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# Varicella Pneumonia in a 39-year-old Female in Third Trimester Twin Pregnancy

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## SUMMARY

**Introduction:** Chickenpox is disease caused by varicella-zoster virus (VZV), with possibly devastated consequences during pregnancy, for mother and neonate. Pneumonia is most common complication in pregnancy with very high mortality. **Case report:** A 39-year-old female in third trimester twin pregnancy, referred to Clinic for infectious diseases in Sarajevo, with five days history of illness. Before the admission her condition get worse, with fatigue, exhaustion, and shortness of breath. In a first three days patient was febrile, tachydispnoic and ortopnoic. We started therapy with acyclovir and antibiotic. After four days we had deterioration in patient's condition. Chest X-ray revealed infiltrative shadows in basal parts of lung. Antimicrobial therapy was changed and corticosteroids were associated. Significant improvement was noticed after five days of therapy. **Conclusion:** Varicella pneumonia during third trimester may have serious consequences for mother and child, with possible fatal outcome.

**Key words:** varicella, pneumonia, pregnancy.

## 1. INTRODUCTION

Chickenpox (varicella) is childhood disease that usually passes without complication in immunocompetent adults and children. But, in recent states, such as immunodeficiency or pregnancy, it can cause serious complications. Smokers, men and immunocompromised individuals may have a greater risk of contracting the disease, and pregnant women have risk of greater morbidity and mortality. Chickenpox may have significant consequences for pregnant women and neonate, since it can progress to pneumonia that compromise viability of the fetus. Mortality from varicella pneumonia complicating pregnancy is reported to be very high.

## 2. CASE REPORT

A 39 years old female smoker, in a high grade twin pregnancy, referred to Clinic for infectious diseases with five days history of illness. In a first two days she had a high temperature, up to 38.8°C, and later she noticed „vesicular“ rash, distributed mostly on head and torso. She visited general practitioner and specialist for infectious diseases, with suggestion to take symptomatic therapy. Before the admission in hospital her condition get worse, with fatigue, exhaustion, and shortness of breath. The patient did not have a history of chickenpox during childhood but her son developed chickenpox 10

days earlier. There was no past history of diabetes, cardiac or pulmonary disease.

At admittance the patient was febrile (39.2°C), tachypnoic (respiratory rate 30 breaths/min), tachycardic (cardiac pulse 110/min), pale and sweaty. She had typical chickenpox vesicles with some pustules over the face, neck, torso and abdomen. Peripheral lymphonodes were enlarged in neck area. Some vesicles were presented in oral mucosa. Pulmonary examination revealed bilateral inspiratory crackles over the lung bases. Arterial blood gases indicated respiratory failure (oxygen saturation 83%). Blood tests show high C-reactive protein (CRP), normal leukocytes and differential blood count, with low platelets. In a first three days patient was febrile up to 39.3°C, tachydispnoic and ortopnoic, with bullosus rash over the trunk. Initially we started with intravenous therapy with acyclovir, cefepime and cloxacillin. Fourth day of hospital stay we noticed deterioration in patient's condition, with intensive chest pain, bloody cough and intermittent disorientation and dominant tachypnea (over 40/min). Chest X-ray revealed infiltrative shadows in basal parts of lung. CT confirmed bilateral infiltration with signs of alveolo-interstitial syndrome, with massive inflammatory changes. Antimicrobial therapy was changed to vancomycin and rifampicin, corticosteroids are associated (hydrocortison), with cardiotonic, diuretic,

albumin infusions, pantoprasole, heparin and continuous oxygenation on facial mask. Significant improvement was noticed after five days of this therapy. Blood tests show normal CRP, platelets and WBC. Control chest X-ray revealed significant regression of infiltrative changes. Gynecologist indicated artificial abortion of pregnancy. After 19 days of intensive care in our clinic, patient was transferred to Clinic for gynecology and obstetrics where artificial abortion has been completed.

On follow-up after 14 days patient was in good condition, with normal chest x-ray and blood tests.

### 3. DISCUSSION

Pregnancy carries a special risk of getting chickenpox not only for mother but also for the baby. Varicella-zoster infection occurring in a period of pregnancy is related with increased risk of spontaneous abortion and congenital and foetal infection (1). Also, low level of oxygen in blood during severe cases of pneumonia carries risk of neurological sequelae for babies.

Our patient was smoker, and cigarette smoking was recognized as a major risk factor for developing VZV associated pneumonia in adults (2). Incidence of pneumonia, as a complication of varicella in pregnancy, varies from 1/2000 to 1/10000. Early studies indicate that varicella pneumonia developing in third trimester carries risk of higher mortality (3).

Fetal complication of VZV infection include early delivery, fetal varicella syndrome and neonatal varicella. The risk of congenital abnormalities is 0.2-2% for mothers who contract varicella in first two trimesters of pregnancy, and maternal varicella may cause herpes zoster in early childhood (4). Early manifestation of herpes zoster may be explained with immature cellular immunity and low level of maternally delivered antibodies.

Symptomatic therapy is first choice of treatment, but in some cases antiviral and antimicrobial therapy is necessary. Acyclovir, nucleoside analogue that inhibits viral DNA polymerase, is helpful in the management of varicella pneumonia. It crosses the placenta, but no teratogenic effects have been observed in conducted studies. Before introduction of specific antiviral agents case-fatality rate of maternal varicella pneumonia was up to 41%. After that, rate decreased to 14% (5). Suggested dosage is 10-15mg/kg 3 times daily for 7 days. Some authors reported good response to corticosteroids, while others consider them contraindicated in pregnancy (6).

Varicella-zoster immunoglobulin (VZIG) is product that contains varicella zoster immunoglobulin G, derived

from donors with high titers of antibodies. It is usually given to infants when mother develops chickenpox within five days after birth. Another indication is for pregnant woman with unclear history of chickenpox, or unknown antibody status. Optimum protection is obtained when VZIG is administered within 96 hours of exposure, in a dose of 125U/10kg or maximum of 625U for adults, although some guidelines suggest that it can be administered up to 10 days after exposure (7). VZIG may reduce severity of disease, but not always prevent congenital or neonatal infection. Other option to prevent chickenpox is vaccine. Varicella vaccine is available more than 20 years, and active immunisation in some countries significantly reduced hospitalisation and complication rate (8).

### 4. CONCLUSION

Varicella pneumonia, as most common complication during chickenpox, has a significant impact to pregnant woman and their babies. In order to reduce incidence of chickenpox and prevent complications in pregnant woman, we should consider introduction of varicella vaccine in Bosnia-Herzegovina.

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