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Case Report

A case report on primigravida with myasthenia gravis: outcome of pregnancy

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ABSTRACT

Primigravida refers to a woman who is pregnant for the first time. It is a unique experience for the woman. Usually, any minor alignment during this time will lead to anxiety. The prevalence rate of myasthenia gravis in pregnancy is 1 in 20,000. The main reason behind the cause of the disease is improper secretion of acetylcholine, huge secretion of cholinesterase, and non-responsive muscle fibers. The purpose of this case study is to introduce the outcome of pregnancy with myasthenia gravis. This case was taken at X private hospital. A 27-year-old primigravida woman with 38 weeks of pregnancy was the first known case of myasthenia gravis. She was diagnosed with myasthenia gravis thymic hyperplasia in November 2020. The patient is then managed with a surgical procedure, i.e., thymectomy, on 18 September 2021. The patient was receiving distinon (pyridostigmine) 60 mg. It requires the intraoperative collaboration of the neurology and obstetrics departments in managing myasthenia gravis during pregnancy. A successful elective caesarean section was done on the patient's request under spinal anaesthesia on 13 April 2023. The male newborn, with a birth weight of 2.825 gm was delivered. The newborn was transferred to the NICU for further surveillance and did not show any sign of muscular weakness. The baby was healthy at the time of discharge.

Keywords: Elective caesarean section, Myasthenia gravis, NICU, Primigravida

INTRODUCTION

Myasthenia gravis is an autoimmune disorder that results in muscle weakness and generalized fatigue. It is caused by improper secretion of acetylcholine, huge secretion of cholinesterase, and nonresponding muscle fibers, leading to impaired transmission of signals between the muscle and nerves. Ultimately, the voluntary muscles of breathing and swallowing are affected. The signs and symptoms depend on the severity of the illness, which includes muscle weakness, ptosis, fatigue, double vision, dysarthria, dysphagia, and respiratory difficulty due to muscle weakness.[1] The incidence is reported to be 20–100 per million in developed countries, whereas the prevalence rate is 1 in 20,000 pregnant women. Transient neonatal myasthenia gravis is developed in 10-15% of births.[2,3]

The management of myasthenia gravis in primigravida is often unpredictable due to the course of symptoms. There can be an effect on the offspring due to treatment. The treatment regimen, which includes the use of anticholinesterase drugs, immunosuppressive therapy, and intravenous immunoglobulin therapy, has side effects on both mother and offspring. The prolonged use of corticosteroids at higher doses during pregnancy increases the chances of cleft lips and, to a lesser extent, cardiovascular abnormalities, whereas in pregnant women it can lead to gestational diabetes, hypertension, and pre-eclampsia.[4,5] The risk-benefit ratio must be evaluated before the initiation of medication. In such cases, women may show an exacerbation or few symptoms due to the variable course of the disease, so the medication dose must be precisely given to the patient.[6,7]

According to a review on the management of myasthenia gravis during pregnancy, myasthenia gravis affects women during their second and third decades of pregnancy. Usually, myasthenia gravis is exacerbated during the first trimester and postpartum period. It depends on the severity of the case in which the treatment regimen is followed.[7] Another study on a randomized trial of thymectomy in myasthenia gravis was conducted, which shows that thymectomy is a suitable treatment option for patients with thymic hyperplasia. This resulted in an improvement in clinical results over a 3-year period; fewer complications have been seen in pregnant women and neonates who have undergone thymectomy as compared to women who did not undergo this procedure.[8]

CASE REPORT

This case was taken from X private hospital obstetrics department. The case was followed up until the 17-day postpartum period. Verbal consent was obtained from the patient. A 27-year old primigravida woman with chief complaints of muscle stiffness in hands and legs, difficulty walking, and affecting the activity of daily living reported to the hospital. The patient underwent the elective LSCS on 13 April 2023. The care was given throughout the pregnancy and postpartum period. The researcher works closely with the physician and nurses to monitor the patient and neonates during the postnatal period. The X private hospital is NACC-accredited and located in the city of Lucknow, India. In this hospital, all the facilities are present. All types of patients are received and treated according to their condition.

A 27-year old primigravida woman with 38 weeks of pregnancy came to the obstetrical department on 12 April 2023. She had a known case of myasthenia gravis, she had her last menstrual period (LMP) on 19 July 2022 and the expected delivery date is 26 April 2023. At the time of admission, she had muscle stiffness in the hands and legs, not able to work properly.

The patient had been well for three years before she started developing difficulty walking and swallowing. With these complaints, the patient visited the nearby hospital, where she was referred to a tertiary care hospital in the neurology department in November 2020, she was diagnosed with myasthenia gravis. Anticholinease receptor-binding antibody serum was 6.29 nmol/l, ACH was positive, and CT chest showed thymic hyperplasia. No malignancy was seen. The patient was managed with omnacortil 10mg OD and distinon 60 mg TDS. On 18 September 2021, 2021, a thymectomy was successfully performed, and the patient was stable. After 10 months, the patient was pregnant; her last menstrual period was 19 July 2022. A regular antenatal check-up and follow up to the neurology department were also done. Now only Distinon 60 mg TDS was given. The fetal movement was adequate.

As the patient was a resident of Lucknow and it was difficult for her to travel long distances, she received her later treatment and delivery in X private hospital. She was given antenatal care, and follow-up with the neurology department was also carried out. The chief complaints were muscle stiffness in the legs and hands. She has continued on the same treatment, tab distinon 60 mg. The fetal movement was adequate. On ultrasonography, no fetal abnormality was seen.

An elective caesarean section was planned on the patient's request under spinal anaesthesia at 38 weeks of period of gestation on 13 April 2023. The male newborn was delivered with a birth weight of 2.825 kg with APGAR score at 1 min is 7 and 8 at 5 min was seen. The newborn was transferred to NICU for further surveillance and did not show any sign of muscular weakness. The patient developed slight bradycardia on the first day of postpartum, prompt management was done.

Table 1: Laboratory investigation.

Investigation	Patient value	Reference value
Serology		
HbsAg	0.481	0.00-<0.90
HIV	Non reactive	Non reactive
Hepatitis C virus	0.034	0.00-<0.90
Albumin/globulin ratio	1.15	1.2-2.5
Liver function test		
Total serum bilirubin	0.62	0.2-1.2 mg/dl
Serum bilirubin direct	0.12	0.1-0.5 mg/dl
Serum bilirubin indirect	0.50	0-0.9 mg/dl
Alkaline phosphtatase	353	38-126 IU/L
Serum glutamine oxaloacetate transminase (SGOT/AST)	34	0-31 U/L
Serum glutamine pyruvic transminase (SGPT/ALT)	39	0-45 U/L
Serum total protein	5.8	6.4-8.3 g/dl
Serum albumin	3.10	3.5-5.2 g/dl
Serum globulin	2.70	1.8-3.6g/dl
Biochemistry		
Serum sodium	134	136-144 mmol/l
Serum potassium	5.02	3.5-5.5 mmol/l
Serum creatinine	0.57	0.6-1.2 mg/dl
Blood urea	12	17-55 mg/dl
Acetylcholine receptor receptor binding antibody serum	0.50	< 0.40 nmol/l

There were no signs or symptoms of transient neonatal myasthenia gravis seen during the hospital stay. The newborn is healthy and immunized. Anthropometric measurements are as follows: length is 46 cm, weight is 2.8 kg, head circumference is 33 cm, and chest

circumference is 32 cm. A newborn is healthy, vital signs are stable, and no abnormality is detected on physical examination. The patient developed slight bradycardia on the first day of postpartum. The patient is advised to continue the same treatment, i.e., tab distinon 60 mg TDS, during lactation. The patient was able to breastfeed the newborn, and apart from muscle weakness in the leg and hand, no other significant problem is seen. At present, mother and baby are discharged, and regular follow-up is maintained at the hospital (Table 1 and 2).

Foetal ultrasound results showed-Single living intrauterine foetus is longitudal i.e. cephalic presentation, placenta is posterior left side. No previa. Grade III maturity, Liquor is adequate. Foetal bio parameter is as follows: BPD =87 mm, AC =317 mm, FL =70 mm, Heart sound =153 b/min regular, weight =2794gm and no obvious congenital anomaly was seen.

Table 2: Treatment details.

Name of medication	Dose	Route	Frequency
Before pregnancy			
Distinon	60 mg	Oral	TDS
Omnacortil	10 mg	Oral	OD
During pregnancy			
Distinon	60 mg	Oral	TDS
After pregnancy			
Tab Ceftriaxone	200 mg	Oral	BD
Cap Sporolac DS	120 M	Oral	BD
Tab Voveran SR	100 mg	Oral	TDS
Cap Zincovit	50 mg	Oral	OD
Tab Chymoral forte	100 mg	Oral	TDS
Tab Neostigmine	60 mg	Oral	TDS

The patient was asked for proper follows up after 7 days of discharge.

DISCUSSION

In this paper, a case report of a primigravida woman with myasthenia gravis is presented. In this case, the woman, 36 weeks pregnant, came to the obstetrical department. She was a known case of myasthenia gravis; a successful elective caesarean section was done on the patient's request under spinal anaesthesia. The male newborn delivered does not show any congenital abnormality or signs or symptoms of transient neonatal myasthenia gravis, and the newborn's physical examination does not reveal any congenital abnormality.

A similar report is seen in an article that evaluated women with myasthenia gravis during pregnancy. The study concludes that with planned management, treatment, and close monitoring to prevent complications of pregnancy, both mother and newborn achieve favourable outcomes.[9] Another study examined pregnant women with myasthenia gravis. This study summary provides the data that proper medical attention and monitoring with medicine modification will lead to a successful pregnancy.[10]

The guidelines published by the Myasthenia Gravis Foundation of America (MGFA) explain the management of myasthenia gravis during pregnancy. The guidelines give importance to a planned pregnancy, close monitoring and multidisciplinary collaboration between the neurology department, the obstetrician, and other health care providers will lead to favourable pregnancy outcomes.[11] Similarly a study on myasthenia gravis, pregnancy, and delivery, a series of 10 cases was conducted that concluded that there is no negative outcome of pregnancy and delivery because of myasthenia gravis, but during the first trimester, the severity of the disease can occur. Study results show that regional anaesthesia used in the early stages of labour can prevent the risk of motor block.[12] The risk of preeclampsia and eclampsia is not increased in pregnancy with myasthenia gravis.[13,14] There is evidence of a low teratogenic effect, when corticosteroids is used during pregnancy.[15-17] The side effect of cleft lips is seen in many cases.[18] When the dose of corticosteroid is too high or prolonged use of corticosteroid during pregnancy can lead to premature rupture of membrane.

CONCLUSION

The present case report describes the management of pregnancy with myasthenia gravis. It also supports the idea that with multidisciplinary departmental collaboration, a positive pregnancy outcome can be attained. The paper gives comprehensive details of the investigation and treatment required in such cases. Proper follow-up during the antenatal, postnatal periods is required. The patient must adhere to the medication regimen, which should be monitored by the health care provider.

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