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Anaesthetic Management in a Child for Lipomyelomeningocele Repair - A Case Report

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Abstract: ***Lipomyelomeningocele (LMMC) is a closed neural tube defect in which neural elements are incorporated into a spinal lipoma. This can occur in 3-6 patients per 100, 000 live births[3]. Anesthetising a case of lipomyelomeningocele is challenging due to pediatric age group and systemic involvement. Intraoperatively bradycardia is the most commonest complication occurring during induction of anesthesia. Unexplained hypotension may be due to sudden loss of CSF from dural sac leading to increased craniospinal pressure gradient and hence, brain herniation.4Respiratory complications are common in the postoperative period, especially, in children with Chiari malformation. Complications due to prone position can be prevented with adequate precautionary measures.[5]***

Keywords: Lipomyelomeningocele, spinal lipoma, Chiari malformation

1. Introduction

LMMC represent a unique population within the spectrum of spinal dysraphism. It is defined as a subcutaneous lipoma occurring in the lumbosacral region and connected by a fibro-fatty stalk to an intramedullary lipoma. The malformation tethers the spinal cord[1]. Anesthetising these patients can be challenging due to paediatric age group, positioning during anaesthesia, presence of other system malformations and chances of post operative respiratory complications.

2. Case Report

A 5 year old male child, weighing 12 kgs came with complaints of swelling in the back since birth which was initially 1cm and gradually progressed to 4 cms. Weakness of both lower limbs since one year which was noticed in the form of reduced movements of right lower limb more than left lower limb with no other comorbidities. Birth history – Term baby delivered by LSCS, weighing 2.6 kgs. Baby cried after birth with no NICU admission.

On examination vitals were stable. Child was conscious, alert & active. Cranial nerve examination was normal, head to toe examination was normal, Power in bilateral upper limb was 5/5and right lower limb was 2/5 and left lower limb was 3/5, tone in right and left upper limb was normal, tone was reduced in right lower limb and left lower limb was normal, meningeal irritation signs were absent. Investigations were within normal limits.

Plan of surgery was detethering of spinal cord with meningocoele repair. Case was accepted under ASA II, General anesthesia was planned. IV cannula 22G secured pre operatively. patient was shifted to OT, connected to standard multipara monitors. Patient was premedicated with inj. Midazolam 0.1mg/kg IV, inj. Glycopyrrolate 0.01mg/kg IV. Patient was induced with Inj. propofol 2mg/kg IV, after confirming ability to ventilate, patient was relaxed with Inj. atracurium 0.5mg/kg. intubated with Cuffed OETT of size 5.0mmID secured at 15 cms after confirming bilateral equal air entry, connected to closed circuit ventilator with pressure control mode. Maintenance on O2/N2O/ Isoflurane/ atracurium. IV fluids given according HOLLIDAY-SEGAR formula. Patient was put in prone position after adequate padding. Intraoperative-uneventful. Extubated after adequate suctioning and reversal in supine position. Post op was uneventful.

3. Discussion

Spinal lipomas have been classified into three groups based on the location of the neural placode-lipoma junction: Dorsal, caudal and transitional this is known as Chapman classification. Most LMMCs are of the dorsal or transitional type.

Spinal lipomas and LMMCs are frequently associated with cutaneous and musculoskeletal abnormalities in addition to sensorimotor deficits and urological dysfunction.[3]

Musculoskeletal findings include scoliosis, unilateral or bilateral foot deformities.

LMMC can be associated with Chairi malformation type1 (13%), Spina bifida (14.4%), Split cord malformations (3.1%), associated dermal sinuses (3.1%), dermoid or epidermoid cyst (3.1%), diastematomyelia (3.1%), terminal hydromyelia (3.1%), anal stenosis (1.0%), and Down's syndrome (1.0%).[3]

During preoperative evaluation, Pediatrician's consultation should be adviced to rule out other organ system involvement.

4. Conclusion

Anesthesiologists must consider age related pathophysiology while planning anesthesia and it is important to have a good pre operative evaluation, vigilant intra operative and post operative monitoring to prevent any complications.

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