Article *NIMHANS Journal*

Surgical Technique and Recent Advances in the Management of Myelomeningcoele

Volume: 03 Issue: 01 January 1985 Page: 53-55

D Raja Reddy, - *Department of Neurosurgery, Osmania Medical College Hyderabad, India*

Abstract

The management of children born with spina bifida cystica continues to be controversial [1], [2]. But once a decision is made to operate upon these cases, one has got to provide them optimal care. Timing, nature and extent of surgery in cases of neningocoele and myelomeningocoele are discussed in this paper.

Key words -
Meningocoele,
Myelomeningocoele,
Surgical management

The most difficult problem in the management of children born with myelomeningocoele is to decide whether the patient's condition warrants an operation, and if so, when it is to be performed. But once a decision is taken to operate upon these children, one has got to provide them with active treatment which involves repair of the myelomeningocoele, shunting for hydrocephalus if it were to become progressive, decompression of the Arnold-chiari malformation, if necessary, and subsequent management of urinary and skeletal problems. As for the repair of the meningocoele and myelomeningocoele, one can classify them into two types - those with exposed neural tissue at birth and those with good skin coverage. Obviously one has got to operate upon the first group as early as possible. Another problem that has got to be considered is whether there is any associated hydrocephalus. The child who has got significant hydrocephalus at birth, no matter what kind of spinal lesion the baby has got, one has to tackle that first. If the baby has exposed neural tissue, it is preferable to repair the myelomeningocoele and perform the shunt at the same time. But if there is a flat exposed neural plate with underlying skeletal deformity and very little good skin around for optimum closure, I would do a shunt and leave the myelomeningocoele to granulate and heal.

First I shall deal with the operative treatment of a case of myelomeningocoele with exposed neural tissue :

1. Ideally these cases should be operated upon during the first few hours after birth to prevent sepsis and dehydration of the neural plate from damaging further whatever neural function that is left. If the case is referred to me early, I would immediately operate upon it treating it as an emergency. But if such cases are referred to me late as it often happens, I would operate upon them on the following day. If sepsis has already set in, I would treat the infection and nurse the babies in prone position to prevent further sepsis from contamination of the exposed neural tissue by the urine and feces. But the operation is undertaken only when the sepsis appears controlled.
2. It would, of course, be ideal to operate upon these children under local anesthesia with pethidine and phenergan pre-medication. One needs cardiac moniter during such a surgical problem. But one

problem that one faces in such situation is of the movement of the baby and of keeping the operative field sterile. Hence it is advisable to operate upon them under general anesthesia. I would briefly spell out the steps I would take in operating upon such cases.

3. First I shall expose the sac with a wide vertical elliptical skin incision to prevent the damaging of the nerve roots. I never use horizontal skin incision in these cases.
4. Next I shall try to trim the neural plate of excess of epidermal tissue and secure haemostatis which occurs at the edges of the neural plate. It is at this stage I shall use the microscope which will show the proper plane.
5. One recent innovation in the surgical management of these cases is the closure of the neural plate into a tube which makes it look like spinal cord, since it is in the dural tube. I may use the microscope at this stage, though it is not absolutely necessary.
6. Th next and important step of the operation I would undertake is to separate the dura all around and to close it watertight without undue tension to the underlying neural elements.
7. Next I would get a layer to close it so as to protect the underlying dural closure. I use the edges of the dural layer to close. But before attempting that one has to undermine the skin extensively in order to get a good, tension-free skin closure and I rarely use releasing incisions. In situations where there is not much of good skin to cover, I use thin parchment like epithelium to close over the dural layer and put a skin graft later on, if it gives away.
8. It should be remembered that post operative management is as important as the watertight closure of the dura and hence children must be nursed prone throughout.

Next I would deal with the operative treatment of the cases of myelomeningocoeles who have good skin coverage. Usually I prefer to operate upon these cases during the third month after birth, but I would certainly operate upon them early in the following situations :

(a) When meningocoele is increasing in size rapidly and the skin is getting thinner and appearing as if it would give away.
(b) If a baby is developing neurological deficits or the neurological deficits present are getting worse. This is classically seen in cases of lateral myelomeningocoeles.
(c) If cerebro spinal fluid starts oozing out from the sac.

The operative techniques of the cases of meningocoeles and myelomeningocoeles with good skin coverage is no doubt standardized. However, I prefer horizontal elliptical skin incision around the sac. If the swelling is near the sacral region the lower flap has got to be much bigger to avoid the skin suture coming nearer to the anus. The only precaution one has to take in these cases is to separate the adherent dural sac from the skin. It is always easier to get a good plane of separation at a lower level and then work one's way up. If there is an association lipoma, one should make sure not to damage the sac which gets entangled in the large lipomatous mass. Once the sac is separated and opened, all the neural tissues released from dome of the sac, it should be pushed into the spinal canal before water tight dural closure is obtained.

Lastly, I would like to dismiss the management of unusual myelomeningocoeles like lateral ones and those with tethered conus syndrome. I have large experience of treating lateral lumbosacral myelomeningocoeles [3], [4]. Sometimes they might be way out lateral. They give rise to characteristics clinical and radiological findings. They usually have a very wide dural sac and the usual horizontal skin incision is not adequate for exposing the base of the sac. Hence in such situations I prefer to make a vertical midline incision and expose the dural tube above and below the sac before tackling the sac and its contents. Lastly, a word about the tethered conus cases. It is advisable to leave the bit of tissue to the conus rather than cut the additions close to the neural tissue in order to prevent further damage to the spinal cord.

1.Fishman M A, Recent clinical advances in the treatment of drysraphic state
Paediatric Clinics of North America Page: 23: 517, 1976
2.Naglo A S & Hellstrom M B, Results of treatment in Myelomeningocoele
Acta Paediatrica Scandinavica Page: 65: 565, 1976
3.Reddy D R, Hooper R, Satyanarayana K & Reddy A N, Paravertebral lumbar myelomeningocoele.- A report of three cases
Australian & New Zealand Journal of Surgery Page: 46 :69, 1976
4.Reddy D R, Satyanarayana K & Rama Sastry K, Lateral lumbo sacral myelomeningocole in an adult - A case report
Neurology India Page: 30: 194, 1982