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# Anaesthetic Management of Patient with Guillain Barre Syndrome for Cesarean Delivery- A Case Report

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**Abstract**

Guillain Barre Syndrome is an acute, frequently severe, and fulminant polyradiculopathy that is auto-immune in nature [(1)]. Guillain Barre Syndrome is extremely rare in pregnancy. There are no recommended guidelines for safe anaesthesia and delivery. We report a 25 years old female patient diagnosed as Guillain Barre Syndrome who was effectively and successfully managed for caesarean delivery with general anaesthesia.

**Keywords:** Guillain Barre Syndrome, Pregnancy, General anaesthesia, Caesarean delivery.

## Introduction

The incidence of Guillain Barre Syndrome is estimated to be 3500 cases per year in United states and Canada. Males are at 1.5 fold higher risk for GBS than females, and in western countries adults are more affected than children[1]. The incidence in pregnancy is 1.2 to 1.9 cases per 100000 annually [(2)]. GBS manifests as rapidly evolving areflexic motor paralysis with or without sensory disturbances. The typical history is preceding episode of upper respiratory tract infection or gastroenteritis 1-3 weeks prior followed by weakness of extremities which may progress to back, shoulder, cervical area, respiratory muscles leading to acute respiratory failure requiring long term ventilatory management. We report a 25 years old pregnant patient diagnosed as Guillain Barre Syndrome who successfully underwent caesarean section under general anaesthesia with systematic planning and execution of anaesthesia which is also the first case across Maharashtra.

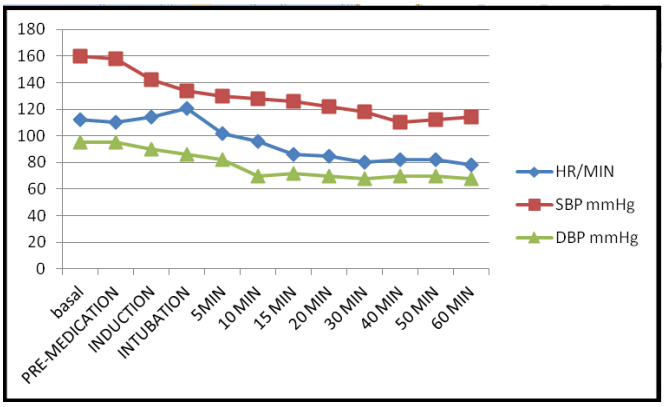
## Case Report

A 25 years female patient with 28 weeks of gestation was admitted in private hospital with the complaints of loose stools since 12-15 days with weakness in legs. Thereafter, she developed complete progressive weakness in all four limbs and difficulty in breathing with laboured respiration for which she was intubated and kept on ventilator on assist control mode. She was diagnosed to have Gullain Barre Syndrome and was given intravenous immunoglobulins. After one week she was tracheostomised in view of need for long term ventilator support and was shifted to our government hospital for further management. At 34 weeks of

gestation, the obstetrician decided to plan an elective caesarean delivery as it was no longer possible to maintain the pregnancy due to respiratory difficulty to patient. In pre-anaesthesia evaluation, the patient was conscious, oriented, obeying commands. She was on ventilator on assist control mode with following setting- TV-450, RR-14/min, I:E ratio -1:2, $FiO_2$- 50%, PEEP-4 cm $H_2O$. Weaning modes like CPAP, Pressure support ventilation were tried by intensivist but couldn't be successful. In RS - coarse crepitations were present. She was diagnosed to have pregnancy induced hypertension for which she was put on anti-hypertensives. Her treatment history consist of intravenous immunoglobulin therapy for prevention of disease progression, Inj. LMW Heparin 0.6 mg SC for thrombo-prophylaxis which was with-hold 24 hours prior to surgery, Total parenteral nutrition with Ryles tube feeding, Tab. Labetalol 100 mg BD, Tab. Nicardia 20 mg TDS, Inj. Piptaz 1 gm BD. Biochemical investigations were normal except abnormal liver function tests consisting of SGOT-415, SGPT-349, ALT-240, Sr. Albumin-1.9 g/dl, total bilirubin- 0.3. Arterial blood gas analysis(on the day of surgery) was pH-7.455, $pO_2$-78.5mm Hg on $FiO_2$-70%, $pCO_2$-41.5mmHg, $HCO_3$-28.5, Sodium- 134meq/l, Potassium-3.32 meq/l, BE—7.3. A high risk written informed consent was taken. She was shifted from intensive care unit on transport ventilator to operation theatre. In operation theatre, she was connected to ventilator of anaesthesia machine with following settings ( TV-450 ml, RR-14/min, IE ratio- 1:2, PEEP-3, $FiO_2$- 100%). Standard monitoring like electrocardiogram, pulse oximetry, $EtCO_2$ monitoring, Non- invasive blood pressure monitoring was started. Left radial artery cannulation with 22G arterial cannula was done for invasive blood pressure monitoring. Her heart rate was 112/min,regular and blood pressure was 160/95 mmHg $SpO_2$ -91%. The $SpO_2$ improved to 97% after adequate suctioning and tracheostomy tube manipulation with 100 % $O_2$ supplementation. Nerve stimulator was placed on ulnar side of forearm for neuromuscular monitoring. Patient was pre-medicated with Inj. Pantocid 40 mg , Inj. Glycopyrrolate 0.2mg, Inj. Hydrocortisone 100mg, Inj. Ondansetron 4 mg. After pre-oxygenation with 100% oxygen for 5 min, surgeon draped the patient. Patient was induced with Inj. Thiopentone sodium 225 mg and Inj. Atracurium besylate 15mg. Surgery started when TOF count was 0/4 on 40 mV stimulus. The baby was delivered at 7 minutes from start of surgery. After the baby was delivered, Inj. Oxytocin 20U in drip, Inj. Midazolam 1mg, Inj.Fentanyl 30 mcg was supplemented and maintained on $0_2$+ Sevoflurane 1.5 vol% on mechanical ventilation. Intra-operatively $SpO_2$ slowly increased from 97% to 100 % and patient was hemodynamically stable throughout the surgery. Arterial blood gas analysis and blood sugar (112mg/dl) were performed at 30 minutes from induction of anaesthesia. ABG analysis with electrolytes were in normal range intraoperatively (pH-7.44. $pCO_2$- 38.5mmHg, $pO_2$- 243 mmHg, $HCO_3$-21.8, Sodium- 135meq/l, Potassium- 3.3 meq/l, Blood sugar- 112mg/dl ). After completion of surgery, the patient was reversed with Inj. Neostigmine and Inj. Glycopyrrolate after return of spontaneous respiration and TOF count was 4/4. Total surgical time was 48 minutes and anaesthesia time was 69 minutes. The motor score evaluated in ICU was 1/4 in all extremities which was similar to pre-operative evaluation. Patient was shifted to intensive care unit for further ventilatory management and post-operative care. Total infused crystalloid, estimated blood loss and urine output were 850ml, 450ml and 110ml

respectively. Post-operatively the patient was shifted to intensive care unit for further ventilatory care and supportive management as patient was expected to have long Intensive Care Unit stay.

Line diagram no.1 Hemodynamic changes during caesarean section




**Discussion**

Guillain Barre Syndrome is an immune mediated disease where auto-immune response is generated against peripheral nerve myelin and sometimes the axon following antecedent infectious affection by Campylobacter jejuni, CMV, EBV and Mycoplasma pneumonia [(1)]. Guillain Barre Syndrome is extremely rare in pregnancy. There is no evidence in support that outcome of Guillain Barre Syndrome is improved following pregnancy termination. In our patient, as the growing uterus was causing respiratory difficulty and BP was continuously on higher side inspite of anti-hypertensive medications was the indication for caesarean delivery at 34 weeks. The selection of either regional or general anaesthesia in Guillain Barre Syndrome is very difficult task. None of the technique is better over the other.

Regional anaesthesia may worsen the neurological symptoms in GBS patients. Wiertlewski et al.[(3)] reported worsening of neurological symptoms and partial recovery from motor blockade following epidural anaesthesia in pregnant patient of GBS in labour. Brooks H et al [(4)] and Alici H et al [(5)]mentioned successful use of regional anaesthesia in pregnant patients with GBS. In GBS there is acute inflammatory demyelinating polyneuropathy. In our patient regional anaesthesia was avoided as she was on long term ventilatory support with $pO_2$- 78 mm Hg, elevated liver enzymes and INR 1.3.

General anaesthesia is challenging because of multiple drug usage affecting the mother as well as foetus. In GBS demyelination results in flaccid paralysis and sensory disturbance along with axonal degeneration causing conduction block. Degenerated axons become disconnected from the neuromuscular junction and pre-terminal motor branches [(1)]. Hence, an altered response to neuromuscular blocking agents is also a concern. Use of depolarizing muscle relaxants like succinyl choline may cause hyperkalemia. Feldman JM [(6)] reported cardiac arrest in Guillain Barre Syndrome parturient immediately after succinyl choline administration for general anaesthesia. Non depolarising muscle relaxant use can lead to prolonged muscle relaxation causing delayed recovery from anaesthesia and mechanical ventilatory support in post-operative period. In our patient, we have monitored TOF count for adequate muscle relaxation and reversal from muscle relaxant. The surgery was completed in single dose of Inj. Atracurium besylate 15 mg.

Autonomic dysfunction is also a concern in these patients. The usual manifestations are loss of vasomotor control with wide fluctuations in blood pressure, postural hypotension and cardiac dysrhythmias. These features require close monitoring and management and can be fatal [(1)]. Altered hemodynamic responses may be seen causing morbidity affecting the surgical outcome. Hence, directly acting adrenergic drugs should be used to get desired effects. Our patient was

haemodynamically stable throughout the intra-operative period. Lower cranial nerves are frequently involved, causing bulbar weakness and difficulty with handling secretions and maintaining airway. Hence, in our patient we have given anti-sialagogue for decreasing the secretions. The lungs were full of crepitations because of silent aspirations of these secretions which required frequent suctioning in the peri-operative period.

Post-operatively there is a risk of pulmonary thrombo-embolism because of prolonged immobilization and hypercoagulable state of pregnancy. The incidence of pulmonary embolism has been 1-13% in non-pregnant Guillain Barre Syndrome reported by Ferner R. et al [(7)]. The incidence of deep vein thrombosis was 7% and pulmonary embolism was 4% in Guillain Barre Syndrome patients inspite of prophylactic anticoagulation reported by Gaber et al [(8)]. We have put the patient on LMW Heparin for thrombo-prophylaxis. Along with ventilatory management, supportive care with physiotherapy, nebulization, tracheostomy care, frequent change of position, TPN was continued in the post-operative period. GBS may worsen in the post-partum period due to increase in delayed hypersensitivity [(9)].

We have successfully managed the patient of Guillain Barre Syndrome with general anaesthesia for caesarean section without any complication and adverse event. Multidisciplinary approach with thorough evaluation of the patient, meticulous drug selection of anaesthetic agents, intense invasive hemodynamic monitoring and ventilator strategies lead to successful maternal and foetal outcome which were the golden principles followed in anaesthesia management.

**References**


1. Harrison's principles of internal medicine, 17 edition. Chapter 380 Guillain Barre Syndrome and other immune mediated neuropathies 2008. pp.2667-2670.
2. Sharma SR, Sharma N, Masaraf H et al. Guillain Barre Syndrome complicating pregnancy and correlation with maternal and fetal outcome in north- eastern India: A retrospective study. 2015:18(2);215-218.
3. Wiertlewiski S, Magot A, Drapier S, Malinnovsky JM, Pereon Y. Worsening of neurologic symptoms after epidural anaesthesia for labour in Guillain Barre patient. Anesth Analg. 2004;98:825-827.
4. Brookes H, Christian AS, May AE. Pregnancy, anesthesia and Guillain Barre Syndrome. Anesthesia. 2000;55:894-898.
5. Alici HA, Cesur M, Erdem AF, Gursac M. Repeated use of epidural anaesthesia for caesarean delivery in a patient with Guillain Barre Syndrome. Int J Obstet Anesth.2005;14:269-270.
6. Feldman JM. Cardiac arrest after succinyl choline administration in a pregnant patient recovered from Guillain Barre Syndrome. Anesthesiology.1990;72:942-944.
7. Ferner R, Barnett M, Hughes RA. Management of Guillain Barre Syndrome. Br J Hosp Med .1987;38:525-528.
8. Gaber TA, Kirker SG, Jenner JR. Current practice of prophylactic nticoagulation in Guillain Barre Syndrome. Clin Rehabil. 2002;16:190-193.
9. Campos da Silva Fde Mores Paula G, Dos Santos Esteves Automari CV et al. Guillain Barre Syndrome in pregnancy: early diagnosis and treatment is essential for favourable outcome. Gynecol Obstet Invest 2009;67:236-7.