Mediastinal lymphoma during pregnancy

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Abstract
A 27-year-old-woman of 31 weeks pregnancy was diagnosed to suffer of mediastinal tumour. First symptoms such as thoracic pain, shortness of breath and dry cough were not specific. Patient was admitted to Cardiac Surgery Clinic with diagnosis of heart tamponade that was excluded and mediastinal tumour was found. Patient was transported to Pregnancy Pathology Ward in our Clinic where after laboratory tests and radiology examinations were made, previous diagnosis of mediastinal lymphoma was established. After the case has been consulted with oncologist, thoracic surgeon and haematologist, the decision of premature labour by caesarian section was made. After steroid prevention in 34 week of pregnancy caesarian section was performed and premature, female infant in good general condition was delivered. On the 3rd day after operation the patient was released from the hospital and directed to the Thoracic Surgery Clinic. After mediastinoscopy and tumour biopsy was performed, the patient was qualified to CHOP chemotherapy. Till present day she has received 3 courses of treatment and partial remission was obtained.

Key words: mediastinum, pregnancy, lymphoma, chemotherapy

Introduction
Malignant neoplasm coexists with pregnancy in 0,02 – 1% of all cases (pregnancies). The most common are: cervical cancer (10-1000/100000), breast cancer (10-40/100000), melanoma (14-100/100000), Hodgkin lymphoma (10-50/100000), non-Hodgkin lymphoma (1-10/100000), ovary cancer (2-8/100000). Non-Hodgkin lymphoma is composed of B-cells (86%), T-cells (12%) or NK (natural killer) – cells (2%) and occurs in 1-11 /100000 of women population. It affects mostly young women in their 20-th and 30-th and maturity grows to few new cases per 100000 women each year. Etiology of most cases are not known, but it’s suspected to be environmental, infectious, immunology, genetics and jatrogenic factors.

Non-Hodgkin lymphoma occurs very rarely in pregnancy and diagnosis is often hard to establish though symptoms are not specific due to anatomical and hormonal changes in pregnant woman organism. Pregnancy also accelerates tumour growth and makes disease more aggressive due to immunology changes connected to fetus development.

Case report
On 4th November 2009 a 27-year-old woman in 31 weeks of gestation was admitted to Pregnancy Pathology Ward of University Hospital nr 2 in Bydgoszcz. Patient was transferred from Cardiac Surgery Clinic where she was hospitalized for chest pain, tachypnoe, dry cough and heart tamponade was suspected. After echocardiography examination, however, a pathological mass in mediastinum was found and heart tamponade was excluded.

Obstetric examination revealed: a uterus of 31 weeks gestational age, normal consistency, amniotic fluid present, fetus heart rate (FHR) 157 per minute, cervix slightly shortened but closed, fetus head leads, fetus movement were felt correctly. In the past medical history: 1st labour by caesarian section in 2005 (due to premature placenta dissection), healthy infant was born; appendectomy in the childhood.

On admission laboratory tests revealed: leucocytes 14.77 G/l, hemoglobin 9.5 g/dl, CRP 113.03 mg/l. Ultrasound examination (4th Nov.): one alive fetus, longitudinal head-leading position, no defects, weight approx. 1590 g, placenta localized on the posterior wall of uterus in I/II Grannum scale, amniotic fluid index (AFI) 12.

Thoracic computer tomography (CT) scan (5th Nov.) showed: in anterior and medium mediastinum large mass of heterogenous structure 60 mm × 120 mm × 130 mm that moves mediastinal vessels and trachea backwards. It can suit to Hodgkin lymphoma or germinal – cell tumour or lymphoma in general. Aorta not dilatated, diaphragm elevated on its left side, above atelectasis, right lung clear.

Based on clinical data and diagnostic examination the initial diagnosis of mediastinal probably B-cell lymphoma was made.
After being consulted to haematologist and thoracic surgeon the decision to finish pregnancy by caesarian section was undertaken. It was planned to be followed by mediastinoscopy with tumour biopsy and further chemotherapy.

For fetus lung prevention steroids were given to the patient (Celeston 2×12 mg i.v.).

On 13th November 2009 in epidural anesthesia caesarian section was performed in typical way with no complications. Prematurus female infant was born, weighting 1509 g in good general condition (6 to 8 points of Apgar scale). Pediatricians took care of a baby. In macroscopic revision of abdomen other organs and ovaries were not changed. During early postoperation period patient was admitted to Intensive Care Unit to be observed. After a few hours she was moved back to Obstetric Ward. Treatment: morphine, metoclopramide, bromergon, tardyferon, fluids.

Due to oncologist’s suggestion on the 3rd day after operation the patient was released from the hospital and directed to the Thoracic Surgery Clinic for further diagnosis and treatment.

In Thoracic Surgery Clinic mediastinoscopy with tumour biopsy was performed. Histology (HP) examination revealed: tumour probably malignant of lymphoproliferation character that can suggests Hodgkin lymphoma or large B-cell lymphoma. Due to not very clear HP examination it was diagnosed as not classified aggressive B-cell lymphoma.

Patient was treated with three courses of CHOP chemotherapy (Cyclophosphamide, Adriamycin, Vincristine, Prednisolone). After that time controlled CT scan was made and revealed poor tumour regression (66mm × 32mm × 120mm), so the patient was qualified to receive further treatment.

Patient stays under control of Chemotherapy Unit of Oncology Center in Bydgoszcz.

Infant was released back home on 22nd day of her life and her development is correct.

Discussion

Malignant neoplasm occur rarely during pregnancy. The most common are: cervical cancer, breast cancer, melanoma and lymphoma [7].

According to literature, malignant lymphoma occurs during pregnancy in 0.01 : 1000 of all cases and mainly it’s B-cell lymphoma. It’s mostly diagnosed in 23 weeks of gestation when the disease is often diffused and is much more aggressive than in not pregnant women [8-10]. The course of this disease is often mute and non specific symptoms appear in advanced stage and depend on location beyond lymph nodes. Physiological changes typical for pregnancy make diagnosis difficult to establish. Also diagnostic and therapeutic possibilities are limited due to fetus growth [5, 8, 11].

Making use of radiology examinations depends on gestational age. In early pregnancy most of them are forbidden for their theratogenic influence though diagnostic methods are limited to medical interview, physical examination, laboratory tests and ultrasounds [8]. When it’s performed after 25 weeks of gestation it is much more safe [13]. Opinions of radiology examinations’ security, especially due to radiation dose, are divided and cause unnecessary fears [12]. Most scientists believe that radiation doses that are used these days are lower than threshold doses and shouldn’t be dangerous for fetus development [2, 13]. Others consider that each dose of radiation can affect human organism, so radiology examinations shouldn’t be used in pregnancy since performed a few days after conception always lead to miscarriage. We always must consider either mother’s or fetus’ good- ness. Sometimes withdrawal from radiology diagnostic can be more risky for woman than it is for a baby.

As far as safe diagnostic methods during pregnancy there are: ultrasounds (USG), magnetic resonance imaging (MRI), computer tomography (CT) [14]. It seems to become more common to use positron emission tomography (PET) for define lymphomas progression stage and results of treatment. Unfortunately it’s not allowed to perform it during pregnancy and lactation period for marked glucose used in this examination diffuses to placenta and breast milk.

Final diagnosis may be established after histology examination of tumour sample that can be done in pregnancy [14]. Our patient underwent mediastinoscopy with tumour biopsy and after histology examination B-cell lymphoma was diagnosed.

Elective treatment of lymphomas is chemotherapy. Unfortunately most chemotherapeutics diffuse to placenta and fetus circulation. For lymphoma occur rarely there are very few publications that treat of chemotherapy and its influence on pregnancy. Bolay R., Podczaski E. [20], Dudley A. G. [21] and Szymański W. [22] claim that mono- or multidrug therapy can be applied in pregnancy if necessary. Theratogenic influence of chemotherapy is most intense during organogenesis and can cause miscarriage, fetus death or congenital defects [3, 24, 25]. If patient’s clinical condition in first trimester of pregnancy is not good enough to postpone treatment, abortion should be considered [11]. Due to some authors,
chemotherapeutics without antimethabolics are safe in second and third trimester [6, 11, 26]. Sajdak S. [14], Zemlickis D., Lishner M., Degendorfer P., Panzarella T., Sutcliffe G., Koren G., [25] consider chemotherapy in second and third trimester elevate risk of fetus hypotrophy and lower weight of newborns, but without theratogenic impact. Decision of applying treatment should be undertaken after precise judgment of clinical situation and side effects for fetus. The most advisable is to finish pregnancy when fetus can survive “ex utero”, but due to aggressive course of neoplastic diseases it is not always possible to postpone therapy. After chemotherapy has been used, it’s good to delay the date of labour to 2 to 3 weeks to make a bone marrow work correctly [27].

Because of disease progression in our patient in 34 weeks of gestation, after steroid prevention (Celeston 2 × 12 mg i.v.), premature delivery by cesarean section was performed.

Wiecheć et al. describe the case of a pregnant woman whose clinical condition worsened after she underwent chemotherapy (CHOP) in 26 weeks of gestation. Pregnancy was terminated in 32 weeks of gestation by cesarean section. Afterwards few chemotherapy cycles and autologous stem cell transplantation was performed leading to complete remission [6].

There are no publications and scientific evidence of influence of neoplastic disease itself on fetus development, but there are some about chemotherapy impact on fetus and children growth. Aviles A., Diaz-Maguco J.C., TorrasV.et al. [30] and Allen H.H, Nisker JA (eds.) [31] analyzed 16 cases of NHL in pregnant women, in half of them chemotherapy in first trimester was given. None of children had congenital defects and in 11-years follow up all of them develop properly. Antinelli N.M., Dotters D.J., Katz V.L. et al. [32] describe a case of a pregnant that was treated with chemotherapy in third trimester and leucopenia without infectious in a newborn baby was revealed. There are no information in literature of chemotherapy influence on neurology development in children [11]. Most scientists believe that chemotherapy is contraindication to breast feeding.

Our patient’s diagnosis was established in 31 weeks of gestation, pregnancy was ended 3 weeks later for fast disease progression though there was no time or need for chemotherapy to be put on.

There are different opinions of the influence of pregnancy on neoplastic disease course.

Due to Antinelli N.M., Dotters D.J., Katz V.L. et al. pregnancy don’t change natural history of lymphoma and don’t correlate with negative results of treatment in pregnant women in comparison to not pregnant women of the same clinical stage [11, 14, 32]. Dgani et al. underline that immunology tolerance during pregnancy causes lower cellular resistance and accelerate disease development. Other scientists claim neoplastic processes during pregnancy to be more dynamic and disease spreads faster so prognosis are worse [31, 34].

Reported case was difficult to diagnose either symptoms were not specific or pregnancy itself made it complicated.

Summary

Diagnosis and treatment of pregnant women suffering of neoplastic disease requires complex approach in specialized health centers.

References


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