 Superior vena cava syndrome related to mediastinal lymphoma in late pregnancy: A case report

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A R T I C L E   I N F O

Article history:
Received 26 April 2018
Received in revised form 18 May 2018
Accepted 23 May 2018
Available online xxxx

Keywords:
Pregnancy, non-Hodgkin lymphoma, primary mediastinal B-cell lymphoma
Ultrasoundography
R-CHOEP chemotherapy

A B S T R A C T

We report the initial diagnosis in a 28-year-old nulliparous woman of a primary mediastinal B-cell lymphoma in late pregnancy. For several weeks the patient had had symptoms of mediastinal obstruction, such as dyspnea, cough, swelling of the face and upper limbs. However, these symptoms had been misattributed to the pregnancy and a common cold. Due to a rapid decline in the patient’s cardiovascular performance, she was transferred to the closest perinatal center in the 34th week of pregnancy, whereupon a cesarean section was performed. The diagnosis of a primary mediastinal B-cell lymphoma was made postpartum from a biopsy. This case emphasizes the importance of timely antenatal investigation in pregnant women with symptoms consistent with mediastinal obstruction. Thoracic ultrasonography can be a valuable tool for the detection of tumor-associated pleural and pericardial effusions.

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1. Introduction

Primary mediastinal B-cell lymphoma (PMBCL) is a subtype of diffuse large B-cell lymphoma (DLBCL), accounting for 2–4% of non-Hodgkin lymphoma and up to 10% of DLBCL [1]. PMBCL has epidemiological, clinical, morphological and genetic features that differentiate it as a specific type of DLBCL [2]. PMBCL shares features with nodular sclerosis Hodgkin lymphoma, such as similar genetic patterns, immunological properties and a putative thymic B-cell origin [3,4].

PMBCL typically presents in female adolescents and young women. The clinical features are shown in Table 1. Its peak incidence is at 30–39 years of age, which is much younger than for other DLBCL subtypes [5]. Symptoms at diagnosis are caused by the bulky mediastinal tumor mass. While bone marrow infiltration is rare at initial diagnosis, disease recurrence often involves dissemination to extranodal sites (e.g. lung, kidney, gastrointestinal organs, brain) [6].

With progression of the lymphoma, infiltration of surrounding thoracic structures and compression of the airways and blood vessels may occur, resulting in superior vena cava syndrome [7]. The diagnosis of this syndrome is made on the clinical signs and symptoms of central venous obstruction, such as dyspnea, hoarseness, headache, chest pain and dysphagia. On physical examination many patients present with facial swelling, upper limb edema, venous distention in the neck and on the chest wall, cyanosis and a positive Pemberton’s sign.

The present case highlights the importance of a comprehensive evaluation of pregnant women who present with clinical symptoms consistent with mediastinal obstruction. In our patient, superior vena cava syndrome presented by the patient was initially misattributed to the pregnancy. This delayed the diagnosis of the PMBCL.

2. Case History

In the 34th week of pregnancy, a 28-year-old Caucasian nulliparous woman experienced swelling of the face and neck, which soon spread to her arms. Apart from migraine and mild hypertension, her medical history was unremarkable. She interpreted these symptoms as pregnancy-related edemas, as she believed her legs were spared because she continuously wore anti-embolism stockings. Two weeks later she suffered from migraine, headaches, hoarseness, fits of coughing and mild shortness of breath. Her family doctor suspected a common cold, whereupon cough medicine and cold remedies were prescribed. Because of progressive respiratory distress in the 36th week of pregnancy, the patient presented at a municipal hospital, where echocardiography revealed pronounced left-sided pleural effusions, a concentric pericardial effusion of >4 cm and hepatosplenomegaly.

Due to rapid cardiorespiratory deterioration, the patient was immediately transferred to the local maternity clinic. She had elevated levels of CRP (6.4 mg/dL), GOT (60 U/L) and LDH (812 U/L), a leucocyte level of 15.7 G/L and a hemoglobin level of 12.1 g/dL, with a mean corpuscular

https://doi.org/10.1016/j.crwh.2018.e00065
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controlled biopsy rendered the cyclophosphamide, as the immunohistochemical examination of a CT-lymphoma, a multidisciplinary team initiated a dexamethasone-6th cycle of chemotherapy, edema in the upper body had significant improvement of the patient’s overall condition, R-CHOEP (rituximab, cyclophosphamide, doxorubicin, vincristine, etoposide, prednisolone) was administered due to the presence of third-space fluids (in this particular case pleural and pericardial effusions). The occurrence of lymphomas in pregnancy is reported to be rare (ranging from 1 in 1000 to 1 in 6000 deliveries) [12,14]. It is important to emphasize that pregnancy is associated with a plethora of physiological changes that can mask a pathological condition [15]. Pregnancy itself does not affect the natural course of the lymphoma, but it makes staging and therapy more complicated. Breast cancer, cervical cancer, Hodgkin disease, malignant melanoma and leukemia occur with a disproportionately high incidence in women of reproductive age and they are therefore the malignancies most frequently diagnosed during gestation [14].

About a dozen case reports have described the impact of pregnancy on the diagnosis and treatment of PMBCL [9,13,16–19]. Fiascone et al. point out that the diagnosis and need for chemotherapy during pregnancy do not preclude induction of labor and vaginal delivery at the scheduled date of birth [9]. Treatment options depend on the stage of pregnancy at which the lymphoma is discovered. For clinically unstable patients in late pregnancy, immediate delivery by cesarian section and immediate cesarean delivery [13].

We report a case where the symptoms of mediastinal compression were misattributed to the patient’s late-stage pregnancy and a common cold, which delayed the diagnosis of PMBCL (Table 2). Our case has a striking similarity to that of a 28-year-old pregnant woman who presented with progressive cardiac failure at 30 weeks and who required immediate cesarean delivery [13].

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Table 1
Clinical characteristics of primary mediastinal B-cell lymphoma (PMBCL).

| Clinical features          |          |
|----------------------------|----------|
| Median age                 | 35 years |
| Female/male ratio          | 3:1      |
| Mediastinal involvement    | All      |
| Superior vena cava syndrome| ≈50%     |
| Pleural and pericardial effusion | 30–50% |
| Elevations of LDH – moderate to high | 70–80% |
| B-symptoms (fever, night sweats, weight loss) | <20% |
| Bulky mediastinal tumor    | 70–80%   |

Adapted from [6,11]
postpartum CHOP-like chemotherapy is often the only therapeutic option. Depending on their overall condition, clinically stable patients can receive temporary corticosteroid treatment in late pregnancy until delivery, or an immediate and definitive treatment with R-CHOP chemotherapy [17]. Given that PMBCL is rare, there is a variation in clinical practice. Patients should be treated in specialized centers with multidisciplinary teams.

In conclusion, physicians must be alert and initiate appropriate antenatal investigation if obscure symptoms, such as dyspnea and swelling of the arms, are presented by a pregnant woman [20]. Reluctance to undergo appropriate radiological imaging during pregnancy is a significant pitfall in the diagnostic management of pregnant women, but thoracic ultrasonography is a useful initial alternative. The detection of tumor-associated pleural and pericardial effusions may indicate that the patient should receive further diagnostic workup, such as CT or MRI.

Table 2 Chronological order of events.

| Gestational week | Clinical symptoms                          | Sequence of events                                      |
|------------------|-------------------------------------------|--------------------------------------------------------|
| 34th             | • Swelling of face, neck and upper limbs  | • Interpreted as pregnancy-related edemas               |
|                  | • Exacerbation of migraine, hoarseness,   | • Interpreted as common cold; prescription of cough     |
|                  |   coughing, mild shortness of breath      |   medicine and cold remedies                             |
| 36th             | • Progressive respiratory distress        | • Presentation at hospital; sonographic detection of    |
| Late 36th        | • Fulminant deterioration of cardiorespiratory performance |   pleural and pericardial effusions                     |
|                  |                                           | • Transfer to maternity clinic, c-section               |
|                  |                                           | • Diagnosis of PMBCL postpartum from biopsy of         |
|                  |                                           |   mediastinal tumor mass                               |

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or non-for-profit sectors. Patient consent. Written informed consent was obtained from the patient for publication of this case report and any accompanying images. Provenance and peer review. This case report was peer reviewed.

Acknowledgments

The authors thank T Duffield for proof-reading the manuscript.

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Contributors

ML Buchholtz contributed to the clinical and laboratory workup of the case and wrote the paper.

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M Brendel performed the medical imaging.

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