Open Journal of
Clinical & Medical
Case Reports

Volume 4 (2018)
Issue 6

ISSN 2379-1039

Placental abruption complicated by the development of transfusion-related acute lung injury and exudative pleural effusion: A case report

Fakhrolmolouk Yassaee, MD; Soodabeh Darvish, MD*

***Soodabeh Darvish**

Taleghani Hospital, Genomic Research Center, Obstetrics and Gynecology Department, Shahid Beheshti University of Medical Sciences, Tehran, Iran
Phone: 0912-6451048; Email: darvishsudabeh@yahoo.com

Abstract

Transfusion-related acute lung injury (TRALI) is an acute lung injury that occurs during blood transfusion or few hours after that. It is characterized by respiratory distress, cough, noncardiogenic pulmonary edema, pleural effusion after transfusion of blood and fresh frozen plasma. In this reported case, analysis of pleural fluid revealed exudative and TRALI was diagnosed. Supportive treatment was done.

Transfusion-related acute lung injury may occur after any blood transfusion, so improper blood transfusion should be avoided.

Keywords

acute lung injury; pleural effusion; blood transfusion

Introduction

Transfusion-Related acute lung injury is a challenging diagnosis for clinicians and life threatening complication of blood transfusion [1]. It is a complication of any blood product transfusion that contains plasma. However, platelet concentrates are most commonly implicated [2]. The most common symptoms associated with TRALI are dyspnea, cough that may be sudden and most commonly between one hour and two hours after the onset of transfusion, but may develop during transfusion [2]. The pathogenesis of TRALI is pulmonary endothelial damage, capillary leakage, and pulmonary edema. Hypoxemia, noncardiogenic pulmonary edema, pleural effusion are common findings in these patients and potentially reflects increased vascular permeability. Analysis of pleural fluid may help in the differential diagnosis of TRALI. To find out the pathogenesis of TRALI has been to exclude female donors of products with high plasma volume, resulting in a decrease of two-thirds in incidence [3- 5].

Each suspected case of this syndrome should be reported to blood bank in order to confirm the diagnosis. Serological diagnostics may reveal anti HLA antibodies in one donor which reacted with patient's granulocytes. Its true occurrence is rather unknown because it is still mis diagnosed and under reported.

What is the risk factor for the onset of TRALI. In the past few years' research has identified patient-

related risk factors for the onset of TRALI, which have enabled physicians to take and individualized approach to patients who need transfusion [3, 6, 7]. We present a case with TRALI syndrome to remind clinicians and indicate proper medical management.

Case Presentation

A 35-year-old pregnant woman, gravida four with past history of two abortions and one live child delivered through cesarean section, admitted in the obstetric emergency ward with severe vaginal bleeding. Gestational age was 22 weeks. During this pregnancy spotting was present and she was treated with progesterone. Complete blood cell analysis showed hemoglobin 5.7gr/dl. Four units of packed red blood cells and four units of fresh frozen plasma were transfused. Ultrasonography showed retroplacental blood clot. After transfusion suddenly she developed dyspnea and tachypnea (36 breaths/min). During this period O2 saturation was 89%, ejection fraction 60% and blood PH 7.59. She was admitted in the intensive care unit. First impression was pulmonary emboli. We started heparin therapy. Chest radiography showed pleural effusion. Aspiration of fluid showed exudate. Her electrocardiogram appeared normal. Renal function was normal. Echocardiogram showed normal systolic and diastolic function, mild mitral regurgitation, severe tricuspid regurgitation, PAP 25 mmHg. CT pulmonary angiography showed bilateral pulmonary edema. So noncardiogenic pleural effusion especially in right side was considered that was developed during blood transfusion.

Serological diagnostics revealed anti HLA antibodies in one donor which reacted with patient's granulocytes. All these signs and symptoms were consistent with diagnosis of TRALI. The patient responded to supportive therapy.

Termination of pregnancy was done with misoprostol via vaginal and sublingual route and then induction of labor with oxytocin. After second dose of misoprostol she developed bradycardia and unconsciousness. So after stabilization, laparotomy was performed with probability of uterine rupture and dead fetus delivered through uterine rupture site. After completion of laparotomy, she developed fever although antibiotic therapy was started. Because of no response to antibiotic, pelvic examination was done. We noticed necrosis of cervical tissue, so it is removed and fever stopped. She was discharged with good condition.

Discussion

TRALI is one of the most catastrophic events after transfusion of any blood product. Definite diagnosis of TRALI based on clinical evidence [8, 9]. According to previous reports mortality rate is 5-25 %(10).

The clinical diagnosis of TRALI remains a challenge for clinicians. In our presented case, the first diagnosis was pulmonary thromboembolism that is similar to the reported case by Chun-Chieh Yang and colleagues in which first diagnosis was fluid overload and diuretic therapy was started [2]. The sudden onset of respiratory distress may mistake the physicians to proper diagnosis that is reported in most of the cases [1-4,10-14].

After CT pulmonary angiography and echocardiography, TRALI was the most probability. So TRALI should be considered in any patient with compromised respiratory function if worsening of signs and symptoms occurs after transfusion [10]. What is the cause of TRALI reaction? Too many persons are

transfused with different types of blood products but TRALI occurs rarely [1, 2]. Is there any patient factors for TRALI reaction or there is problem in donor's blood that is not compatible with recipient's blood.

What are preventive measures? There are currently no specific TRALI therapies. According to some studies reduction of leukocyte antibodies in plasma products appear to be successful in reducing TRALI syndrome and its morbidity and mortality, but additional measures such as screening of donors for neutrophil antibodies are needed [6,7]. So avoidance of unnecessary blood transfusion is the best preventive measure.

Conclusion

The lack of specific prevention should guide clinicians to minimize inappropriate use of blood products.

Figures

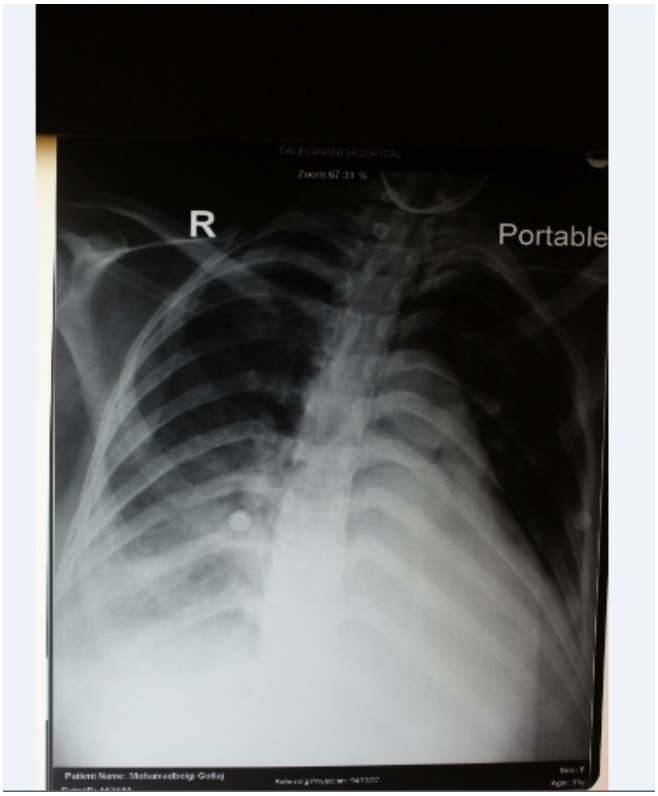

Figure 1: A Radiograph taken after blood transfusion shows increased infiltrates over the bilateral lung fields, especially the lower lung zones and bilateral pleural effusions

References

1. Fontaine MJ, Malone J, Mullins FM, Grumet FC. Diagnosis of Transfusion-Related Acute Lung Injury: TRALI or not TRALI? Annals of clinical and laboratory science 2006; 36(1): 53-58.

2. Yang CC, Chan KS, Yang HH, Tan CK, Cheng KC, Tsai CL. Transfusion-Related Acute Lung Injury and exudative pleural effusion: A case report.J Emerg Crit Care Med 2011; 22(2): 65-72.

3. Vlaar AP, Juffermans NP. Transfusion related acute lung injury: a clinical review. Lancet 2013; 382(9896): 984-994.

4. Sokolovic M, Pastores SM. Transfusion therapy and acute lung injury. Expert Rev Respir Med 2010; 4(3): 387-393.

5. Hendrickson JE , Roubinian NH , Chowdhury D, Brambilla D, Murphy EL, Wu Y, et al. Incidence of transfusion reactions: a multicenter study utilizing systematic active surveillance and expert adjudication. Transfusion 2016; 56(10): 2587-2596.

6. Curtis BR. Future preventive and therapeutic targets for transfusion-related acute lung injury. Curr Pharm Des 2012; 18(22): 3285-3292.

7. Muller MC, Juffermans NP. Transfusion related acute lung injury: a preventable syndrome? Expert Rev Hematol 2012; 5(1): 97-106.

8. Kleinman S, Caulfield T, Chan P, Davenport R, McFarland J, McPhedran S, et al. Toward an understanding of transfusion related acute lung injury: statement of consensus panel. Transfusion 2004; 44: 1774-1789.

9. Silliman CC, Ambruso DR, Boshkov LK. Transfusion related acute lung injury. Blood 2005; 105: 2266-2273.

10. Kumar R, Sedky MJ, Varghese SJ, Sharawy OE. Transfusion Related Acute Lung Injury (TRALI): A Single Institution Experience of 15 Years. Indian J Hematol Blood Transfus. 2015; 32(3), 320-327.

11. Bridges F, Trivedi K, Vullo J,Gibbs J. Spontaneous Rectus Sheath Hematoma in Pregnancy Complicated by the Development of Transfusion Related Acute Lung Injury: A Case Report and Review of the Literature .American Journal of Perinatology Reports 2016 6(3): e325–e328.

12. Kelher MR, Banerjee A, Gamboni F, Anderson C, Silliman CC. Antibodies to major histocompatibility complex class II antigens directly prime neutrophils and cause acute lung injury in a two-event in vivo rat model. Transfusion 2016; 56(12): 3004-301.

13. Brand A. Immunological complications of blood transfusions. La Presse Médicale 2016; 45: 7-8.

14. Jaworski K, Maślanka K, Jakimiuk A, Łopacz P, Panin P, Kosior DA. Transfusion-related acute lung injury in a young woman with ectopic pregnancy – case report and literature review. Ginekol Pol Polish Gynaecology 2016; 87(3): 231-234.

Manuscript Information: Received: January 05, 2018; Accepted: March 19, 2018; Published: March 30, 2018

Authors Information: Fakhrolmolouk Yassaee, MD[1]; Soodabeh Darvish, MD[2]*

[1]Taleghani Hospital, Genomic Research Center, Obstetrics and Gynecology Department; Shahid Beheshti University of Medical Sciences, Tehran, Iran
[2]Taleghani Hospital, Obstetrics and Gynecology Department; Shahid Beheshti University of Medical Sciences, Tehran, Iran

Citation: Yassaee F, Darvish S. Placental abruption complicated by the development of transfusion-related acute lung injury and exudative pleural effusion: A case report. Open J Clin Med Case Rep. 2018; 1390.

Journal: Open Journal of Clinical and Medical Case Reports is an international, open access, peer reviewed Journal focusing exclusively on case reports covering all areas of clinical & medical sciences.

Visit the journal website at **www.jclinmedcasereports.com**
For reprints and other information, contact editorial office at **info@jclinmedcasereports.com**