

Tissue Expander Applications In Giant Meningomyelocele Cases

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Abstract : A rectangular tissue of (10X5X5cm) 250 cc expander was applied to 8 patients of ages ranging between 0 and 6 months with meningomyelocele of diameters of 10 cm or more. The expanded myocutaneous flap is an effective method for giant men-

ingomyelocele treatment because of tension-free suturing, suitability for dorsal tissue and reduction of complications.

Key Words : Meningomyelocele, tissue expansion, musculocutaneous flap.

INTRODUCTION

Meningomyelocele, during the neonatal period, is a most important defect and may occur at different levels in various dimensions and shape affecting the spinal cord. In some cases, the neck of the sac may protrude through a small vertebral defect, resulting in a very large mass. In others the defect in the vertebra is great, the neck of the meningomyelocele sac is extremely wide and ectodermal cover is incomplete.

Primary repair of large meningomyelocele greater than 5 or 6 cm is more difficult compared with the defective field size and because of the tension of sutures and these lead to complications such as suture detachment, necrosis and fistula.

Although tissue expansion, which Neuman introduced in 1957 and Radovan popularized in the 1970's, has provided great help in reconstructive surgery, it has not yet gained the rank that it should have in the world.

MATERIAL AND METHOD

Today, an early surgical approach in the treatment of meningomyelocele is very important in preventing

infections and restoring normal growth of the baby. Especially, tension and necrosis in the suture line which are important problems occurring when repairing large meningomyeloceles are avoided using tissue expander and the defective field is covered with a tissue that has suitable innervation with the dorsal tissue.

As all babies except one had hydrocephalus, a ventriculo-peritoneal shunt was applied to patients in the same session. In preoperative evaluation, all had bilateral paralysis of the lower extremities, anal and urinary incontinence (Fig. 1a, 2a, 3a.)



Fig. 1a :Preoperative view.



Fig. 2a : Preoperative view.



Fig. 3a : Preoperative view.

A rectangular tissue expander of (10X5X5cm) 250 cc was applied to 8 patients aged between 0 and 6 months with meningomyelocele with a diameter of 10 cm or more.

A 5 cm transverse incision was made at both sides at the lower level of the meningomyelocele. After identification of the fibers of the latissimus muscle

and lumbosacral fascia, pockets for expanders between the ribs and latissimus were prepared by dissection and expanders were inserted. Reservoir domes were placed under the skin at the distal of the incision with a short tie.

During the operation both expanders were filled with 50 cc saline and after haemostasis was achieved, the incisions were mattress sutured with 4/0 nonabsorbable monofilament.

On the 4th or 5th days, 50 cc saline was continued and efficient expansion was obtained in 15 days by 50 cc every three days. There were no complications in the babies, who were given prophylactic antibiotics (Fig. 1b, 2b, 3b).

The dural sac was reached via an elliptical incision around the meningomyelocele in re-operated babies. In all cases, the defect was not like the usual sac neck but there were severe defects lying in the rostro-caudal direction. The sac was opened and the aberrant nerve tissue became visible. There was no neural continuity in any of the cases, so functional



Fig. 1b : Tissue expander application.



Fig. 2b : Tissue expander application.



Fig. 3b : Tissue expander application.

neural repair was not carried out. The dura was sutured with 4/0 absorbable monofilament suture and the iliocostal fascia was laid over to prevent CSF fistula. In all patients, to cover the defective area on the skin, expanded skin flaps were sutured on the mid-line with 4/0 nonabsorbable monofilament suture on each defect in mattress fashion (Fig. 1c, 2c, 3c).



Fig. 1c : Postoperative view.



Fig. 2c : Postoperative view.

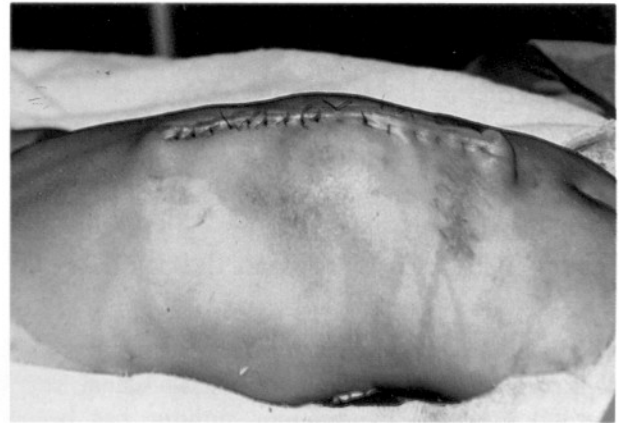


Fig. 3c : Postoperative view.

The wounds were dressed every day and the sutures were removed on the 10 th or 12 th days and the patients were discharged. No complications were seen in the patients that were followed.

DISCUSSION

It is not long ago that the majority of infants with meningocele were given conservative treatment at home and less than 20% of survived for 2 years without surgical treatment. When the lesion is large and accompanied by an important degree of hydrocephalus, the natural mortality is very high. When it is not treated, 50 % of the patients in this group die in a few weeks and the rest in the first 6 months.

Treatment of meningocele patients has not been standardized. Scientists put forward exact criteria but this has not been widely accepted and the thought that every infant has the right to have an operation and to live whatever the level of his illness, is accepted by the scientists.

When treating meningocele, a number of operation techniques such as local skin flaps, muscle flaps and skin grafts have been applied successfully (5). But the main problem occurs when treating a meningocele over 5 or 6 cm in diameter. Tissue expansion which has been widely used recently has provided very good results in repairing large defects (2,4). Especially, the expansion of myocutaneous flaps to increase vascularization and innervation has been effective (3). Physiopathological and histomorphological studies carried out since the use of tissue

expanders in reconstructive surgery have shown that vascularization of the expanded tissue increases like delay phenomenon, innervations are not tortured and even the cells in the skin epithelium increase (1,6,7). Expander placement are made at the bottom of the defect on both sides with a transverse incision and not vertically at both sides of the defect to reduce the risk of bleeding from the perforating arteries coming from the latissimus muscle and the possibility of fistula.

The fibrous capsule which occurs as a result of expansion is also useful to support the spinal canal. This method, reported by different authors, has been modified by us and the expander was inserted under the muscle and instead of weekly intervals, blowing up once in 3 days for 50 cc saline caused no deficiency in nourishing the skin. Moreover, as the patient is not hospitalized during the procedure, hospitalization is short.

For meningomyelocele treatment, in addition to earliest possible intervention and noninfective repair, the use of tissue expander to repair large body defects, with their the ease of suturing without tension, suitability for dorsal tissue and reducing complications, is an effective method.

To operate on this kind of babies is very important for their parents and because functional repair these can not be accomplished these babies should be detected prenatally for appropriate treatment and normal functional development.

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