

# Thymoma with Myasthenia Gravis in Pregnancy: A Case Report

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## ABSTRACT

Thymoma is the commonest mediastinal tumour but a rare type of thymic tumour of unknown aetiology. The overall incidence of thymoma is 0.13 per 100,000 persons per year which is even rarer in pregnancy. Until this date, the specific link between thymoma and pregnancy has not been identified. Presentations are also variable and include chest pain, respiratory insufficiency, superior vena cava syndrome or non-specific symptoms like fever and weight loss. An Autoimmune paraneoplastic disease which is often linked with thymoma includes myasthenia gravis (MG), hypogammaglobinaemia, aplastic anaemia and systemic lupus erythematosus (SLE). Here we describe a case of thymoma in pregnancy who had successfully delivered and underwent surgical removal postpartum.

## INTRODUCTION

Thymoma and thymic carcinoma, also known as thymic epithelial tumours (TETs) are two types of rare cancers of thymus that can form in the cells that cover the outside surface of the thymus. The overall incidence of thymoma is 0.13 per 100,000 person years. Thymoma incidence is noted to be higher among Asians and Pacific Islanders compared to Whites and Hispanics for unknown reasons.<sup>1</sup> Thymoma patients may present with chest pain, respiratory insufficiency, superior vena cava syndrome or even with non-specific symptoms like fever and weight loss. Autoimmune paraneoplastic disease is often linked with thymoma which includes myasthenia gravis (MG), hypogammaglobinaemia, aplastic anaemia and systemic lupus erythematosus (SLE).<sup>2</sup> Despite being the most common mediastinal tumour, the presentation during pregnancy is rare.<sup>3</sup> Here we describe a case of thymoma in pregnancy who had successfully delivered and underwent surgical removal postpartum.

## CASE REPORT

A 37-year-old lady, Gravida 5 Para 4 was referred to us (specify clinic and institution) at 12 weeks period of gestation. The patient was diagnosed with a thymic cancer in 2015 and had completed chemotherapy in the same

year. However, thymectomy was only scheduled in 2019 as she declined for surgery after the chemotherapy. Throughout 2015 till 2019, she had multiple admissions to intensive care unit (ICU) for MG crisis. Despite being advised to undergo thymectomy, she persistently refused surgery due to worry of surgical risks. During a follow-up in 2019 prior to her scheduled surgery, she was found to be pregnant and thus referred to us. She denied difficulty in breathing or swallowing or muscle weakness. Examination revealed a normal built lady, with bilateral eye ptosis. There was a palpable neck mass. The latest computerized tomography (CT) scan prior to her pregnancy showed a mediastinal mass measuring 3x9x8.6 cm, with suspicious metastatic lesion to the liver.

A multidisciplinary team (MDT) meeting involving the cardiothoracic surgeon, neuromedical team and obstetrician was arranged. Decision was made for the patient to continue with her pregnancy with possibility of early delivery should her condition worsened. Nuchal translucency scan at 12 weeks and detail scan at 20 weeks were both normal. Throughout the pregnancy, she remained well without any MG crisis. Fetal growth was appropriate to age. Magnetic resonance imaging (MRI) thorax performed at 30 weeks showed markedly enlarged

thymoma. Hence, she was planned for delivery at 32 weeks. Following the delivery, she was to be scheduled for thymectomy. However, the couple refused caesarean section at 32 weeks. She was managed as an inpatient to monitor for signs and symptoms of MG crisis. An elective caesarean section was performed at 35 weeks under combined spinal epidural anaesthesia. She was given intravenous immunoglobulin (IVIG) 5 days before the delivery. The caesarean section was uneventful with blood loss of 200 mls. She delivered a female baby weighing 2.15 kg. Debulking thymectomy and lung resection were performed on Day 10 postpartum. Intraoperatively, there was a thymic mass which had invaded into the right and left upper lobe of the lung, and pericardium invading into the adventitia layer just above the aorta. The procedure went well and she was discharged 4 days later.

## DISCUSSION

Thymoma is a rare type of thymic tumour of unknown aetiology. It is even rarer in pregnancy. The earliest case reported was in 1959 and since then there are about 20 other cases reported. Until now, a specific link between thymoma and pregnancy has not been identified.<sup>4,5</sup> About 50-70% of thymoma is associated with paraneoplastic syndrome with MG being the commonest of 30-50%.<sup>6</sup> The course of MG in pregnancy and its outcome is unpredictable. It is shown that 40% of the patients experienced exacerbation of symptoms, 31% of patients remained stable throughout pregnancy while 29% have disease improvement.<sup>7</sup> Disease exacerbation usually occurs in the first trimester and in the puerperium while improvement of disease happens in second and third trimester as mentioned in our case.

Symptoms worsening is resulted from imbalance in the immune system from the sex hormone exposure as there is evidence that oestrogen enhances cytokine and immunoglobulin production in MG patients. Another factor that contributes to changes of disease course in pregnancy is alpha-fetoprotein which is very effective in inhibiting the binding of AChR antibodies to acetylcholine receptors. The alpha-fetoprotein levels are high in late pregnancy resulting in improvement of MG

symptoms and the drop in postpartum period making the disease worsen.<sup>8</sup>

The standard management of patients with thymoma and MG is thymectomy. In women who had not undergone thymectomy, it is found that they have higher incidence of exacerbation during pregnancy as compared to those who had undergone the surgery. It is also seen that infants of thymectomised mothers had less risk of developing neonatal MG.<sup>9</sup> Therefore, women with thymoma and MG should undergo thymectomy during pre-pregnancy. However, in our case, the patient was found to be pregnant before the operation was scheduled. Therefore, the surgery was postponed after delivery as thymectomy is a major surgical procedure with adverse implications if performed during pregnancy.<sup>10</sup>

In MG, vaginal delivery is the preferred mode as the uterus which does not consist of striated muscle is not affected by AChR antibodies. However, in second stage of labour, where striated muscle is involved, the delivery may require assistance either with forceps or vacuum.<sup>7</sup> Caesarean section should only be reserved for obstetrics indication as the stress of surgery can cause worsening of MG symptoms.<sup>11</sup> Unfortunately for our patient, the size of her thymoma was noted to be increasing, thus a premature caesarean section was scheduled. As general anaesthesia and narcotics should be avoided due to potential synergistic effect on AChR antibodies, the caesarean section for our patient was done under combined spinal epidural as per recommendation.<sup>12</sup>

During postpartum period, patients are encouraged to breastfeed as long as they are not on contraindicated medications and the disease is well controlled. They should be informed that the course of previous pregnancies cannot predict the outcome of subsequent pregnancies.<sup>11</sup> Continuous hormonal contraception without hormone free period, barrier or intrauterine device are good contraception options for women with MG.<sup>12</sup> In conclusion, management of thymoma in pregnancy is challenging. However, with good discussion and management involving a multidisciplinary team, it can result in better patient prognosis and good outcome.

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## DISCLOSURE STATEMENT

All of the authors have no conflicts of interests to declare.

## REFERENCES

1. Engels EA. Epidemiology of thymoma and associated malignancies. *J Thorac Oncol.* 2010;5(10 Supple 4):S260-5
2. Travis WD, Brambilla EH, Muller-Hermelink HK, Harris CC, editors. World Health Organization (WHO) classification of tumours. Pathology and Genetics of Tumours of the Lung, Pleura, Thymus and Heart. Lyon, France: IARC press, 2004: 152-66.
3. Thomas LS, Murray IM, Bisset D, et al. Metastatic thymoma, placenta praevia and two successful pregnancies: an obstetric challenge. *Eur J Obstet Gynecol Reprod Biol.* 2013;166(1):112-3.
4. Antinova LF. Thymoma y poleehnuhl. *Akush Ginek.* 1959;35(108).
5. Hechtman JF, Chepovetsky JA, Strauchen JA, Burstein DE, Beasley MB. Thymomas diagnosed during pregnancy: two cases in young women without paraneoplastic or autoimmune disease. *Ann Diagn Pathol.* 2012;16(5):392-6.
6. Kumar R. Myasthenia gravis and thymic neoplasms: A brief review. *World J Clin cases.* 2015;3(12):980.
7. Berlit S, Tuschy B, Spaich S, Sütterlin M, Schaffelder R. Myasthenia gravis in pregnancy: a case report. *Case Rep Obstet Gynecol.* 2012;2012.
8. Boldingh MI, Maniaol AH, Brunborg C, Weedon-Fekjær H, Verschuuren JJGM, Tallaksen CME. Increased risk for clinical onset of myasthenia gravis during the postpartum period. *Neurology.* 2016;87(20):2139-45.
9. Chaudhry SA, Vignarajah B, Koren G. Myasthenia gravis during pregnancy. *Can Fam Physician.* 2012;58(12):1346-9.
10. Bansal R, Goyal MK, Modi M. Management of myasthenia gravis during pregnancy. *Indian J Pharmacol.* 2018;50(6):302.
11. Hassan A, Yasawy ZM. Myasthenia Gravis: Clinical management issues before, during and after pregnancy. *Sultan Qaboos Univ Med J.* 2017;17(3):e259.
12. Shimizu Y, Kitagawa K. Management of myasthenia gravis in pregnancy. *Clin Exp Neuroimmunol.* 2016;7(2):199-204.