

INTRODUCTION

Myelomeningocele is the most common type of neural tube defects (NTDs) that occurs in <1 to 7 per 1000 live births worldwide.^{1,2} It occurs in 4th week of gestation, where the flattened "neural placode" is incompletely closed, causing an open neural tube defect that is associated with the malformation of vertebral arches (spina bifida) and meningeal cystic dilatation with spinal cord abnormality.^{3,4} In untreated cases, the mortality rate is around 65-70% in the first 6 months of life due to ascending meningitis and ventriculitis.⁵

CASE REPORT

A male newborn, delivered through emergency caesarean section at 36 weeks of gestation, was referred to our institution from a peripheral hospital for leaking myelomeningocele. On examination, there was a raw, red, fleshy plaque measuring 7cm x 5cm at the lumbosacral region.

After neurosurgical closure of the neural tube and dura, portions of the lumbodorsal fascia were closed over the dural repair. Bilateral bipedicle fasciocutaneous flap dissection began above the lumbodorsal aponeurosis of the paraspinal longitudinal muscle group. A subfascial avascular plane was entered where blunt dissection proceeds rapidly to allow wide undermining of fasciocutaneous flaps. Dissection proceeded cranially over the latissimus dorsi muscle, laterally beyond the mid-axillary line while caudally over the gluteus maximus muscles and sacrum. Large perforating vessels were noted at the extreme lateral limits of dissection and were preserved. The greatest extent of undermining was directed laterally away from the center of defect to minimize suture-line tension. The widely undermined flaps were advanced medially to allow a longitudinal midline closure. Lateral relaxing incisions were made bilaterally above the iliac crest to further minimize suture-line tension. Hydrofiber dressing secured with adhesive hydrocolloid dressing was applied on the lateral relaxing incisions to promote healing by secondary intention.



Figure A:
Lumbosacral Myelomeningocele

Figure B:
Post-operative day 2 defect closure with bipedicle fasciocutaneous advancement flap with lateral relaxing incisions.

Figure C:
Post-operative day 14

DISCUSSION

It was estimated by Patterson et al in their series of 130 patients who had undergone lumbar myelomeningocele repair, 25% could not be repaired by simple direct closure and flap coverage was required.⁶ We opted the method of closure with bipedicle advancement fasciocutaneous flaps, similar to that reported by Iacobucci et al. Their series involved 13 patients over the period of 9 years. No long term complications, including necrosis of flap edges and wound dehiscence, have been apparent in their series. Bipedicle fasciocutaneous advancement flap is supported by a rich vascular network. Upper lateral portion of the flap is supplied by parascapular and scapular fascial branches of circumflex scapular artery. Middle portion of the flap is supplied by muscular perforators and lateral cutaneous branches of costal groove segment of lower intercostal arteries. Prominent lateral extension of the superficial circumflex iliac arterial system formed the dominant fascial vasculature of the lower lateral portion of the flap, richly arborizing with the middle segmental intercostal extensions.⁷

Even though muscle and musculocutaneous flaps have been reported to provide a better soft tissue padding, dissection of these flaps require longer operating time and is often associated with increased blood loss. Since these patients often need crutches for ambulation, the sacrifice of back muscles may adversely affect crutch walking as well as body posture. Preserving the integrity of the back musculature has also been reported to be important for effective bladder emptying due to Valsalva maneuver. These patients with handicaps are at risk of developing decubitus ulcers in the future. Thus, muscle flap options should be preserved for long term coverage problems and should be considered only after exhausting other reconstructive options.^{7,8}

CONCLUSION

Technical simplicity of flap preparation as well as good prognostic features such as minimal bleeding, decreased operation time, sparing the back muscles and preserving other reconstructive options for future use make this flap a reliable option and useful tool for surgeons in the closure of large myelomeningocele defect.

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