

Post-Radiation Large Lumbo-Sacral Defect: Repair by Multiple Flaps in a Single Sitting

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ABSTRACT

Multiple techniques are available for reconstruction of various soft-tissues defects either secondary to continuous pressure, trauma or radiation necrosis. Though micro-vascular flap repair techniques is the gold standard, yet it is limited by availability of expert hands and cost, latter being a major concern in developing world. Hence, we are presenting a case where multiple fasciocutaneous flaps were used successfully for reconstruction of large post-radiation lumbosacral defects in a single stage.

Keywords: Multiple Flaps, Post-Radiation Defect, Large Lumbo-Sacral Wound, Paraspinal Perforator Flap, Gluteus Maximus Flap.

INTRODUCTION

The lumbosacral region is relatively poorly vascularised area with impaired healing of wound. This become much more difficult, if pressure sore developed after irradiation or after radiotherapy.¹ The most reliable to treat a radiation ulcer is wide excision of affected tissues, followed by coverage with well vascularised tissues.^{2,3} As usual, radiation induced skin ulcers are due to therapeutic irradiation for residual cancer or lymph nodes. In the presented case, one such wound is covered by multiple fasciocutaneous flaps has been discussed.

CASE HISTORY

Forty five years old male, presented as out-patient with the history of radiotherapy for locally invasive primary bony spinal tumour after seven month without any tissue diagnosis. Patient did not have any significant medical history and presented without neurological deficient.

He developed 22x15 centimetres defect over lumbosacral region with minimal scarring without exposure of any bone and signs of inflammation, surrounding area was healthy.[Figure 1]

Patient was treated in multiple hospital including vacuum assistant dressing but did not get any benefit in the condition of wound.

After proper debridement⁴ [Figure 2], the covering of defect was planned with four fasciocutaneous flaps in form of left sided superior gluteal artery based gluteal maximus fasciocutaneous

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Article History:

Received: 06-01-2018, Revised: 03-02-2018, Accepted: 21-02-2018

Access this article online

Website: www.ijmrp.com	Quick Response code 
DOI: 10.21276/ijmrp.2018.4.2.058	

flap, right sided perforator based paraspinal flap and two random based fasciocutaneous flaps.[Figure 3]

After elevation of all flaps, stay suturing was taken [figure 4]. Evaluation of proper flap laxity and vascularity of flaps were checked.⁵

The procedure was performed as per planning without significant post-operative course.[Figure 5,6,7] Wound healed well with small dehiscence over lower end which healed spontaneous with regular dressings in six weeks.[Figure 8,9]

DISCUSSION

The lumbosacral defects are difficult to treat because of poor vascularity and pressure bearing area. This becomes a more problematic after radiotherapy as it further compromises the blood supply. Multiple flaps from surrounding area are more beneficial than single flap because single flap is unable to cover a huge defect in single sitting.⁶⁻⁸ There is further advantages of good vascularity of multiple flaps in such cases. There is another advantage that opposite unused flaps will be useful in future, if there is necrosis of any flaps later on or flaps are require covering up surgical defect for primary disease⁷ or further radiation. This technique is very useful in those centres where micro vascular flap surgery is not possible or refuses by patient either because of expenses or unfit for micro vascular surgeries.

This multiple flaps surgery come at the cost of pre-operative proper planning, past experience of raising local flaps and lengthy operative time. The newer technique like perforator based flap, which is also used in one flap in presented case in an option for

successfully resurfacing the difficult post-radiotherapy wound. This multiple flap coverage is also used in cases of large defect from pressure sore⁹, after repair of large meningocele¹⁰ and oncological surgical defects.



Fig 1: Condition of wound at the time of presentation: 22x15 centimetres defect over lumbosacral region.



Fig 2: Condition of wound after proper debridement.



Fig 3: Per-operative planning of Multiple Flaps.



Fig 4: During surgery with stay suturing.



Fig 5: Closure of defects after completion of surgery.



Fig 6: Final closure of defect from right side.



Fig 7: Final closure of defect from left side.



Fig 8: Wound after one month follow-up.



Fig 9: Wound after one month follow-up from right side.

CONCLUSION

Though many techniques have been described in medical literature for repair of difficult soft tissues defects in lumbosacral region yet selection of right technique is based on available infrastructure, expertise and experience of a surgeon. In expert hands multiple flap surgery in a single stage can be used to repair large defects in cost-effective and healthy manner.

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Source of Support: Nil.

Conflict of Interest: None Declared.

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Cite this article as: Rajput Anil, Agarwal Vimal K., Rastogi Rajul, Sengar Ragini. Post-Radiation Large Lumbo-Sacral Defect: Repair by Multiple Flaps in a Single Sitting. *Int J Med Res Prof*. 2018 Mar; 4(2):254-56. DOI:10.21276/ijmrp.2018.4.2.058