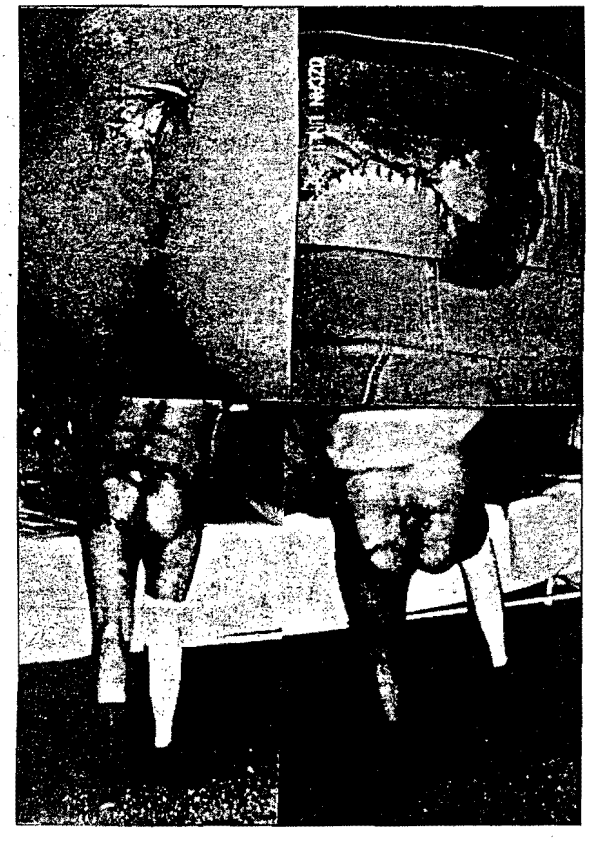

Figure 1: In sacral region Grade IV pressure wound. Result of M. Gluteus Maximus Advancement Flap.

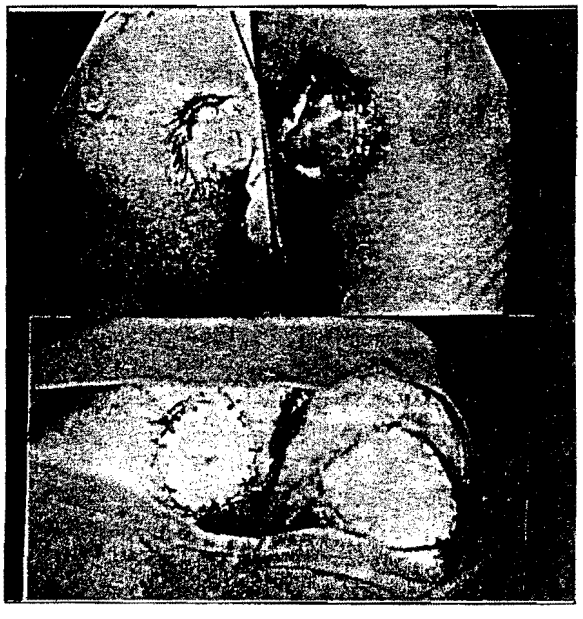

Figure 2: Bilateral iscial pressure wound. Result of M. Vastus Lateralis Rotation Flap.

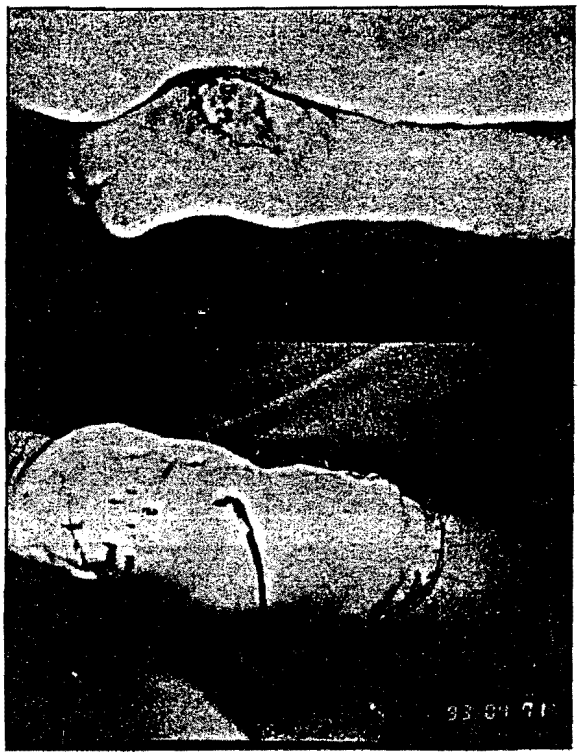

Figure: 3 - In the heel Grade III pressure wound. Result of Latissimus Dorsi Flap.

ons in two of the flaps we applied on three ischial Grade III pressure wounds. In the case of ischial wounds,Stevenson indicated succesful results with M. Gluteus Maximus muscle-skin island flap and Ger and Hamstring V-Y muscle - skin flap is used commanly in the recent yerars. The low number of our ischially defected cases and our technical defects hinder a right interpretation of the flaps we used.

Recurrence and infection are the most common complications after the covering of pressure wounds with any flap. Infection can be prevented by radical debridman and filling of the dead space under the flap. Recurrence after a succesful operation arises due to insufficient protective treatment and insensitivity of the flap. In spite of their technical difficulty, the intercostal neurovascular muscle-skin island flaps which were indentified by Dibbell in 1974 and Terzis in 1976, have great importance for decreasing therecurrence in sacral and ischial pressure wounds due to loss of sensitivity (2,3)

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