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Original Article

Evaluation of Patients Diagnosed with Tuberculosis Followed in the Tuberculosis Dispensary

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ABSTRACT

Objective: In this study, it was aimed to evaluate the demographic and clinical characteristics, diagnostic methods and treatment modalities of the patients followed up with the diagnosis of tuberculosis (TB).

Methods: Patients older than 18 years of age who were followed up for TB in Van Central Tuberculosis Dispensary between January 2018 and December 2021 were included in this study. Demographic characteristics, clinical symptoms, physical examination, radiological and bacteriological findings, comorbidities, and treatment modalities of the patients were retrospectively analyzed.

Results: Two hundred forty-nine patients, 133 (53.4%) male and 116 (46.6%) female, were included in the study. The mean age of the patients was 39.7 years. Only pulmonary TB was found in 111 (44.6%) patients, extrapulmonary TB (EPTB) in 123 (49.4%), and both pulmonary TB and EPTB in 15 (6%) patients. While 95.2% of the patients were symptomatic, the most frequently described symptom was cough-sputum (n = 99, 89.1%) and weight loss (n = 76, 68.5%) in patients with only pulmonary TB, while weight loss (n = 60, 48.8%) and night sweats (n = 52, 42.3%) were observed in patients with EPTB. It was found that the diagnosis of EPTB was generally made by histopathological methods (64.2%), and in pulmonary TB, it was mostly made by bacteriological methods (61.3%).

Conclusion: With this study, it was concluded that EPTB was detected at a higher rate in women than in men, it was found at a higher rate compared to previous studies, and histopathological methods were mostly used in the diagnosis.

Keywords: Extrapulmonary, lung, mycobacteria, tuberculosis, weight loss

INTRODUCTION

Tuberculosis (TB) is a contagious bacterial infection disease caused by *Mycobacterium tuberculosis* bacillus, which often progresses with lung involvement. Tuberculosis, one of the oldest diseases in history, still exists as a life-threatening disease in the world. Although it has been seen as a public health problem for centuries, it has not been eradicated.[1,2] It is thought that approximately 1/3 of the world's population is infected with *M. tuberculosis* bacillus and these people have a 10% risk of developing TB disease at any time in their lives.[3] According to the data of the World Health Organization (WHO), approximately 10.6 million people caught TB in 2021 and 1.6 million people died.[4] The incidence of TB in Türkiye decreased from 29.4% to 14.6% between 2005 and 2018.[5]

Tuberculosis is a multisystemic, chronic, granulomatous bacterial infection. Pulmonary TB, the main infectious form of the disease, accounts for the vast majority of cases. In 15%-20% of active cases, the infection spreads outside the respiratory organs, causing extrapulmonary TB (EPTB) forms. About 35% of all TB cases in Türkiye are EPTB. Among the EPTB involvement areas are the pleura, central nervous system, lymphatic system, genitourinary system, bones, and joints.[6-8]

Although significant progress has been made in the diagnosis of TB, there is no reliable, simple, bedside test for

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the definitive diagnosis of the disease. Although bacteriological evidence is usually sought, the diagnosis of the disease should be supported by clinical and radiological findings and tests showing the presence of *M. tuberculosis*.[2] The course of TB treatment depends on whether the person is in the active or latent phase and is at risk. The main antituberculosis drugs used in the treatment are: isoniazid (H), rifampin (R), pyrazinamide (P), ethambutol (E), or streptomycin (S).[9] In this study, it was aimed to evaluate the demographic and clinical characteristics, diagnostic methods and treatment modalities of the patients followed up with the diagnosis of TB.

MATERIAL AND METHODS

Study Protocol

Patients older than 18 years of age who were followed up with a diagnosis of TB in Van Central Tuberculosis Dispensary between January 1, 2018, and December 31, 2021, were included in the study. Consent was obtained from the patients. Information about the patients was obtained from the hospital automation system. Demographic characteristics of the patients, clinical symptoms, diagnostic methods, presence of vaccination scar, contact history, additional disease status, and treatments applied were reviewed retrospectively.

Microbiological Analysis

For microbiological diagnosis, acid-resistant bacilli (ARB), TB culture, and polymerase chain reaction results were evaluated. While ARB was performed according to the Ehrlich Ziehl Neelsen (EZN) method, the Löwenstein–Jensen medium (RTA Labs., Türkiye) and the VersaTREK (TREK Diagnostic Systems, USA) automated TB culture device were used for TB culture.

Definitions

Pulmonary Tuberculosis

It was defined as the involvement of the lung parenchyma or the tracheobronchial tree.

MAIN POINTS

- With this study, the incidence of extrapulmonary tuberculosis (EPTB) is higher than the previous studies, EPTB is more common in women, EPTB is mostly diagnosed histopathologically and pulmonary tuberculosis (TB) is bacteriologically diagnosed as a diagnostic approach.
- It was concluded that bacteriological samples should be taken, especially since the diagnosis of EPTB is difficult.
- It was important data that bacteriological diagnosis is the most important step in the identification of TB and that comparative examination of appropriate samples from the suspected patient is necessary for rapid diagnosis.

Extrapulmonary Tuberculosis

It was defined as the presence of ARB (+), or histological and clinical findings compatible with TB in samples taken from organs other than the lung parenchyma.

Purified Protein Derivative Positivity

Bacillus Calmette-Guerin (BCG) was accepted as ≥15 mm for vaccinated, ≥10 mm for unvaccinated.[5]

Statistical Analysis

SPSS (IBM SPSS Corp.; Armonk, NY, USA, ver.26) package program was used for statistical analysis of the data obtained as a result of the research. The sample size of this study was calculated using the G*Power statistical program (ver.3.1.9.7). In the study, there are a total of "3 main groups (Pulmonary TB, EPTB, Pulmonary and EPTB)." According to this, in the "post-hoc power" calculation in 1-way ANOVA experimental design, when the effect size is taken as 0.25 (average value of effect size) and type-1 error is taken as 0.05, the power value was found to be 95% for a total of 249 samples/patients. Descriptive statistics for categorical variables are expressed as number (n) and percentage (%). Chi-square tests were used to determine the relationships between categorical variables. The statistical significance level was taken as 5% in the calculations.

Ethics Committee Approval

Approval for this study was obtained from the Van Training and Research Hospital Clinical Research Ethics Committee (Date: March 16, 2022, Decision no: 2022/06-03). All procedures of the study were carried out in accordance with the International Declaration of Helsinki.

RESULTS

A total of 249 patients, 133 (53.4%) male and 116 (46.6%) female, followed up with a diagnosis of TB were included in the study. The mean age of all patients was 39.7 (min-max; 18-88), the mean age of women was 41.7, and the mean age of men was 38.1 years. It was determined that 164 (65.9%) of the patients were married and 148 (59.4%) of them resided in the city. Only pulmonary TB was found in 111 (44.6%) of the patients, EPTB in 123 (49.4%), and both pulmonary and EPTB in 15 (6%) patients (Figures 1 and 2). It was determined that 240 (96.4%) of the patients were newly diagnosed (Table 1).

Comorbidity was found in 53 (21.3%) of the patients. Only 7 (6.3%) patients with pulmonary TB had chronic heart disease, 2 (1.8%) had chronic lung disease, and 17 (15.3%) had other chronic diseases (cancer, rheumatological diseases, epilepsy, gastrointestinal system

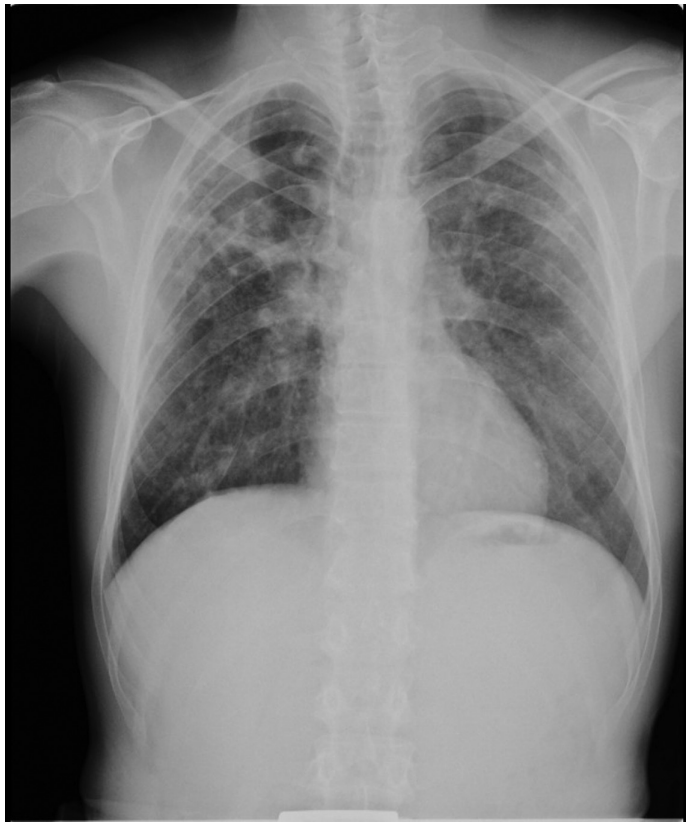

Figure 1. Chest X-ray shows diffuse reticular opacity and infiltrative appearance in both lungs.

diseases, and hypothyroidism). It was found that 4 (3.3%) of the patients with EPTB had chronic renal failure, 2 (1.6%) had chronic heart disease, and 18 (14.6%) had other chronic diseases. Anti-Human Immunodeficiency Virus (HIV) test results of 246 (98.8%) patients were negative. In contact follow-up, 49 (19.7%) were found to have a history of contact with TB patients.

General symptoms of TB disease were observed in 237 (95.2%) of the patients. Cough-sputum production (n = 99, 89.1%) and weight loss (n = 76, 68.5%) in patients with pulmonary TB only, weight loss (n = 60, 48.8%) and night sweats (n = 60, 48.8%) in patients with pulmonary TB (n = 52, 42.3%), and patients with lung and EPTB coexistence had hemoptysis (n = 13, 86.7%) and cough-sputum production (n = 11, 73.3%) (Table 2).

It was found that the diagnosis of EPTB was generally made by histopathological methods (64.2%), and in pulmonary TB, it was mostly made by bacteriological methods (61.3%). When the diagnostic methods were evaluated, 59 (64.8%) of the patients had purified protein derivative (PPD) positivity, 103 (41.4%) histopathological diagnosis, 84 (33.7%) bacteriological diagnosis, 56 (37.6%) ARB positivity, 71 (51.1%) culture positivity was detected. It was observed that EPTB was mostly diagnosed histopathologically (64.2%) and pulmonary TB was diagnosed bacteriologically (61.3%) (Table 3).

Table 1. Demographic Characteristics of the Patients

Variables		Pulmonary TB, n (%)	EPTB, n (%)	Pulmonary and EPTB, n (%)
Gender	Female	39 (35.1)	72 (58.5)	5 (33.3)
	Male	72 (64.9)	51(41.5)	10 (66.7)
Marital status	Married	66 (59.5)	88 (71.5)	10 (66.7)
	Single	45 (40.5)	35 (28.5)	5 (33.3)
Living place	Rural	38 (34.2)	60 (48.8)	3 (20.0)
	Town	73 (65.8)	63 (51.2)	12 (80.0)
Occupation	Soldier	1 (0.9)	3 (2.4)	1 (6.7)
	Housewife	32 (28.8)	66 (53.7)	3 (20.0)
	Employee	26 (23.4)	13 (10.6)	1 (6.7)
	Unemployed	28 (25.3)	16 (13.1)	5 (33.3)
	Officer	9 (8.1)	11 (8.9)	3 (20.0)
	Student	4 (3.6)	5 (4.0)	1 (6.7)
	Others	11 (9.9)	9 (7.3)	1 (6.7)
Case definition	New	105 (94.6)	120 (97.6)	15 (100)
	Relapse	4 (3.6)	2 (1.6)	0 (0)
	Returning from abandonment	2 (1.8)	1 (0.8)	0 (0)
	Total	111	123	15

TB, tuberculosis; EPTB, extrapulmonary tuberculosis.

Table 2. Distribution of Patients General Symptoms/Findings

General Symptoms/Signs	Pulmonary TB (n : 111) n (%)*	EPTB (n : 123) n (%)*	Pulmonary and EPTB (n : 15) n (%)*
Cough and expectoration	99 (89.1)	44 (35.8)	11 (73.3)
Hemoptysis	9 (8.1)	3 (2.4)	13 (86.7)
Weakness	51 (45.9)	43 (35)	6 (40.0)
Weight loss	76 (68.5)	60 (48.8)	9 (60.0)
Night sweats	47 (42.3)	52 (42.3)	8 (53.3)

TB, tuberculosis; EPTB, extrapulmonary tuberculosis. *The sum of colon percentages is not 100% because patients have more than one clinical symptom/sign.

The most common sites of extrapulmonary TB were lymph nodes (40%) (Figure 3), pleura (23%), and urogenital organs (8%) (Figures 1-4) (Table 4).

In anti-TB treatment, 241 (96.8%) of whom HRZE (H, Isoniazid; R, Rifampicin; Z, Pyrazinamide; E, Etambutol) treatment was initiated, 31 (12.4%) had side effects after treatment, while treatment was changed in 8 (3.2%) of them. The mean duration of treatment given was 8.2 months. It was determined that 199 (79.9%) patients were successfully treated and 13 (5.2%) died due to various reasons during this period. Six (5.4%) patients were diagnosed with isolated pulmonary TB and 7 (5.7%) patients were diagnosed with EPTB (Table 5).

In the study, it was determined that pulmonary TB was seen at a higher rate in men and EPTB in women. In the statistical evaluation of lung TB, EPTB, and gender, a statistically significant relationship was found between pulmonary TB and men ($P < .001$) and between EPTB and women. Statistically significant relationships were found between pulmonary TB and the area of residence ($P = .009$), contact history ($P = .029$), cough-sputum production ($P < .001$), hemoptysis ($P < .001$), weight loss ($P = .003$), night sweats ($P = .026$), BCG scar ($P < .001$), PPD induration ($P < .001$), histopathological diagnosis ($P < .001$), bacteriological diagnosis ($P < .001$), smear ($P < .001$), and culture ($P < .001$). Statistically significant relationships were found between EPTB and history of contact ($P = .003$), cough-sputum production ($P < .001$), hemoptysis ($P < .001$), weight loss ($P = .003$), night sweats ($P = .037$), PPD induration ($P = .003$), histopathological diagnosis ($P < .001$), bacteriological diagnosis ($P < .001$), smear ($P < .001$), and culture ($P < .001$). No significant correlation was found between pulmonary TB and EPTB and

Table 3. Distribution of Diagnostic Method Results

Variable	Category	Pulmonary TB, n (%)	EPTB, n (%)	Pulmonary and EPTB, n (%)	Total, n (%)
BCG scar	Yes	28 (25.2)	45 (36.6)	4 (26.7)	77 (30.9)
	No	22 (19.8)	20 (16.2)	1 (6.6)	43 (17.3)
	No data	61 (55.0)	58 (47.2)	10 (66.7)	129 (51.8)
PPD	Positive	15 (13.5)	43 (35)	1 (6.6)	59 (23.7)
	Negative	15 (13.5)	15 (12.2)	2 (13.4)	32 (12.9)
	No data	81 (73.0)	65 (52.8)	12 (80.0)	158 (63.4)
Histopathological diagnosis	Yes	17 (15.3)	79 (64.2)	7 (46.7)	103 (41.4)
	No	94 (84.7)	44 (35.8)	8 (53.3)	146 (58.6)
Radiological diagnosis	Yes	95 (85.6)	99 (80.5)	15 (100)	209 (84)
	No	16 (14.4)	24 (19.5)	0 (0.0)	40 (16.0)
Bacteriology	Yes	68 (61.3)	8 (6.5)	8 (53.3)	84 (33.7)
	No	42 (37.8)	115 (93.5)	7 (46.7)	165 (66.3)
ARB staining	Negative	44 (39.6)	44 (35.8)	5 (33.3)	93 (37.3)
	Positive	49 (44.1)	2 (1.6)	5 (33.3)	56 (22.5)
	No data	18 (16.2)	77 (62.6)	5(33.3)	100 (40.2)
Maintain	Negative	27 (24.3)	36 (29.3)	5 (33.3)	68 (27.3)
	Positive	60 (54.1)	6 (4.8)	5 (33.3)	71 (28.5)
	No data	24 (21.6)	81(65.9)	5(33.3)	110 (44.2)
TOTAL		111	123	15	249

TB, tuberculosis; EPTB, extrapulmonary tuberculosis; ARB, acid-resistant bacilli; BCG, Bacillus Calmette-Guerin; PPD, purified protein derivative.

Table 4. Distribution of EPTB According to Involvement Area

Variable	Category	EPTB (n : 123) n (%)	Pulmonary and EPTB (n : 15) n (%)
Location of involvement	Skin	4 (3.3)	1 (6.7)
	Pleurisy	26 (21.1)	4 (26.6)
	Lymphadenitis	50 (40.6)	3 (20.0)
	Peritonitis	9 (7.3)	1 (6.7)
	Meningitis	4 (3.3)	2 (13.4)
	Miliary	0 (0.0)	4 (26.6)
	GIS	4 (3.3)	0 (0.0)
	Urogenital	11 (8.9)	0 (0.0)
	Bone	13 (10.6)	0 (0.0)
	Breast	2 (1.6)	0 (0.0)
	Total	123	15

EPTB, extrapulmonary tuberculosis; GIS, gastrointestinal system.

marital status, presence of symptoms, fatigue, accompanying diseases, case description, presence of side effects in treatment, treatment change, and treatment outcome ($P > .05$) (Table 6).

DISCUSSION

Tuberculosis is an important public health problem worldwide and is one of the top 10 causes of death in adults.[10] Although TB bacillus typically affects the lungs, it may spread to other organs via the lymphohematogenous route, the spread of infected sputum to the gastrointestinal mucosa, or through the neighborhood.[6,11] Tuberculosis can affect anyone, regardless of age or gender.[12] According to WHO's 2021 data, it has been reported that 56.5% of all TB cases are adult men, 32.5% are adult women, and 11% are children.[4] In a study conducted in Pakistan, it was determined that 52.4% of those with EPTB and 49.2% of those with pulmonary TB were women, and the median age was 24 years in those with EPTB and 30 years in

Table 5. Patients Treatment Modalities, Durations, Results, and Frequency of Side Effects

Variable	Category	Pulmonary TB (n : 111) n (%)	EPTB (n : 123) n (%)	Pulmonary and EPTB (n : 15) n (%)
Treatments applied	HRZE	106 (95.5)	121 (98.4)	14 (93.3)
	HRZE + S	1 (0.9)	1 (0.8)	0 (0.0)
	A, PAS, PTH, CYC	1 (0.9)	0 (0.0)	0 (0.0)
	HZE, MFL	1 (0.9)	0 (0.0)	0 (0.0)
	HRE, MFL	1 (0.9)	0 (0.0)	0 (0.0)
	HZES, PAS	0 (0.0)	1 (0.8)	0 (0.0)
	RES, MFL	0 (0.0)	0 (0.0)	1 (6.7)
	ES, CYC, MFL	1 (0.9)	0 (0.0)	0 (0.0)
Treatment duration	0-6 months	12 (11.8)	12 (9.8)	2 (13.3)
	6 months	24 (21.6)	18 (14.6)	0 (0.0)
	7-9 months	56 (50.4)	53 (43.1)	6 (40.0)
	>9months	19 (17.1)	36 (29.3)	7 (46.7)
Treatment side effect	Yes	26 (23.4)	3 (2.4)	2 (13.3)
	No	85 (76.6)	120 (97.6)	13 (10.6)
Treatment change	Yes	4 (3.6)	3 (2.4)	1 (6.7)
	No	107 (96.4)	120 (97.6)	14 (93.3)
Treatment result	Completed	87 (78.4)	100 (81.3)	12 (80.0)
	Outgoing transport	9 (8.1)	5 (4.1)	2 (13.3)
	Death	6 (5.4)	7 (5.7)	0 (0.0)
	Treatment continues	6 (5.4)	2 (1.6)	1 (6.7)
	Abandon treatment	3 (2.7)	9 (7.3)	0 (0.0)

TB, tuberculosis; EPTB, extrapulmonary tuberculosis; A, Amikacin; CYC, Cycloserine; E, Etambutol; H, Isoniazid; MFL, Moxifloxacin; PAS, Paraaminosalicylic acid; PTH, Protionamide; R, Rifampicin; S, Streptomycin; Z: Pyrazinamide.

Table 6. Analysis of Factors Affecting Pulmonary TB and EPTB

		Pulmonary TB (n : 126)*			EPTB (n : 138)*		
		No	Yes		No	Yes	
Variables		**n (%)**	**n (%)**	***P***	**n (%)**	**n (%)**	****P***
Gender	Male	51 (38.3)	82 (61.7)	**<.001**	72 (54.1)	61 (45.9)	**<.001**
	Female	72 (62.1)	44 (37.9)		39 (33.6)	77 (66.4)	
Area of residence	Rural	60 (59.4)	41 (40.6)	**.009**	38 (37.6)	63 (62.4)	.068
	Town	63 (42.6)	85 (57.4)		73 (49.3)	75 (50.7)	
Contact story	No	110 (52.4)	100 (47.6)	**.029**	85 (40.5)	125 (59.5)	**.003**
	Yes	13 (33.3)	26 (66.7)		26 (66.7)	13 (33.3)	
Cough-sputum	No	79 (83.2)	16 (16.8)	**<.001**	12 (12.6)	83 (87.4)	**<.001**
	Yes	44 (28.6)	110 (71.4)		99 (64.3)	55 (35.7)	
Hemoptysis	No	3 (12.0)	22 (88.0)	**<.001**	20 (80.0)	5 (20.0)	**<.001**
	Yes	120 (53.6)	104 (46.4)		91 (40.6)	133 (59.4)	
Weight loss	No	63 (60.6)	41 (39.4%	**.003**	35 (33.7)	69 (66.3%	**.003**
	Yes	60 (41.4)	85 (58.6)		76 (52.4)	69 (47.6)	
Night sweats	No	71 (56.3)	55 (43.7)	**.026**	48 (38.1)	78 (61.9)	**.037**
	Yes	52 (42.3)	71 (57.7)		63 (51.2)	60 (48.8)	
BCG scar	No data	58 (45.0)	71 (55.0)	**<.001**	61 (47.3)	68 (52.7)	.198
	Yes	45 (58.4)	32 (41.6)		28 (36.4)	49 (63.6)	
	No	20 (46.5)	23 (53.5)		22 (51.2)	21 (48.8)	
TST induration	No data	65 (41.1)	93 (58.9)	**<.001**	81 (51.3)	77 (48.7)	**.003**
	Positive	43 (72.9)	16 (27.1)		15 (25.4)	44 (74.6)	
	Negative	15 (46.9)	17 (53.1)		15 (46.9)	17 (53.1)	
Histopathological diagnosis	No	44 (29.3)	106 (70.7)	**<.001**	98 (65.3)	52 (34.7)	**<.001**
	Yes	79 (79.8)	20 (20.2)		13 (13.1)	86 (86.9)	
Bacteriological diagnosis	No	115 (70.1)	49 (29.9)	**<.001**	42 (25.6)	122 (74.4)	**<.001**
	Yes	8 (9.4)	77 (90.6)		69 (81.2)	16 (18.8)	
Spreading	No data	77 (77.0)	23 (23.0)	**<.001**	18 (18.0)	82 (82.0)	**<.001**
	Negative	44 (47.3)	49 (52.7)		44 (47.3)	49 (52.7)	
	Positive	2 (3.6)	54 (96.4)		49 (87.5)	7 (12.5)	
Maintain	No data	81 (73.6)	29 (26.4)	**<.001**	24 (21.8)	86 (78.2)	**<.001**
	Negative	36 (52.9)	32 (47.1)		27 (39.7)	41 (60.3)	
	Positive	6 (8.5)	65 (91.5)		60 (84.5)	11 (15.5)	

TB, tuberculosis; EPTB, extrapulmonary tuberculosis; BCG, Bacillus Calmette-Guerin; TST, Tuberculin Skin Testing.
*Patients with both pulmonary TB and EPTB are also included.
**Significance levels according to chi-square test results.

those with pulmonary TB.[13] Shirzad-Aski et al.[14] In a study conducted in Iran, it was found that EPTB was more common in women (53.7%), with the mean age of all patients being 40.55 years. Qian et al.[15] in a study conducted in the United States of America on EPTB in the state of Texas, stated that women are at a significantly higher risk, and the high incidence of EPTB may be related to hormonal variability, cultural structures, and immune-related factors. In some studies conducted in our country, the mean age of patients with a diagnosis of TB was found to be 36.9-48 years.[16-20] Various studies have shown that EPTB is more common in women.[11,16,19,21] and pulmonary TB is more common in men[19-22] in terms of gender. In our study, it was determined that 53.4% of the patients followed up with the diagnosis of TB were male. The mean age of all patients was 39.7 years, 41.7 years for women,

and 38.1 years for men. In addition, it was determined that pulmonary TB was seen at a higher rate in males and EPTB in females, and this difference was statistically significant in terms of gender ($P < .001$). The results correlate with the literature. Although it is not clear why EPTB is more common in women, Qian et al.[15] think that immunological and hormonal factors may be effective.

There are 2 different TB presentations, pulmonary and extrapulmonary.[6] In the study conducted in Ahvaz, Iran, 28% of all TB cases, and in the study conducted in Khuzestan, 36.7% were found to be EPTB.[23,24] In the 2011 surveillance report covering 11 states that are members of the European Union, it was reported that 72 334 TB cases were reported and 16 116 (22%) of them were EPTB.[25] The rate of EPTB in our country was determined by Türkkani et al.[26] reported 47.5% in their study, Yılmaz et al.,[18] 55.8% in their study, Guler et al.[21] in their study, 45.2%, Gönlügür et al.,[19] 25% in their study, and Sunnetcioglu et al.[22] in their study found it was found to be 49.4%. In our study, 44.6% of the patients had only pulmonary, 49.4% extrapulmonary, and 6% both pulmonary and EPTB diagnoses. It is noteworthy that the EPTB rate is relatively high compared to the literature.

Although EPTB can affect any part of the body, lymph nodes are most commonly affected. However, pleural, neurologic, synovial, pericardial, abdominal, and genitourinary involvement may also occur.[3] In many studies conducted in the world and in our country, it has been shown that EPTB mostly affects the lymph nodes (26.8%-50.4%).[14,21,23,27] On the other hand, it has been shown that pleural (29.6%) involvement is more common in Slovenia (41%), Poland (36%), and Romania (58%), and bone-joint involvement (27.1%) in the United States.[25,28] Since ancient times, TB lymph node involvement has been called "Scrofula" or "King's evil". Cervical lymphadenitis is the most common and has been reported in 60%-90% of TB lymphadenitis cases.[3] Taşbakan et al.[29] found that cervical (61.4%), mediastinal (20.5%), and axillary (6.4%) lymph nodes were most frequently involved in TB lymphadenitis cases in their study using the pool analysis method. In our study, similar to the literature, it was determined that the most common extrapulmonary involvement was in the lymph nodes (40%).

The classic symptoms of active TB infection include chronic cough with bloody sputum, fever, night sweats, and weight loss.[6] Patients with a diagnosis of EPTB often present with signs and symptoms related to the site/regions of involvement. Diagnostic delays may occur due to nonspecific signs and symptoms. Some or all of the general structural symptoms such as fever, loss of appetite, weight loss, weakness, and fatigue can be seen in EPTB.[10] In a systematic review, fever (45%) and night sweats (55%) were shown to be the main cardinal systemic symptoms in EPTB cases.[30] Shirzad-Aski et al.[14] reported in a study they conducted that EPTB cases most frequently described fever (40.9%), fatigue (39.9%), night sweats (37.9%), and weight loss (33.8%). In our country, Guler et al.[21] in a study, stated that the most frequently described symptoms were cough (46.7%), night sweats (34.1%), and fever (n = 123, 33%), while Orman et al.[17] found cough (82.2%) and night sweats (80.3%) in a study they conducted. In this study, 95.2% of the patients presented with general symptoms/findings of TB disease, cough/sputum production (89.1%), and weight loss (68.5%) were the most common in patients with only pulmonary TB, and weight loss (48.8%) in patients with EPTB and night sweats (42.3%) were observed. In addition, cough-sputum production ($P < .001$), hemoptysis ($P < .001$), weight loss ($P = .003$), night sweats ($P = .026$) with the presence of pulmonary TB, and cough-sputum production ($P < .001$) with the presence of EPTB, a statistically significant relationship was found between hemoptysis ($P < .001$), weight loss ($P = .003$), night sweats ($P = .037$). It is known that these symptoms are not specific to TB; however, considering that one-third of the world's population is infected with TB bacillus, the diagnosis of TB should not be overlooked in patients who present with chronic cough, weight loss, and sweating complaints.

Definitive diagnosis of TB is made by microbiological, cytopathological, or histopathological methods of *M. tuberculosis* bacillus.[3] *M. tuberculosis* culture is the definitive diagnostic method; however, in clinical practice, only about two-thirds of pulmonary TB patients and less than half of EPTB patients have positive cultures.[21] Şengül et al.[16] found that the most common diagnosis of EPTB was histopathological (68.9%). Türkkani et al.[26] found ARB positivity rate as 61.9% and culture positivity as 39.3% in pulmonary TB cases. Guler et al.[21] found ARB positivity in 44.3% of pulmonary TB cases and 34.8% in EPTB cases. In the study of Gönlügür et al.,[19] ARB positivity was detected at a rate of 65.4% in pulmonary TB cases, while a positive result was obtained in 92% of those cultured among those with ARB positivity. In our study, it was found that 41.4% of TB patients were diagnosed histopathologically, 33.7% bacteriologically; EPTB was mostly diagnosed histopathologically (64.2%) and pulmonary TB was diagnosed bacteriologically (61.3%). In addition, 64.8% of the patients had PPD, 37.6% had ARB, and 51.1% had culture positivity. Although bacteriological diagnosis is the gold standard, it is not always possible to do it for various reasons. This is an even bigger problem, especially in EPTB. Taking both fluid and tissue cultures while performing histopathological sampling may contribute to obtaining even more heartwarming results in terms of diagnosis. Working in coordination with the physicians of the surgical department and convincing them

to take samples will be extremely beneficial in terms of ease of diagnosis.

In drug-responsive pulmonary TB, 4 months of maintenance (HR) therapy is given after a 2-month intensive treatment phase (HRZE). However, there is no consensus on the optimal duration of treatment in patients with EPTB.[3,10] In our study, it was found that the majority of patients (96.8%) were given the HRZE combination, and the mean treatment duration was 8.2 months.

If left untreated, the mortality rate from TB disease is high (approximately 50%). Approximately 85% of people can recover with current treatment options.[4] Şengül et al.,[16] mortality rate of 2.4% in their study, Gönlügür et al.[19]reported 4.1%, and Yılmaz et al.[18] on the other hand, found it was found to be 0.3%. In our study, 13 (5.2%) patients died due to various reasons.

This study has some limitations. First, data on the treatment and follow-up of patients who were transferred to another region could not be obtained. Second, the pathology reports of the materials taken for diagnosis could not be accessed.

With this study, the incidence of EPTB is higher than the previous studies, EPTB is more common in women, EPTB is mostly diagnosed histopathologically and pulmonary TB is bacteriologically diagnosed as a diagnostic approach. It was concluded that bacteriological samples should be taken, especially since the diagnosis of EPTB is difficult.

As a result, TB continues to exist as one of the oldest diseases in history to still threaten life in the world. There are no reliable, simple tests available to diagnose TB disease. It continues to be contagious for those who cannot be diagnosed or treated. In this study, the demographic and clinical characteristics, diagnostic methods and treatment methods of patients followed with TB treatment are evaluated, and current data on TB changes are presented. This study concluded that bacteriological diagnosis is the most important step in the identification of TB and that comparative examination of appropriate samples from the suspected patient is necessary for rapid diagnosis.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: Ethics committee approval was received for this study from the Ethics Committee of Van Training and Research Hospital (Date: March 16, 2022; No: 2022/06-03)

Informed Consent: Informed consent was obtained from the patients participating in the study. Permission was obtained from the management to obtain patient information from the hospital automation system.

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