CASE REPORT

A Diagnostic Conundrum of Hemoptysis: Rare Presentation of Pulmonary Thromboembolism and Its Successful Management in Pregnancy

Aishwarya Pravin Agrawal[1], Prerna Kailashchand Gupta[2], Namrata Babasaheb Walke[3], Madhuri Alap Mehendale[4], Meenal Shailesh Sarmalkar[5]

Received on: 11 March 2023; *Accepted on:* 15 April 2023; *Published on:* 04 December 2023

Abstract

Aim: This case report is aimed at studying the maternal and fetal outcomes in a case of pulmonary thromboembolism complicating pregnancy.

Background: Pregnancy is a hypercoagulable state causing pulmonary thromboembolism to be one of the major causes of maternal morbidity and mortality.

Case description: This is a case report of the successful management of a case of pulmonary infarct secondary to pulmonary thromboembolism in a primigravida with a rare presentation of repeated bouts of unexplained hemoptysis at 38 weeks gestation. Computed tomography of pulmonary arteries revealed a wedge-shaped infarct in the left lung lobe's lateral and posterolateral basal segment with a 5 mm thrombus in subsegmental branches of the left pulmonary artery. The patient was conservatively managed with the use of anticoagulant therapy and delivered a healthy fetus at term via a cesarean section. Anticoagulant therapy with low molecular weight heparin and subsequently by oral warfarin was continued for 3 months postpartum.

Conclusion: Pulmonary thromboembolism presenting with hemoptysis is not quite common and hence requires a prompt diagnosis and treatment for a favorable maternal and fetal outcome as in our case.

Clinical significance: Pulmonary thromboembolism can have deleterious effects that complicate pregnancy, causing significant maternal and perinatal morbidity and mortality. Hence, a multidisciplinary team approach becomes quintessential for its successful management in pregnancy.

Keywords: Case report, Hypercoagulable state, Maternal mortality, Pulmonary thromboembolism in pregnancy, Venous thromboembolism.

Journal of South Asian Federation of Obstetrics and Gynaecology (2023): 10.5005/jp-journals-10006-2323

Introduction

Pregnancy-associated venous thromboembolism comprising deep vein thrombosis and pulmonary embolism is one of the main causes of maternal mortality. An estimated incidence is 1–2 per 1,000 pregnancies with 4–5 times higher risk in pregnant women than non-pregnant women. This is mainly attributed to a hypercoagulable state in pregnancy coupled with vascular damage and venous stasis.[1]

Case Description

We report a case of a young patient, who was 30 years old, primigravida with 38 weeks gestation, referred to our tertiary care hospital with complaints of sudden onset of cough with hemoptysis in the last 2 days with 30–50 mL blood per episode with two to three episodes per day which was gradually progressive with no aggravating or relieving factors. She also had complaints of dyspnea on exertion (grade 2) insidious in onset and gradually progressing. She had a history of pulmonary tuberculosis, which was treated with antitubercular therapy for 6 months. On examination, she was found to be moderately built, she was vitally stable with a pulse rate of 88 beats per minute and blood pressure of 110/70 mm Hg and respiratory rate (RR) of 18 per minute, and SpO_2 on room air was 98%. There was no evidence of cyanosis or clubbing or pedal edema. Air entry was found to be equal bilaterally, however, crepitations were found in left-sided lung fields. On per abdominal examination, the uterus corresponded to the period of gestation with cephalic presentation and adequate liquor. The patient was admitted to the respiratory intensive care unit (ICU) of our hospital. Her complete blood count and coagulation profile were normal with hemoglobin of 11 gm%. Obstetric ultrasound showed concordant growth. Chest X-ray, electrocardiogram, and 2D ECHO examinations were also found to be normal. However, due to high clinical suspicion of pulmonary embolism because

[1–5]Department of Obstetrics and Gynaecology, Lokmanya Tilak Municipal Medical College, Thane, Maharashtra, India

Corresponding Author: Aishwarya Pravin Agrawal, Department of Obstetrics and Gynaecology, Lokmanya Tilak Municipal Medical College, Thane, Maharashtra, India, Phone: +91 7666517587, e-mail: aish.agrawal01@gmail.com

How to cite this article: Agrawal AP, Gupta PK, Walke NB, *et al*. A Diagnostic Conundrum of Hemoptysis: Rare Presentation of Pulmonary Thromboembolism and Its Successful Management in Pregnancy. J South Asian Feder Obst Gynae 2023;15(6):742–743.

Source of support: Nil

Conflict of interest: None

Patient consent statement: The author(s) have obtained written informed consent from the patients for publication of the case report details and related images.

of unresolved hemoptysis with symptomatic management and after having other causes ruled out for the same, computed tomographic pulmonary angiography was done. It revealed non-opacification of contrast of subsegmental branches of the left lower lobe supplying lateral and posterior basal segments, suggestive of pulmonary thromboembolism with wedge-shaped patchy areas of consolidation with surrounding ground glass opacities in the lateral and posterior basal segments of the left lower lobe suggestive of a pulmonary infarct. Since the patient was vitally and hemodynamically stable, the patient was conservatively managed with the use of anticoagulants, unfractionated heparin in the dose of 5,000 IU QID administered intravenously. The patient was managed by a multidisciplinary team of pulmonologists, cardiologists, radiologists, intensivists, anesthetists, senior obstetricians, and pediatricians. However, the patient had premature rupture of membranes and an emergency lower segment cesarean section (LSCS) was done given the prevention of embolization. The patient tolerated the operative procedure well, delivering a male child of 2.8 kg weight. Postoperatively, the patient was managed in the respiratory ICU where continuous monitoring was done. Compression stockings were used followed by early ambulation. The patient was restarted on anticoagulants, low molecular weight heparin (LMWH) 60 mg given subcutaneously, 24 hours postsurgery and was eventually shifted to tab warfarin 7.5 mg OD from day 3 until target international normalized ratio (INR) of 2–3 was achieved. Complete suture removal was done on day 10 and the wound was found to be healthy. Oral anticoagulants were continued till 3 months post-delivery.

Discussion

Pregnancy being a hypercoagulable state poses a high risk for the development of venous thromboembolism. As its presentation is acute and quite varied, the diagnosis requires high clinical suspicion. For its diagnosis in pregnant patients, the use of non-invasive methods may seem ideal. However, the use of computed tomography or ventilation-perfusion scanning due to the risk of radiation exposure should not be refrained like in our case where all lab parameters and chest X-ray were normal which made it imperative for us to resort to the use of computed tomography-pulmonary angiogram (CTPA) for our patient. In mild cases of pulmonary embolism where the patient is hemodynamically stable, conservative management with the use of anticoagulants either unfractionated heparin (UFH) or LMWH can be done as they do not cross the placenta, and are not teratogenic, hence are safe in pregnancy. In a study by Wiegers and Middeldorp, a similar line of treatment was opted for. Low molecular weight heparin is preferred over UFH due to its tolerability and convenient profile requiring infrequent monitoring of activated partial thromboplastin time and fewer side effect profiles.[1] Once daily subcutaneous injections of LMWH are preferred. The use of other anticoagulants such as vitamin K antagonists and direct oral anticoagulants is contraindicated in pregnancy due to its risk of embryopathy. However, in a severe case of massive pulmonary embolism with life-threatening hemodynamic instability where the use of heparin anticoagulation alone will not relieve the obstruction to the pulmonary circulation, systemic thrombolysis is considered as the benefits outweighs the potential complications in pregnancy. In a study by Fasullo et al., thrombolysis with the use of reteplase along with LMWH was attempted in a patient who presented in a hemodynamically unstable state.[2] Thrombolysis causes fragmentation and peripheralization of the clots that quickly relieves the obstructive shock, decreases the acute pulmonary artery hypertension and alleviates the overall hemodynamic instability. Because of its high molecular weight, a transplacental transfer is rarely seen. However, its potential side effects include bleeding which can lead to placental abruption, preterm labor, and even pregnancy loss. Catheter-directed thrombolysis or surgical embolectomy may also be tried in massive pulmonary embolism cases. These are, however, used seldomly.[3] As the potential consequence of an unplanned delivery can be life-threatening due to potential complications of hemorrhage, it is preferred to have a planned delivery with prior discontinuation of the use of anticoagulants. Low molecular weight heparin is usually withheld 24 hours before planned delivery. In the postpartum period, it is restarted 24 hours after delivery. A gradual switch from LMWH to oral anticoagulants is made with INR monitoring which is continued for at least 3 months postpartum.[1]

Conclusion

Pulmonary embolism in pregnancy continues to be a rare yet an important cause of maternal morbidity and mortality making its management in pregnancy quite challenging. The diagnosis of pulmonary embolism is difficult owing to the paucity of diagnostic tools and its safety profile in pregnancy due to radiation concerns to the fetus. However, a prompt diagnosis with the aid of a multidisciplinary team approach in a tertiary care hospital can help with its successful management reducing the risk of complications and morbidities in the patient.

References

1. Wiegers HM, Middeldorp S. Contemporary best practice in the management of pulmonary embolism during pregnancy. Ther Adv Respir Dis 2020;14:1753466620914222. DOI: 10.1177/1753466620914222.
2. Fasullo S, Maringhini G, Terrazzino G, et al. Thrombolysis for massive pulmonary embolism in pregnancy: A case report. Int J Emerg Med 2011;4(1):1–6. DOI: 10.1186/1865-1380-4-69.
3. Blondon M, de Tejada BM, Glauser F, et al. Management of high-risk pulmonary embolism in pregnancy. Thromb Res 2021;204:57–65. DOI: 10.1016/j.thromres.2021.05.019.