

Article

Pulmonary Tuberculosis is A Clinical Course of The Disease in The Identified Pregnancy

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Abstract: Pulmonary tuberculosis remains a significant global public health challenge, with growing prevalence among pregnant women, leading to increased concerns in obstetrics and infectious disease fields. In Uzbekistan, the incidence of tuberculosis in children has increased by 2.4 times over the past two decades, while pregnancy complicates the clinical management due to immunological changes and fetal vulnerability. Despite the known risks, limited data exist on the clinical presentation and outcomes of pulmonary tuberculosis during pregnancy in regional contexts. This study aimed to evaluate the clinical course of pulmonary tuberculosis in pregnant women and assess associated complications. A retrospective analysis of 9 pregnant women revealed that 66.6% had unilateral lung involvement, 33.3% had infiltrative forms, and 88.8% had detectable Koch's bacilli. Anemia was present in all patients, with 23% experiencing severe anemia. Cesarean section was required in four cases, and one pregnancy was terminated due to uterine bleeding. The study provides region-specific clinical insights into the manifestation of tuberculosis during pregnancy and its management under the DOTS program. Early detection, careful radiological evaluation, and timely obstetric intervention, including cesarean delivery, can significantly improve maternal and neonatal outcomes. The findings underscore the need for integrated approaches in managing tuberculosis in pregnancy, particularly in high-burden regions.

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1. Introduction

Relevance of the problem: Currently, tuberculosis remains one of the most pressing issues in the field of medicine worldwide, including in Uzbekistan. While the disease continues to spread among adults, its increasing prevalence among children is causing great concern. In our republic, over the past 20 years, the incidence of tuberculosis in children has increased 2.4 times, tuberculosis infection rates have doubled, and primary tuberculosis infection has risen by 1.5 times [1].

In particular, early detection of pulmonary tuberculosis during pregnancy affects the outcome of the disease. Koch's bacilli pass from mother to fetus through the umbilical vein. Additionally, during childbirth, the baby may swallow amniotic fluid contaminated with tuberculosis mycobacteria in the birth canal [2].

During pregnancy, a restructuring process occurs in the immune system. In the initial stages of forming protective mechanisms in a woman's body to ensure the necessary conditions for fetal development, the state of cellular immunity changes and decreases

under the influence of infections and tuberculosis mycobacteria. This decrease is mediated by the action of T-lymphocytes [3].

The incidence of tuberculosis in pregnant women and women giving birth is 1.5-2 times higher than in women with general tuberculosis [4].

Pulmonary tuberculosis is one of the most widespread diseases in the world. Young people are most susceptible to tuberculosis, with 70% of cases occurring in individuals aged 20-40. The frequency of pulmonary tuberculosis coinciding with pregnancy is 3-7 cases per 10,000 births [5].

Pulmonary tuberculosis complications were detected in pregnant women as follows: 78% had unilateral involvement, 58% had infiltrative pulmonary tuberculosis, and 18% had total pulmonary tuberculosis. Pulmonary tuberculosis is often accompanied by other specific diseases. Notably, 15% were diagnosed with HIV infection, 10% with syphilis, and 4% with viral hepatitis [6].

Due to the ongoing severity of the epidemiological situation regarding pulmonary tuberculosis, the issue of pregnancy in the context of this disease has not lost its significance. It remains one of the urgent problems, taking a leading role in the fields of phthisiology, obstetrics, and pediatrics [7].

Research objective: To evaluate the characteristics of the clinical course of pulmonary tuberculosis in pregnant women [8].

2. Materials and Methods

A retrospective analysis of medical records of 9 pregnant women with pulmonary tuberculosis was conducted at the Surkhandarya Regional Tuberculosis Dispensary from 2020 to 2023. Of these, 4 were first-time pregnancies, and 5 were subsequent pregnancies. The patients were predominantly women aged 20-35 years. The study included collection of medical history, physical examination, laboratory tests, and instrumental examinations (chest X-ray, ultrasound) [9].

3. Results and Discussion

From examining the anamnesis data in patients' medical histories, it was determined that the duration of the disease ranged from 2 to 6 months. An infiltrative form of pulmonary tuberculosis was detected in 3 patients (33.3%). Among the pregnant women, 4 patients (44%) were newly diagnosed with the disease, while 5 patients (56%) had recurrent cases [10]. In our study, unilateral lung involvement was observed in 6 patients (66.6%), while bilateral involvement was seen in 3 patients (33.3%), see Figure 1.

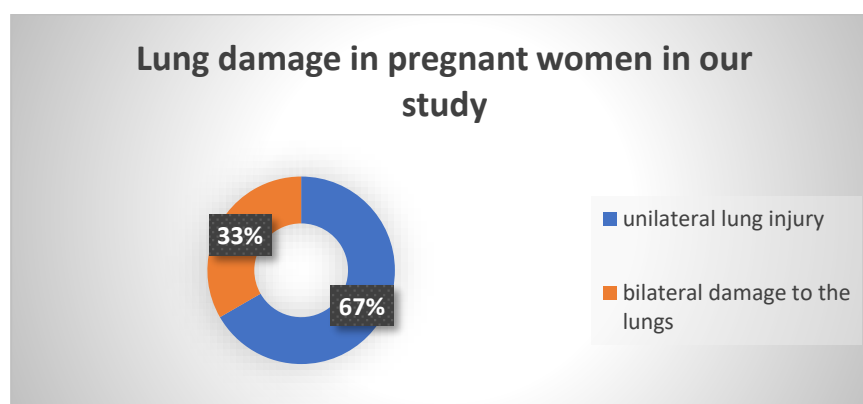


Figure 1. Distribution of Unilateral and Bilateral Lung Damage in Pregnant Women with Pulmonary Tuberculosis

During pregnancy, subacute development of tuberculosis was observed in 2 patients (22%) lasting for 3-6 months, in 2 patients (22%) lasting up to 3 months, and in 5 patients (56%) with a gradually developing form over 6 months. Hemoptysis was observed in 1 patient (11%). The forms of pulmonary tuberculosis observed were: infiltrative in 3 patients (33.3%), focal in 2 patients (22%), tuberculoma in 1 patient (11%), cavernous tuberculosis in 1 patient (11%), and lymph node tuberculosis in 1 patient (11%) [11].

It should be taken into account that during pregnancy, chest X-ray examination is only used in difficult diagnostic cases, with the fetus protected by a lead shield or apron.

The following was revealed during the physical examination of patients: percussion showed a decrease in percussion sound, and auscultation revealed moist rales of various calibers. Koch's bacilli were found in the sputum microscopy of 8 (88.8%) patients. In 6 patients' sputum, drug-sensitive strains of tuberculosis bacilli were found according to the DOTS program, while 1 (11%) patient was found to have a resistant strain of mycobacterium tuberculosis. Blood test hemograms showed slight leukocytosis, lymphopenia, and ESR acceleration of 32-56 mm/hour in 6 (66.6%) patients. All patients had hemoglobin levels below normal, with 2 patients diagnosed with grade 3 anemia [12], see Figure 2.

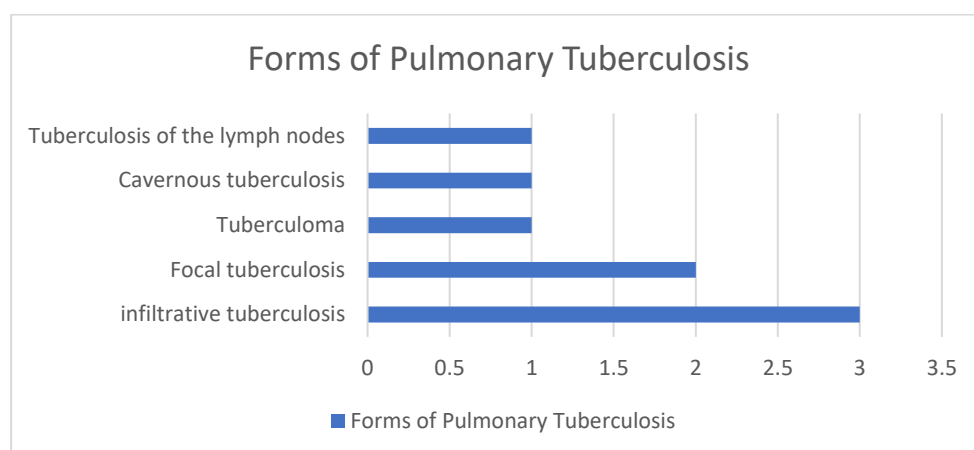


Figure 2. Forms of Pulmonary Tuberculosis Diagnosed During Pregnancy

One patient's pregnancy was artificially terminated due to uterine bleeding. Cesarean section was performed on 4 patients.

Radiologically, broncholobular inflammation is usually characterized by the presence of a limited shadowing, mainly of low intensity, up to 3 cm in diameter, in the cortical layer of the lung field, most often in segments I, II, or IV. The inflammation is polygonal in shape, extending towards the root of the lung, and its external border is indistinct [13].

X-ray examination of pregnant women is performed in direct projection, which allows reducing the possible radiation exposure to the fetus. Examinations of pregnant women conducted using a rubber apron (with lead plates inserted) to protect the fetus as much as possible, or using digital low-dose X-ray devices, are even safer.

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Figure 3. Radiological image of pulmonary tuberculosis during the second trimester of pregnancy.

The remaining patients were discharged from the hospital to continue treatment at their place of residence. Infection in the natural birth canal is an indication for cesarean section. The surgical procedure was performed under epidural anesthesia. The surgical operation was carried out in the maternity complex of the Regional Perinatal Center. The operation proceeded without any complications, and patients were transferred from the intensive care unit to the clinical ward when their condition was satisfactory. Newborns were transferred to the neonatal ward separately from their mothers. Patients continued inpatient treatment for up to 2 months after childbirth and were allowed to go home in satisfactory condition. Treatment procedures will continue at home [15].

4. Conclusion

To prevent complications in active pulmonary tuberculosis, cesarean section is recommended at 37-38 weeks of pregnancy. Early detection of pulmonary tuberculosis in pregnant women has a positive effect on the outcome. In severe cases of pulmonary tuberculosis, uterine bleeding is observed. Therefore, pregnancy is terminated artificially. Isolating the newborn from the infected mother contributes to the healthy growth of the child.

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