



CLOSURE OF LARGE MENINGOMYELOCOEL WITH LIMBERG FLAP- EXPERIENCE OF 12 PATIENTS.

**Dr Dinesh kumar
Rajput**

Assistant Professor ,department Of Surgery, M. L. B. Medical College ,jhansi

**Dr Neeraj singh
Rajput***

Senior Resident, Department Of Surgery ,M. L. B Medical College, Jhansi
*Corresponding Author

ABSTRACT

Meningomyelocele is a global disease and more prevalent in low socioeconomic groups. Its prevalence is roughly one per one thousands of live births. As per standard protocol, these should be operated, as soon as possible to prevent damage of neural placode from the exposure of environment factors. In most of the cases, defect is easily covered with primary closure. However in large defects, they need cover with myocutaneous flaps raised with different methods. We had used Limberg flap to cover large defect in meningomyelocele.

KEYWORDS : Meningomyelocele, Limberg flap

INTRODUCTION –

Meningomyelocele is a common congenital disorder in under privileged countries. Incidence of this disorder is reported globally as 0.8-1per live births. At the 4 weeks of gestation, primary neurulation starts that is formation of neural tube[1]. It starts in midline ,in dorsal region and extends rostral and caudally and make a neural tube[2]. Defect in the closure of this tube make, different kinds of congenital defects. Factors determining these, defects are not well known but definite association had been noted with low socioeconomic status,folate deficiency, certain geographical areas and genetics[3]. The aim of surgery, in these cases is, excision of extra duramater, saving maximum, neural placode, and watertight dural closure and closure of defect myocutaneous covering. In large defect which accounts about 25 %[4], it is a tedious job for a reconstructive surgeon. Several reconstructive procedure have been developed over a period of time, including local flaps, myocutaneous flaps, free flaps. We had applied Limberg flap for closure of large defects.

METHODS-

From January 2017 to December 2018 , 54 pateints were operated with different types of neural defectsin this hospital. Out of which 12 patients had large defects . All patients were

operated with Limberg flap after dural closure. There was seven female (58%) and five patients were male(42%).They have a mean age of 3 months. Out of these, 12 patients,four patients were operated with single flap while rest of eight patents were required two flaps. All such patients were operated with neurosurgeon and reconstruction surgeon. Demographic data are summarized in table .

Surgical technique-Limberg flap (Rhomboid flap) can be used to cover defect in almost any part of body.

Figure-1

Limberg flap is an example of parallelogram with two 120 degree and two 60 degree angles, and is a kind of transposition flap.These anges can be modified depending on the shape of defects. And random flap can be raised from any of or all corners of the rhomboids. A maximum four flaps can be raised from each rhomboid. Defect is filled with tissue of same color, consistency and good vascularity. The elevation of its elevation is simple and require, sufficient subcutaneous tissue,dissection must be carried out past its base to prevent an elevated bump, when it is transposed. Professor AA Limberg of Leningrad devoted his great time to develop this verastie random flap.

RESULTS

Table-1

Patient	Age at the time of surgery	sex	Location of defect	Size of defect	No of defects	No of flaps	Associated abnormalities
1	20 days	F	Dorsal	5 cmx 5 cm	one		
2	30 days	M	Dorsolumber spine	6cm x 5 cm	one		
3	90 days	F	Dorsolumber	4 cm x 4 cm	one	one	
4	60 days	M	Dorsal	4 cm x 5 cm	one	one	
5	45 days	M	Dorsal	5 cm x 6 cm	one		
6	100 days	F	dorsolumber	6cm x 6 cm	one		
7	25 days	M	dorsal	5cmx 7 cm	one		
8	45 day	F	dorsal	6cm x 4 cm	one		
9	90 days	M	dorsolumber	8cm x 6cm	one		
10	120 days	F	dorsal	6 cm x 5 cm	one		
11	30 days	M	dorsolumber	5cmx4cm	one		
12	10 days	M	dorsolumber	4cmx5cm	one		

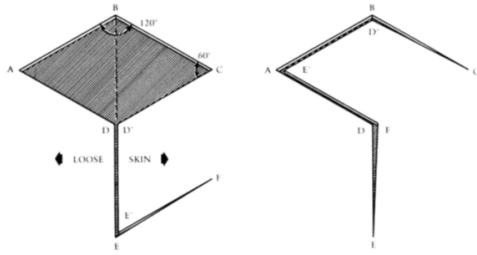


Figure-1



Figure-2



Figure-3

DISCUSSION-

Recently fetal surgeries are being done in some centers but outcome depends on several factors. Fetal surgeries require special set up and advanced training. They also associated with significant mortality[5]. In our set up , meningomyelocele are operated in postnatal period.

In our study twelve patients were having, large meningomyelocele ,in which musculocutaneous flaps(Limberg Flap) were used, which contribute 22 % of the all cases of meningomyelocele, almost similar to other studies. Several options are available, like bilateral latissimus dorsi musculocutaneous flap, bilateral gluteal fasciocutaneous flaps[6], or combinations of both flaps. Local turnover facial flaps and midline linear skin closure was also described by patel et al[7]. In addition to these, perforators flaps are also being used to cover large meningomyelocele like, lumbar artery perforator flaps, superior gluteal artery perforator flap and dorsal intercostal artery perforator flaps[8,9].

In all these cases of meningomyelocele, duramater is not always, healthy and adequate so proper fasciocutaneous flap is very important. There is a long list which had been developed, to over such large meningomyelocele, like rotation flaps, VY advancement flaps, Limberg flaps, bilobed flaps, and rhomboids flaps[10-12]. Limberg flap was used to cover meningomyelocele defect first time by Ohtsuka et al in 1979[12].

Professor AA Limberg of Leningrad devoted his entire career to design this flap[13]. We decided to cover skin defect in large meningomyelocele defect with Limberg flap, because covering of central defect is made by flap core, in which

circulation is stable and distal tip of flaps, where tension is maximum and marginal necrosis is possible do not come in center. Secondly, redundant skin over scapula can be used in these flaps. In our two cases, only one flap was sufficient but in rest of these, two flaps were used. Limberg flap maintain integrity of muscle of trunk so that they can maintain correct trunk posture as child grow up. These flaps can cover rectangular as well as round defects perfectly. Theoretically flaps can be raised from all side of rhomboids that is four flaps can be raised as per requirement. Blood loss in all these procedure is also minimal.

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