Case Report

Anaesthetic Management of a Pregnant Patient with Sub Dural Haematoma (SDH), Caesarean Section and Evacuation of SDH

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Introduction

Trauma during pregnancy, including head injury is a leading cause of maternal death and morbidity and complicates 6%-7% of all pregnancies. Early aggressive maternal resuscitation is the main priority. The specific anatomic and physiologic changes that occur during pregnancy may alter the response to injury and hence necessitate a modified approach to the resuscitation process. The main principle guiding therapy must be that resuscitating the mother will resuscitate the fetus[1]. Fetal safety during anaesthesia should be considered but mother's life is always at priority.A multidisciplinary team approach is mandatory and management should be individualized according to the type and extent of injury, maternal status, gestational age, and fetal status[2].

Case Report

A 30 year old pregnant women G4A3 at 37 weeks + 3 days gestation presented to casualty with history of head injury and loss of consciousness following road traffic accident. No significant past medical or surgical history. On examination in the casualty, she was hemodynamically stable with poor Glasgow coma scale score 3/15 (E1, V1, M1), and both pupils were dilated and non-reactive to light. Dolls eye movement was present. No other injuries were clinically detected.

Patient was intubated with oral cuffed endotracheal tube size 7 in view of her poor GCS. CT brain revealed bilateral frontal lobe contusion with left fronto temporal acute sub dural haemorrhage with midline shift. Craniotomy and evacuation of haematoma was decided as a life saving measure. Patient had a full term viable fetus as suggested by ultrasound but had features of fetal distress. Therefore it was decided to do LSCS followed by craniotomy.

Anaesthetic Management

Patient was shifted to OT. ECG, heart rate, blood pressure and temperature were monitored. Anaesthesia was maintained with Air, O2, Isoflurane mixture and muscle relaxation was accomplished with intermittent IV boluses of vecuronium 1mg.

Obstetrician performed LSCS and a baby boy of 2.6 kg was delivered with APGAR 7/ 10 , 8/10 (0 min, 5min). After delivery of the baby, Patient was given Inj Fentanyl 100mcgIV, Inj Oxytocin 20 units as slow infusion. Immediately neurosurgeons started bifrontal craniotomy and evacuation of subdural haematoma was done.

IV fluids were administered according to calculated loss along with 3 units of PRBC with urine output at 70 ml/hr. Intra-operatively patient was hemodynamically stable. Following completion of both the operations, patient was shifted to ICU with ETT in situ and was kept on mechanical ventilation. Subsequently patient was weaned off and tracheostomy was done on post op day4. Patient recovered well and was later shifted to a hospital in her native place for nursing care (Fig 1).

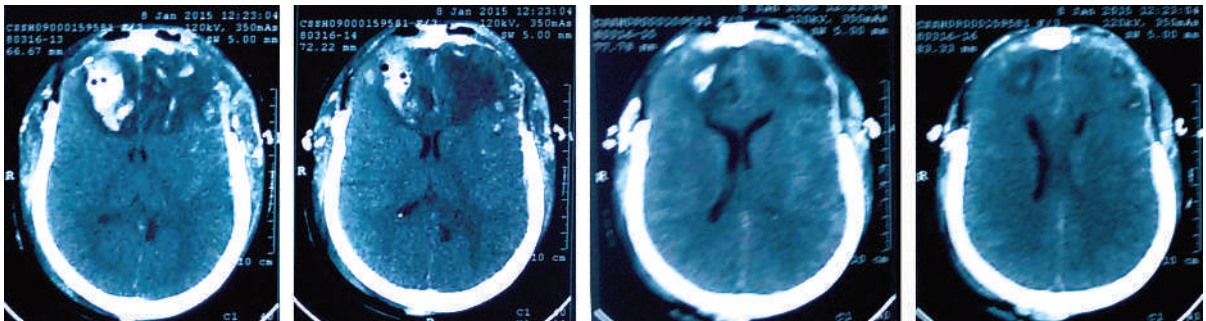

Fig 1 - CT Brain Showing Bilateral Frontal Lobe Contusion with Left Fronto Temporal Subdural Haematoma with Midline Shift

Discussion

The primary management goals were optimal maternal resuscitation and early fetal assessment[2]. A CT Brain is always indicated in all head-injured patients with a depressed level of consciousness. Though sensitivity to radiation is greater especially during 1st trimester, it should not be withheld on the basis of its potential hazard to the fetus. We used a lead apron to shield the abdomen during CT to minimise radiation[3].

The fetus should be assessed during or immediately after maternal stabilization, and viable fetus should be monitored continuously. Emergency cesarean delivery is indicated in the presence of fetal distress or suspected placental abruption.

Vaginal delivery after a recent neurosurgery is dangerous due to the deleterious effects of labor pain, uterine contractions, and straining on intracranial pressure (ICP) and cerebral blood flow[3].In our patient there were signs of fetal distress and hence LSCS was performed immediately followed by craniotomy.

Postpartum hemorrhage from uterine atony remains a risk during the subsequent neurosurgery because of the use of high doses of inhalational volatile anaesthetics. Isoflurane appears to be the least potent uterine relaxant of the volatile anesthetics and it is also one of the inhalation agent of choice in neurosurgery[1].To prevent uterine atony after cesarean delivery, we reduced MAC of isoflurane to 0.6 – 0. 8.

Mannitol 100mg was given to reduce ICP. Oxytocin had been used without complications after delivery in patients with various neurological diseases so we used oxytocin 20 U as slow infusion.

Ergometrine is a potent vasoconstrictor, producing a hypertensive response that may further elevate ICP and prostaglandins F2 alpha effects on ICP have not been studied[2], so both were avoided.

Conclusion

The pregnant trauma patient presents a unique challenge because care must be provided for two patients, the mother and the fetus. Acute circumstances demand immediate, multidisciplinary management.

References

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Plums prevent bone loss

One of the major health concerns for those exposed to ionising radiation, like patients on radiotherapy, radiation workers and astronauts, is excessive bone loss. Ionising radiation induces bone loss through oxidative damage and by increasing bone resorbing osteoclasts. In a new study carried out in mice, the researchers tried antioxidant cocktail, dihydrolipoic acid, ibuprofen and dried plum independently for their ability to suppress the expression of genes connected to bone resorption. Of all the candidates tried, dried plum turned out to be the most effective in suppressing bone resorption linked genes like *Nfe2l2, Rankl, Mcp1, Opg and TNF-alpha*. So, dietary supplementation of dried plum may help in preventing radiation induced bone loss. The study is published in Science Reports (Schreurs AS, Shirazi-Fard Y, Shahnazari M, Alwood JS, Truong TA, Tahimic CG, et al. Dried plum diet protects from bone loss caused by ionizing radiation. Sci Rep. 2016; 6:21343.)

- Dr. K. Ramesh Rao

No need for sperms; stem cells will do!

Male infertility is widely prevalent and is responsible for the failure of married couple to have children in about a third of all cases of infertility. Male infertility is often the result of a defective sperm generation due to failure of meiosis or the reduction division during spermatogenesis. Although the germ cells have been created in the lab from the stem cells for some time now, creation of a fully functional sperm in the lab has so far been hindered by the inability to induce meiosis in vitro. Now a group of scientists from Nanjing Medical University in China have not only overcome that hurdle to create functionally perfect sperm from mouse embryonic stem cell but also injected that into mouse egg cell to produce fertile mouse offspring. If the result can be repeated in humans, it will be a boon to a section of infertile couple.The study is published in the journal Cell Stem Cell (Complete meiosis from embryonic stem cell-derived germ cells in vitro, Quan Zhou et al., Cell Stem Cell, do: http://dx.doi.org/10.1016/j.stem.2016.01.017, published 25 February 2016.)

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