

Research

Frequency of Cases of Genitourinary Tuberculosis Hospital De Clínicas Gestión 2000 to 2019 La Paz, Bolivia

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ABSTRACT

Introduction

The urogenital tract is one of the most frequent locations of extrapulmonary tuberculosis, but it is not a very common finding in clinical practice. According to the WHO in 2015, 10.4 million people fell ill with tuberculosis, which is one of the top 10 global causes of mortality. Extrapulmonary tuberculosis is estimated to represent 15 to 25% of all tuberculosis patients, and of these, the renal location is the most frequent.

Methods

We publish the present study, because tuberculosis is one of the endemic infectious diseases in Bolivia, and its study is essential. It should be mentioned that in Bolivia, as part of the immunization scheme, all newborns receive the BCG vaccine. All patients with antituberculosis treatment initiation, registered in the Notebook of the National Program for Tuberculosis Control, from January 2000 to December 2019 (19 years old) have been included with the diagnosis of genitourinary tuberculosis. Under the responsible Units: Urology and Epidemiology of the Hospital de Clínicas, in the City of La Paz

Results

The frequency of cases of genitourinary tuberculosis in the Hospital of Clinics of the City of La Paz in 2000 to 2019 procedures is low and is correlated with bibliographic data. 5,025 patients with tuberculosis were diagnosed in 2000 to 2019 procedures of which 1,507 patients (30%) had pulmonary tuberculosis. 3,518 patients (70%) with extrapulmonary tuberculosis of the total of patients with extrapulmonary tuberculosis, 845 patients were diagnosed with urogenital tuberculosis of which 625 patients were diagnosed with renal tuberculosis, 53 patients with bladder tuberculosis, 19 patients with prostate tuberculosis, 81 patients with epididymal tuberculosis and 67 patients with genital (adnexal) tuberculosis.

Conclusions

Over time, infectious contagious pathologies have become relevant. Mainly due to the living conditions, housing, nutrition, and coexistence of pathologies that depress the immune response. The difficulty of obtaining data prior to the initiation of tuberculosis treatment and monitoring of fertility in this group of patients involves a significant economic cost since the highest percentages of diagnosed patients are of reproductive age.

Keywords: *Extrapulmonary tuberculosis; Genitourinary tuberculosis; Renal tuberculosis.*

INTRODUCTION

The urogenital tract is one of the most frequent locations of extrapulmonary tuberculosis, but it is not a very common finding in clinical practice. According to the WHO in 2015, 10.4 million people fell ill

with tuberculosis, which is one of the top 10 global causes of mortality. Extrapulmonary tuberculosis is estimated to represent 15% to 25% of all tuberculosis patients, and of these, the renal location is the most frequent.¹

History

Tuberculosis has been observed for more than 7,000 years. Hippocrates described “phthisis” as a pathology that increased in the winter and led to wasting, and his treatment methods were followed for more than 1,500 years. Koch in 1882 discovered the Bacillus that bears his name.²

Etiology

Koch’s Bacillus (BK) or Mycobacterium tuberculosis is the bacillus that causes 99% of cases of human tuberculosis. Its characteristics are.²

- Aerobic, resistant acid, being able to multiply within the alveoli.
- Slow growth (multiplies in 20 to 24 hours).
- It develops at a pH of 6.8 - 7.2.
- Stain with Ziehl-Neelsen staining

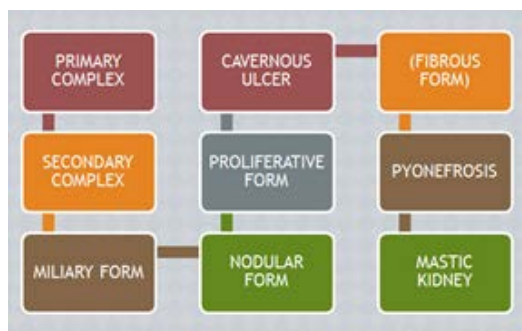
Classification of Mycobacteria

Pathogenic human	• <i>M. tuberculosis, bovis, africanum, leprae.</i>
Potentially pathogenic human	• <i>M. avium, scrofulaceum, kansasii, ulcerans, marinum.</i>
Potentially pathogenic fast - growing human	• <i>M. fortuitum.</i>
Non - pathogenic human	• <i>M. gordonae, gastri, terrae, smegmatis, vaccae.</i>

Etiopathogenesis

Primary focus occurs within macrophages, which have no ability to control and the spread, by the lymphatic route and then by blood route that stops around the fourth week. The primary focus may be on the lungs or on dormant lymph node nuclei.³

The kidney is infected hematogenously and its dissemination can be lymphatic or canalicular. BK can be eliminated in the urine without pyuria or symptoms of bladder irritation.



Statistics

In Latin America, Bolivia, along with Peru, has the highest incidence. For 2000 the incidence of tuberculosis in all its forms was calculated in Bolivia at 112 and for pulmonary tuberculosis BAAR (+) in 78 cases per 1,00,000 inhabitants. 8,000 new cases are diagnosed each year. From 2002 to 2004, 13% to 15% of extrapulmonary tuberculosis cases were reported.¹

In Bolivia, by decree, it has been determined that on March 24 of each year the Day to Fight Tuberculosis is celebrated. 83% of tuberculosis patients come to a cure at the end of treatment. Since 2007, a program has been implemented in the prisons of Bolivia for the detection and diagnosis of tuberculosis (since 69% of the diagnosed patients corresponded to incarcerated patients).

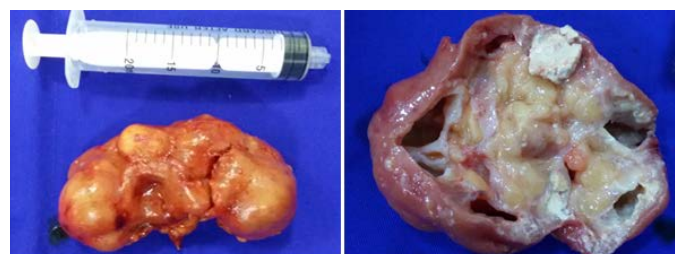
Clinic

The symptoms are intermittent and variable in intensity and duration. 20% of patients are initially asymptomatic. The most frequent age is in young adults (18 to 30 years old). Syphilis has traditionally been defined as the “great simulator” of infectious contagious diseases, however, tuberculosis is just as protein-like in its clinical manifestations. This is due, among other causes, to three important factors. The first is its capacity for hematogenous and lymphatic dissemination. This gives it the ability to alter the morphology and function of virtually all the organs of the human body, even many years after the first infection, due to its ability to remain dormant in them. Secondly, as it is an intracellular infection, it generates an immune response in which the release of pro-inflammatory cytokines occasionally prevails, triggering processes that can simulate autoimmune phenomena. And finally, their associations with significant comorbidities that can be both conditioning factors for tuberculosis and conditioned by it and that have their own semiological richness.^{4,7}

The initial focus is on the renal cortex, characterized by the destruction caused by the inflammatory reaction due to the immune manifestation of delayed hypersensitivity. The process progresses slowly in 15 to 20 years can destroy the entire kidney. It begins by committing an area to later spread to neighboring regions. It forms small nodules or tubers that soften and necrose (ulcer cavernous lesions), coming together to form small caverns that progressively increase in volume.

They can be up to the size of a chestnut and contain a cheesy substance that in some cases is calcified by calcium salt deposits, forming the kidney type “mastic”, visible to X-rays. Genitourinary tuberculosis must be understood as a disease that encompasses the entire genitourinary system; genital tuberculosis is generally secondary to urinary tuberculosis that, via the canalicular or lymphatic route, reaches the epididymis, testis or prostate. The reaction of defense mechanisms produces fibrous tissue that causes capillary or pyeloureteral junction stenosis, since the lesions extend throughout the mucosa of the renal pelvis, ureter, and bladder, covering it with tubercles [Figure 1].

Figure 1. Operative part Kidney mastic (caseum and renal caverns identified).



Individual objectives of anti-tuberculosis treatment

Produce smear and/or culture negativity in the shortest possible time. Ensure adherence (more than 80% of doses) and completion of therapy to prevent resistance and ensure healing. Recognize side effects early.

Antitubercular drugs in Bolivia

The national tuberculosis program uses seven basic drugs.¹

Bactericides: isoniazid (H), rifampicin (R), streptomycin (S), and pyrazinamide (Z).

Bacteriostatic: Ethambutol (E), Thioacetazone (T) and Ethionamide (ETA).

METHODS

We publish the present study, because tuberculosis is one of the endemic infectious diseases in Bolivia, and its study is essential. It should be mentioned that in Bolivia, as part of the immunization scheme, all newborns receive the BCG vaccine. All patients with antituberculosis treatment initiation, registered in the Notebook of the National Program for Tuberculosis Control, from January 2000 to December 2019 (19 years old) have been included. With the diagnosis of genitourinary tuberculosis. Under the responsible Units: Urology and Epidemiology of the Hospital de Clínicas, in the City of La Paz.

General Purpose

To know the frequency of cases of urogenital tuberculosis in the Hospital of Clinics of the City of La Paz in the steps from 2000 to 2019.

Specific Objectives

To know the number of patients diagnosed with tuberculosis in its different forms of presentation.

Know the number of patients diagnosed with extrapulmonary tuberculosis and determine how many of them had urogenital tuberculosis.

Research Design

General study topic: Study of urological pathology.

Specific study topic: Study of Tuberculous pathology (Renal Tuberculosis).

Research type: Analytical. Cross. Retrospective.

Data Measurement Method

Source: Primary.

Instrument: Patient Registration Notebook. National tuberculosis control program.

Data processing: Manual.

Population Unit- Place

Spatial delimitation: Responsible units: Urology and Epidemiology of the Hospital de Clínicas, in the City of La Paz.

Temporary delimitation: January 2000 to December 2019. (19 years old).

Sample size. Unit: Patients included in the National Tuberculosis Control Program.

Inclusion criteria: All patients diagnosed with urogenital tuberculosis diagnosed by different methods, in the different units of the Hospital de Clínicas that entered the Notebook of the National Program for Tuberculosis Control.

Exclusion criteria: Patients who did not have complementary studies to diagnose tuberculosis pathology. Patients who were not registered in the notebook of the National Program for Tuberculosis Control.

Variables: Total of patients. Groups by gender. Forms of presentation of tuberculosis: pulmonary, extrapulmonary: urogenital. Forms of presentation of urogenital tuberculosis: renal, bladder, prostate, epididymal, and genital. Diagnostic methods.

RESULTS

The frequency of cases of genitourinary tuberculosis in the Hospital of Clinics of the City of La Paz in 2000 to 2019 procedures is low and is correlated with bibliographic data. 5,025 patients with tuberculosis were diagnosed in 2000 to 2019 procedures. Of which 1,507 patients (30%) had pulmonary tuberculosis, 3,518 patients (70%) had extrapulmonary tuberculosis. Of the total of patients with extrapulmonary tuberculosis, 845 patients were diagnosed with urogenital tuberculosis. Of which 625 patients were diagnosed with renal tuberculosis, 53 patients with bladder tuberculosis, 19 patients with prostate tuberculosis, 81 patients with epididymal tuberculosis, and 67 patients with genital (adnexal) tuberculosis [Table 1-4].

Table 1. Number of patients diagnosed with Tuberculosis per year

Year	Total	Women	Men
2000	185	83	102
2001	198	88	110
2002	240	98	142
2003	252	104	148
2004	276	92	184
2005	288	127	161
2006	245	107	138
2007	310	119	191
2008	254	122	132
2009	278	104	174
2010	232	91	141
2011	275	108	167
2012	223	87	136
2013	240	93	147
2014	243	67	176
2015	224	55	169
2016	241	98	143
2017	272	93	179
2018	289	106	183
2019	260	64	196
TOTAL	5025	1906	3119

Table 2. Forms of presentation of Tuberculosis: Pulmonary and extrapulmonary

Year	TB PULMONARY	TB EXTRAPULMONARY
2000	73	128
2001	72	156
2002	88	152
2003	74	178
2004	67	169
2005	77	211
2006	99	166
2007	85	185
2008	78	194

2009	73	149
2010	76	168
2011	85	209
2012	72	177
2013	67	185
2014	75	139
2015	57	139
2016	55	192
2017	79	209
2018	68	193
2019	87	190
TOTAL	1507	3518

2017	48	34	2	0	9	3
2018	41	28	3	0	6	4
2019	44	31	2	1	7	3
TOTAL	845	625	53	19	81	67

DISCUSSION

In Bolivia, to speak of urogenital tuberculosis is to relate this concept generally to specific organs such as the kidneys. But in the same way, it is relevant to mention the cases of genital tuberculosis, in our environment the BCG vaccine is part of the immunization scheme but even so, cases continue to be seen and they do not decrease, more to the contrary they remain in a frequent exponential number.

CONFLICTS OF INTEREST

None.

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Table 3. Forms of presentation of extrapulmonary tuberculosis: Urogenital

Year	TB EXTRAPULMONARY	UROGENITAL
2000	128	33
2001	156	45
2002	152	55
2003	178	40
2004	169	36
2005	211	44
2006	166	33
2007	185	1
2008	194	39
2009	149	44
2010	168	36
2011	209	41
2012	177	43
2013	185	41
2014	139	55
2015	168	41
2016	192	47
2017	209	48
2018	193	41
2019	190	44
TOTAL	3518	845

Table 4. Forms of presentation of Urogenital Tuberculosis

Year	UROGENITAL	KIDNEY	BLADDER	PROSTATE	EPIDIDYMIS	GENITAL
2000	33	30	2	0	1	0
2001	45	31	4	2	2	6
2002	55	44	3	0	3	5
2003	40	33	1	2	1	3
2004	36	28	2	0	2	4
2005	44	32	2	1	5	4
2006	33	26	1	1	4	1
2007	41	33	2	2	2	2
2008	39	32	4	0	1	2
2009	44	31	3	0	6	4
2010	36	23	3	1	6	4
2011	41	30	4	1	1	5
2012	43	34	2	2	2	3
2013	39	28	3	0	4	4
2014	55	35	4	3	8	5
2015	41	33	3	1	10	4
2016	47	29	3	1	10	4