Miliary Tuberculosis in a Pregnant Woman Who is on Hemodialysis: Case Report

Hemodiyalize Giren Bir Gebede Milier Tüberküloz

Ümran KÜÇÜKGÖZ GÜLEÇ, MD,[a]
H. Ayşe PARLAKGÜMÜŞ, MD,[b]
Bülent HAYDARDEDEOĞLU, MD,[b]
Erhan ŞİMŞEK, MD[b]

[a]Department of Obstetrics and Gynecology, Çukurova University Faculty of Medicine,
[b]Department of Obstetrics and Gynecology, Başkent University Adana Medical and Research Center Adana

Geliş Tarihi/*Received:* 14.07.2009
Kabul Tarihi/*Accepted:* 03.11.2009

Yazışma Adresi/*Correspondence:*
H. Ayşe PARLAKGÜMÜŞ, MD
Başkent University Adana Medical and Research Center,
Department of Obstetrics and Gynecology, Adana,
TÜRKİYE/TURKEY
ayseparlakgumus@yahoo.de

ABSTRACT Miliary tuberculosis is rare during pregnancy. A 34-year-old multipara woman on hemodialysis for chronic renal failure presented with fever and cough. Although the chest X-ray was suggestive of tuberculosis, the skin test and the sputum smear were negative and the patient was initially treated for bacterial pneumonia. *Mycobacterium tuberculosis* was detected in blood culture 4 days later. The patient was put on anti- tuberculosis treatment and continued hemodialysis. She was followed up weekly and the pregnancy was uneventful until she was admitted with preterm labor at the 27th week. She responded to tocolytic treatment initially. After the induction of pulmonary maturity, tocolysis was discontinued and the patient delivered an 860-gram female baby who did well after a long time in neonatal intensive care unit.

Key Words: Tuberculosis; pregnancy

ÖZET Milier tüberküloz gebelikte nadir görülür. Kronik böbrek yetmezliği nedeni ile hemodiyalize giren 34 yaşında multipar bir hasta ateş ve öksürük ile başvurdu. Akciğer filmi tüberküloz düşündürmesine rağmen, cilt testi ve balgam yayması negatif olduğu için hastaya bakteriyel pnömoni öntanısı ile tedavi verildi. Dört gün sonra kan kültüründe mikobakterium tüberkülozis üremesi üzerine hastaya anti-tüberküloz tedavi başlandı ve hemodiyalize devam etti. Yirmi yedinci haftada preterm eylem ile başvurana kadar haftalık olarak sorunsuz takip edildi. Tokolitik tedaviye yanıt verdi. Pulmoner maturasyonunun indüksiyonu tamamlandıktan sonra tokoliz kesildi ve hasta eyleme girdi. Olgumuz 860 gram kız bebek doğurdu. Bebek uzun süre yoğun bakımda kaldıktan sonra sağlıklı olarak taburcu oldu.

Anahtar Kelimeler: Tüberküloz; gebelik

Turkiye Klinikleri J Gynecol Obst 2010;20(3):199-202

Miliary tuberculosis (TB) is an uncommon disease among pregnant women.[1] Diagnosis may be challenging and a high index of suspicion is required for diagnosis. Pregnancy in women with chronic renal failure, who are on hemodialysis, is already a high risk condition itself. When this is accompanied by miliary TB, the condition becomes more complicated. In this case report we present a pregnant patient with chronic renal failure and miliary TB. We discuss the diagnosis and the follow up of the miliary TB pregnant patients.

CASE REPORT

A 34-year old multigravida woman at the 21st week of pregnancy was admitted to emergency service with fever, dyspnea and cough which gradually worsened in severity. She had history of chronic renal failure and had been on hemodialysis for the last year. On admission, her body temperature was 39°C, pulse rate was 140/min., and blood pressure was 150/100 mmHg. Saturation was 71% without oxygen. Physical examination revealed rales at the right lung basis. Chest X- ray showed bilateral diffuse miliary shadows and infiltration at the right lung basis. C - reactive protein (CRP) was 62 mg/dl, and hemoglobin was 8.6 mg/dl. She was admitted to the intensive care unit. Although the chest X-ray was suspicious for TB the PPD skin test and the sputum smears for acid fast bacilli were negative. The preliminary diagnosis was bacterial pneumonia and she was treated accordingly until the blood culture was positive for *Mycobacterium tuberculosis*. She was put on intensive therapy with isoniazid (1 x 300 mg), rifampicin (1 x 600 mg), and ethambutol (1 x 1500 mg, every other day). She responded to treatment after one week and become afebrile and hypoxemia improved. During the treatment, the frequency of hemodialysis was increased to 5 times weekly. Pre- hemodialysis blood urea nitrogen (BUN) and creatinine (Cr) was 51 mg/dl and 5.8 mg/dl respectively and post- hemodialysis BUN and Cr was 45 mg/dl and 5 mg/dl respectively. To treat the elevated blood pressure, the patient was administered metaprolol (1 x 50 mg) and amlodipin (1 x 10 mg). Anemia was treated with recombinant human erythropoietin (1 x 5000/week) and blood transfusion.

The couple was counseled about the risk of pregnancy and termination was discussed. The couple was committed to the pregnancy. She was assessed weekly by ultrasound. Her pregnancy was uneventful until the 27 weeks of gestation when the patient presented with regular contractions every 5 minutes. The cervical length was 13 mm, cervix was 2 cm dilated with, 80% effacement. The ultrasound scan was normal except mild polyhydramnios (Deepest vertical pocket 9 cm). The baby was concordant with dates and 50 g the glucose tolerance test was normal (86 mg/dl). She was put on indomethacin as a tocolytic therapy (Endol® suppository 4 x 2). Bethametazone was administered to induce lung maturity (12 mg every 24 hours for the consecutive two days). The tocolytic therapy was stopped after 48 hours and the patient went into labor. Labor progressed quickly and the baby did not show any sign of fetal distress. After 1 hour of labor the patient delivered an 860-gram female baby. The baby developed respiratory distress syndrome and was intubated, received surfactant. She stayed in the neonatal intensive care unit for 6 weeks, eventually recovered but she was healthy when she was discharged. The patient did well after delivery. She continued to receive hemodialysis 3 times a week and anti-tuberculosis treatment at the previous doses.

DISCUSSION

Miliary TB is uncommon among pregnant women. When it is present, it is usually accompanied by a maternal history of intravenous drug use, malignancy, alcoholism, or human immunodeficiency virus (HIV) infection.[1] Confirming the diagnosis of miliary TB is difficult and requires a high index of suspicion.

A negative purified protein derivative test (PPD) does not always mean that a person is free of TB. Patients who have been infected with TB may not have a positive PPD test if their immune function is compromised by chronic medical conditions. Additionally, 10%-25% of people with newly diagnosed TB of the lungs will also have a negative result, possibly due to poor immune function, poor nutrition, accompanying viral infection, or steroid therapy. More than 50% of patients with miliary TB will also have a negative PPD test. One study which tested the prevalence of PPD negative test in patients who are on hemodialysis reported that the test was negative in all four cases.[2] Mert et al reported in their study that PPD test was positive in 32% of the active TB cases, acid-fast bacilli were demonstrated in 37%, and cultures for *M. tuberculosis* were positive in 90% of tested sputum specimens.[3]

There is no solid evidence that pregnancy has an adverse effect on TB. However, TB poses a risk to pregnant women and their fetuses.[4] With early diagnosis and prompt, adequate chemotherapy, the outcome of pregnancy in a woman with TB is likely to be favorable. Data in the literature do not support the notion that pregnancy is a major risk factor for the development of TB.[5] Preterm delivery, low birth weight, growth restriction, and perinatal mortality rates are all increased in the setting of incomplete treatment and advanced or extra-pulmonary TB.[6]

Jona et al assessed the perinatal outcome of pregnancies complicated by active pulmonary TB in 79 women. They found that pulmonary TB was associated with an approximate 2 fold increase in prematurity, small for gestational age and low birth weight neonates, and 6 fold increase in perinatal deaths. They reported that delayed diagnosis, incomplete and irregular treatment and advanced pulmonary lesions caused adverse perinatal outcome. The studies which examined the course of pregnancy and labor and the perinatal outcome in extra-pulmonary TB revealed that extra-pulmonary TB confined to the lymph nodes has no adverse effect on obstetrical outcomes, but TB at other sites does.[7]

Tripathy studied the outcome of pregnancy and treatment in 111 pregnant women with pulmonary and glandular TB, 51 pregnant women without TB, and 51 non- pregnant women with pulmonary TB. He found no statistical differences in duration of gestation, preterm labor and other complications of pregnancy, labor and puerperium between the groups. Pregnancy had no effect on the course of TB regarding sputum conversion, stabilization of the disease and relapse after 2-5 years of follow- up.[8]

If proper and adequate chemotherapy is given to pregnant women with TB, their risk is comparable to non-pregnant women with TB. Isoniazid, rifampicin, ethambutol and pyrazinamide are known to be safe during pregnancy. Streptomycin is contraindicated because of its ototoxicity. The safety of pyrazinamide given in early pregnancy has not been established. Prophylactic pyridoxine in the dose of 50 mg/daily is recommended along with anti-tuberculosis therapy.[9] Liver function tests should be performed regularly on patients receiving isoniazid.

Figueroa Damian and Arredondo-Garcia reported that obstetrical morbidity and neonatal mortality were significantly higher in pregnant women with TB who started treatment late in pregnancy. They concluded that TB presents a risk factor for pregnancy and early treatment of the disease during gestation reverses its negative impact on perinatal outcome.[10]

Kothari et al. studied the incidence, type and presentation of TB in pregnancy over a five year period in women in a high prevalence area in London and identified problems and difficulties in diagnosis and management of TB associated with pregnancy. They reported that 53% were diagnosed with extra-pulmonary TB, a very high incidence of the disease, 38% with pulmonary TB and 9% had both. The median duration of symptoms prior to presentation was 31 days (being longer in women with extra-pulmonary TB). The longest duration of symptoms was 10 years. The most common reason for a delay in diagnosis was late presentation (52%), followed by non-specific symptoms (38%). Most of the women showed good compliance and good response to treatment. Maternal outcomes were good with no serious morbidity and mortality. With good compliance, there is a good response to treatment and favorable maternal and perinatal outcomes.[11]

Pregnancy is also rare in women who require long term hemodialysis. The frequency of conception in dialysis patients has been reported to be 0.3% to 1.4% in different studies from different countries. In 1980, the incidence of pregnancy in women on dialysis was 0.9%. Studies from 1992 to 2003 indicated that pregnancy occurred in 1-7% of the women on chronic dialysis. Half of the infants born to women on chronic dialysis survived. Of importance is that 'intensive dialysis' of 16-24 hours per week is associated with improved infant survival.[12] The type of dialysis, hemodialysis ver-

sus peritoneal, does not appear to significantly influence pregnancy outcome.

Common maternal complications include anemia, chronic hypertension, and preeclampsia. Perinatal complications include mid-pregnancy losses and low birth weight from preterm delivery and fetal growth retardation or both. Recently, perinatal outcome in patients undergoing chronic hemodialysis has been improved. However, the conditions that will most likely result in successful pregnancy are still obscure. Nakabayashi et al found all the patients who underwent more than 9 years of hemodialysis did not have a surviving infant. They assumed that the shorter the period of dialysis before pregnancy, the better the chance to have a surviving infant.[13]

There is no solid evidence that pregnancy has an adverse affect on chronic renal disease. It seems reasonable to conclude that, at least in most women, in the absence of superimposed preeclampsia plus hemorrhage or severe placental abruption, pregnancy does not appreciably accelerate deterioration in baseline renal functions. When counseling the women with chronic renal disease regarding fertility and the risk of a complicated pregnancy, it is important to determine the degree of functional impairment and the presence or absence of hypertension.[14]

The prognosis for a successful pregnancy outcome in general is related not to the underlying kidney disorder, but rather to the degree of functional impairment. Except for an increased risk of superimposed preeclampsia, women with relatively normal renal function and hypertension before pregnancy usually have a normal pregnancy. As renal impairment worsens, so does the likelihood of pregnancy complications. At least half of the women with renal insufficiency will develop hypertension. Worsening of hypertension or superimposed preeclampsia develops in 80% those with moderate insufficiency and almost 90 percent of those who have severe disease.

TB should be considered in pregnant patients who admit with high fever and cough, especially if patients have chronic diseases. Although PPD or sputum smear may be negative, still the possibility of TB should be considered.

We would like to thank Nursel Duransoy for the editing of the English version of the article.

Informed consent was taken from the patient to submit this case report.

REFERENCES

1. Henderson C, Turk R, Dobkin J, Comfort C, Divon MY. Miliary tuberculosis in pregnancy. J Natl Med Assoc 1993;85(9):685-7.
2. Resić H, Dizdarević Z, Corić A, Avdić E, Kukavica N, Mesić E. [Evaluation of clinical presentation and prognosis of tuberculosis in patients undergoing hemodialysis]. Acta Med Croatica 2008;62(1):65-8.
3. Mert A, Bilir M, Tabak F, Ozaras R, Ozturk R, Senturk H, et al. Miliary tuberculosis: clinical manifestations, diagnosis and outcome in 38 adults. Respirology 2001;6(3):217-24.
4. Snider D. Pregnancy and tuberculosis. Chest 1984;86(3 Suppl):10S-13S.
5. Laibl UR, Sheffield JS. Tuberculosis in pregnancy. Clin Perinatal 2005;32(3):739-47.
6. Öktem Ö, Kavak Z, Pekin T. [Preterm delivery associated with pulmonary tuberculosis in a pregnant woman (A case report)]. Turkiye Klinikleri J Gynecol Obst 2001;11(2): 91-3.
7. Jana N, Vasishta K, Jindal SK, Khumu B, Ghash K. Perinatal outcome in pregnancies complicated by pulmonary tuberculosis. Int J Gynaecol Obstet 1994 44(2):119-24.
8. Tripathy SN. Tuberculosis and pregnancy. Int J Gynaecol Obstet 2003;80(3):247-53.
9. API Consensus Expert Committee. API TB Consensus Guidelines 2006: Management of pulmonary tuberculosis, extra-pulmonary tuberculosis and tuberculosis in special situations. J Assoc Physicians India 2006;54: 219-34.
10. Figueroa-Damian R, Arredondo-Garcia JL. Pregnancy and tuberculosis: influence of treatment on perinatal outcome. Am J Perinatol 1998;15(5):303-6.
11. Kothari A, Mahadevan N, Girling J. Tuberculosis and pregnancy. Results of a study in high prevalence area in London. Eur J Obstet Gynecol Reprod Biol 2006;126(1):48-55.
12. Halley JL, Reddy SS. Pregnancy in dialysis patients: A review of outcomes, complications, and management. Semin Dial 2003;16(5):384-8.
13. Nakabayashi M, Adachi T, Itoh S, Kobayashi M, Mishina J, Nishida H. Perinatal and infant outcome of pregnant patients undergoing chronic hemodialysis. Nephron 1999; 82(1): 27-31.
14. Cunningham FG, Cox SM, Harstad TW, Mason RA, Pritchard JA. Chronic renal disease and pregnancy outcome. Am J Obstet Gynecol 1990;163(2):453-9.