

ANESTHETIC MANAGEMENT OF A 28 WEEK PREGNANT WOMAN WITH D2 POTT'S SPINE FOR SPINAL SURGERY THROUGH TRANSCLAVICULAR APPROACH

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SUMMARY

Anesthetic management of a 28 weeks pregnant patient with rapidly progressing paresis in all four limbs (D2 Pott's Spine); subjected to a decompression of the spinal cord with bone grafting and plating at the D2 level through a transclavicular transmural approach under general anesthesia. The involvement of the anesthesiologist, neurosurgeon, obstetrician, pediatrician as a team is essential for the proper management of such patients and the best outcomes for both the mother and the fetus.

Keywords : pregnancy, spine surgery, Transclavicular approach, Pott's spine.

Introduction

The coexistence of Tuberculosis in women of child bearing age group is about 40%¹, with India accounting for 30% of the burden of all TB cases in the world.² Both pulmonary and extra pulmonary types of tuberculosis is seen in pregnant women and the course of disease is same as in non pregnant patients but delayed treatment in pregnant women is usually associated with 4 fold increase in obstetric morbidity and 9 fold increase in preterm labor.³ The maternal and fetal mortality and morbidity in these patients depends upon various factors viz. site and extent of lesion, stage of pregnancy and when anti tubercular treatment started, immunity of the mother and concurrent HIV infection. The treatment regimens are same except withholding streptomycin. Most of the clinicians defer surgery in pregnant patients till the delivery of the baby for the fear of preterm labor, teratogenicity and congenital malformations, except in emergency situations where the surgery cannot be delayed.

Case Report

A 25 year old lady with 28 weeks pregnancy presented to the neurosurgical OPD with rapidly developing paresis in all the four limbs. She was on antitubercular treatment for past two months- Rifampicin-500mg, Isoniazid-250 mg, Pyrazinamide- 1000 mg , Ethambutol-750 mg.

On examination the patient was fully conscious with moderate built (height 157 cms, weight 50 kg). Her B.P., temperature and respiration were within normal limits. Her cardiovascular and respiratory system were normal. On examination of central nervous system, she had tenderness at D2 level of spine with upper limb power 4/5 and lower limb power 1/5. Deep tendon reflexes were exaggerated in all four limbs; Superficial reflexes -bilateral plantars up going and sensory deficit below D2. Her haemoglobin was 9.6gm% and all other laboratory investigations including LFT were normal. X-ray spine showed destruction of D2 vertebra. MRI revealed bony destruction involving D2 vertebra with marked cord compression and myelopathic changes. CT guided FNAC suggested tubercular exudates. Pre operative Ultra Sonographic



D2 destruction with cord compression

Fig. 1 : Pre operative MRI showing destruction of D2 vertebra with cord compression

Examination (U.S.G.) confirmed uterus size -28 weeks, with F.H.R -140/min; placenta and liquor were normal and adequate respectively. A transclavicular transmural approach for decompression with bone grafting and plating was planned after detailed consultation with the neurosurgeons, anesthesiologists, obstetricians and pediatricians. This approach was chosen as prone positioning would have endangered the fetus.

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Anesthetic Management

The PAC checkup was performed and the patient was categorized as ASA grade III. An informed consent was obtained after explaining the anesthetic and surgical hazards in pregnant ladies (viz., preterm labor).

Night before surgery the patient was advised to take tab. Diazepam 5mg.

The patient was placed in a left lateral tilt position in the operation theatre and standard monitors of intra operative monitoring were attached (NIBP, SpO₂, 5 lead ECG, temperature probe). Intra venous access was achieved using a wide bore (18 G) canula. The patient was preloaded with ringer lactate solution before induction with thiopentone sodium 200mg and suxamethonium 75mg. Rapid sequence intubation was done under direct laryngoscopy with ETT of 7mm ID using Sellick's maneuver. Anaesthesia was maintained with 50% O₂ and 50% N₂O and isoflurane (0.2-0.6%). The controlled respiration was assisted with vecuronium infusion using ventilator in closed circuit. The surgery lasted for 6 hours and the input of iv fluids was balanced to the output measured using an indwelling catheter. Blood was replaced as needed. The patient was reversed with neostigmine 2.5 mg and atropine 1.2 mg at the end of the operation. Patient was extubated and kept in the left lateral position with supplemental oxygen provided with a face mask. Analgesia intra operatively was provided with fentanyl 75µ repeated every two hourly.



Fig. 2 : Post operative X-ray showing titanium plates and screws in situ.

Post operative U.S.G. was normal. Patient was shifted to neurosurgical ICU for 24hours. Tocolytic agents were administered post operatively. The post operative period was uneventful and the patient was discharged after a week.

This patient at 32 weeks developed Pregnancy Induced Hypertension and was under the care of obstetricians. At 36 weeks of pregnancy she underwent an emergency caesarean section under general anesthesia and delivered a healthy

baby boy weighing 2.5 kg with an APGAR score of 7 at 3 minutes.

Discussion

Most of the clinicians are hesitant to provide anesthesia to pregnant women presenting for surgery (especially in the third trimester) due to fear of spontaneous abortion⁴, preterm labor⁵, pre term babies and fetal abnormalities.^{6,7} Most of the non emergency cases are usually delayed till the baby is delivered.

Maintenance of maternal homeostasis usually guarantees fetal well being. Maternal hypoxia, hypotension, hypocarbia can lead to decreased uterine blood flow and which may have unfavorable effects on the fetus. To prevent fetal compromise a close monitoring of maternal parameters: B.P., intravascular volume, percentage saturation of hemoglobin (SpO₂), EtcO₂ are essential. Some anesthesiologists have stressed the importance of Continuous Electronic Fetal Monitoring (CEFM) for assessment of fetal well being during surgical procedures. FHR patterns are a surrogate marker of the acid base status of the fetus. CEFM although technically easy to introduce, but interpretation is subjective and difficult to reproduce and standardize. While the absence of fetal heart rate variability can be a significant indicator of fetal stress during labor, FHR variability is significantly reduced in healthy fetuses under anesthesia misinterpretation of which may be grossly fatal.⁸

With the use of CEFM the incidence of neonatal seizures has reduced, but there has been no reduction in the incidence of long term neurological handicap or perinatal mortality when compared with structural intermittent auscultation (SIA).^{9,10,11} Many obstetricians feel that FHR monitoring during surgery is not useful because derangements in maternal physiological variables can be assessed and treated without reference to FHR analysis.^{12,13} No fetal hypoxic mortality or morbidity has been documented without the occurrence of maternal hypoxic complications regardless of the use of FHR monitoring or whether alterations of the FHR occurred.¹⁴

Simultaneous presence of tuberculosis in pregnant ladies is commonly due to reactivation of old tubercular focus due to incomplete treatment. Tubercular paraplegia is usually rare but has a good prognosis if surgical decompression and stabilization is done early and supplemented with chemotherapy simultaneously.

Conclusion

A non abdominal surgical intervention in pregnant ladies need not be delayed. A careful watch on maternal parameters will ensure a successful outcome of pregnancy.

In our opinion the FHR monitoring is not essential and the results should be interpreted in light of the maternal parameters and the effects of anesthetic drugs and surgery itself on the FHR.

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