

Perianal tuberculosis: A case report and review of the literature

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Author contributions: Takaomri M managed patient care; Hirai Y and Kikuchi K reviewed the article; Ainoda Y and Fujita T provided valuable advice on the article; Tago S designed the study, conducted the patients, and wrote the manuscript.

Informed consent statement: All study participants, or their legal guardian, provided informed consent prior to study enrollment.

Conflict-of-interest statement: No conflict of interest to declare.

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Received: December 6, 2014
Peer-review started: December 6, 2014
First decision: February 13, 2015
Revised: June 17, 2015
Accepted: July 3, 2015
Article in press: July 6, 2015
Published online: September 16, 2015

Abstract

Tuberculosis (TB) is still a major health problem worldwide. We present a rare case of an immuno-competent patient with perianal TB. A 38-year-old man visited a clinic with pain, swelling, and redness in the perineum. He had been persistently coughing for the past 6 mo. The abscess had formed a fistula to the perianal region, indicating perianal abscess. *Mycobacterium tuberculosis* was found in sputum and perianal abscess. Surgical drainage was performed, and oral anti-tuberculous drugs were administered for 6 mo. The patient's clinical course was favorable. On review of the literature on 58 cases of perianal TB, we found that the duration of persistent perianal lesion was much longer in patients without active pulmonary TB (APT) than in those with APTB (66.4 mo *vs* 8.3 mo; confidence interval, 0.0760-0.9620, $P = 0.0380$). Thus, in cases of non-healing or recurrent perianal lesions, TB should be considered.

Key words: Tuberculosis; Abscess; Ulcer; Hemorrhoids; Fistula

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Core tip: We present a case of an immuno-competent patient with perianal tuberculosis (TB) and active pulmonary TB (APT). In our literature review of 58 cases of perianal TB, we found that the duration of persistent perianal lesions was much longer in patients without APTB than in those with APTB (66.4 mo *vs* 8.3 mo; confidence interval, 0.0760-0.9620; $P = 0.0380$). In cases of non-healing or recurrent perianal lesions, the diagnosis of TB should be considered and culture for *Mycobacterium tuberculosis* and histologic examination should be conducted.

Tago S, Hirai Y, Ainoda Y, Fujita T, Takamori M, Kikuchi K.

Perianal tuberculosis: A case report and review of the literature. *World J Clin Cases* 2015; 3(9): 848-852 Available from: URL: <http://www.wjgnet.com/2307-8960/full/v3/i9/848.htm> DOI: <http://dx.doi.org/10.12998/wjcc.v3.i9.848>

INTRODUCTION

Tuberculosis (TB) is still a major health problem worldwide and is more prevalent in Asia. In Japan, in which TB prevalence is decreasing, estimated new TB cases per 100000 population per year is 10-19, which is in the same range with some European countries^[1]. Extra-pulmonary TB occupied 3%-46% of all types of TB^[2]. Perianal TB is an extremely rare type of extra-pulmonary TB (0.7%)^[3]; however, its prevalence might be underestimated, as it can be misidentified as Crohn's disease or other granulomatous diseases^[4]. Here, we report a rare case of perianal abscess caused by *Mycobacterium tuberculosis* (MTB).

CASE REPORT

A 38-year-old Japanese man visited a clinic with chief complaints of pain in the perineum, which had developed 4 d earlier. He also had been persistently coughing for the past 6 mo. Chest radiography revealed a cavity in the right upper lung field, and acid-fast bacilli (AFB) were detected in his sputum. These findings indicated pulmonary TB, and the patient was subsequently admitted to the hospital. His past history was unremarkable: He smoked 20 pieces/d. He installed Japanese pinball machines (pachinko) for a living. He had visited North Korea 20 years ago and South Korea 3 years ago. He had no family history of TB. His blood pressure was 126/76 mmHg, pulse rate was 100 beats/min, temperature was normal at 37.3 °C, and with clear respiratory sounds. Redness, swelling, and tenderness were noted in the right perineum (Figure 1). Thoracic computed tomography confirmed the cavity in the right upper lung field and infiltration in the right upper and left middle lung fields (Figure 2). MTB DNA was amplified using polymerase chain reaction (PCR) (Kobasu TapMan® MTB, Switzerland), and sputum culture revealed MTB. A large amount of creamy white pus was drained from the incisional perianal abscess. The abscess had formed a fistula to the perianal region, indicating a perianal abscess. AFB were also detected in the wound pus and PCR and culture analysis confirmed MTB. Further, *Escherichia coli* was concomitantly isolated from the abscess. Oral administration of isoniazid, rifampicin, ethambutol, and pyrazinamide was initiated, and the clinical course was favorable. After completing the 6-mo oral administration of anti-TB drugs, the patient was operated upon for the anal fistula. His human immunodeficiency virus (HIV) test was negative. No apparent underlying disease was detected at the 3-mo follow-up examination.

We reviewed 58 cases of perianal TB (abscess, fistula, and ulceration) reported from 1970 to 2014 worldwide (Japan, 17 cases; Taiwan, 17 cases; South Korea, 4 cases; Hong Kong, 3 cases; United States, 3 cases; United Kingdom, 2 cases; Brazil, 2 cases; Spain, 2 cases; Turkey, 2 cases; Morocco, 1 case; Iran, 1 case; India, 1 case; France, 1 case; Bulgaria, 1 case), whereas 70.7% were from Asia^[5-31]. The mean age (\pm SD) of the patients was 45.3 (\pm 10.6) years, and the male-to-female ratio [52 (89.7%) men and 6 (10.3%) women] was higher than that reported previously (4:1)^[4,32]. Eighteen point six percent of the patients had underlying diseases related to immunodeficiency (respiratory diseases 3, diabetes mellitus 2, hepatitis 1, hepatitis + HIV 1, chronic kidney disease 1, malignancy 1, autoimmune disease 1, cardiovascular disease 1).

We researched duration of disease, that is the time from beginning of symptoms until diagnosed with perianal TB. Among 29 patients with complete data available on the duration of perianal lesion, the mean duration of disease was 34.6 mo. Of these, 15.3% of the patients had a surgical history of perianal lesions before the diagnosis of TB.

APTb was noted in 34 (57.6%) cases; history of TB, in 12 (20.3%) cases; and no history of pulmonary TB in 12 (20.3%) cases. The existence or non-existence of pulmonary TB was not reported in 1 (1.7%) case. We compared the characteristics of patients with APTb (n = 34) with those of patients without APTb (n = 24) (Table 1). The duration of disease in patients without APTb (66.4 mo) was significantly longer than that in patients with APTb (8.3 mo), as noted in a two-sample t -test (CI: 0.0760-0.9620; P < 0.05).

DISCUSSION

Gastrointestinal TB accounts for less than 1% of all TB cases, and perianal disease is exceedingly rare, comprising 1% of digestive tract incidence^[5].

In our literature review, only 18.6% of the patients had underlying diseases related to immunodeficiency. Therefore, not only immuno-compromised but also immuno-competent patients should be carefully evaluated, because TB can also occur in immuno-competent individuals, as noted in our case.

The mean duration of perianal TB was 34.6 mo, and 15.3% of the patients had a surgical history of perianal lesions before the diagnosis of TB. Perianal TB may have gone un-diagnosed for a long period.

APTb was noted in 34 (57.6%) cases; Since in cases of perianal TB, APTb is often concomitant with, it is important to conduct chest radiography and a detailed interview, especially to record chronic cough, fever, night sweats, or weight loss, which suggest APTb, in order to diagnose perianal TB.

We compared the characteristics of patients with APTb (n = 34) with those of patients without APTb (n = 24). We found that the occurrence of intestinal TB and TB complications (miliary TB, peritoneal TB, and

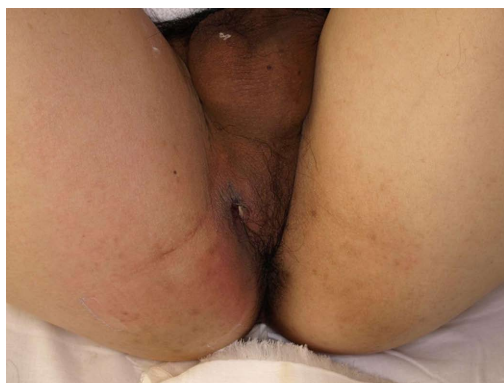


Figure 1 Redness, swelling, and tenderness is seen in the right perineum after the first drainage.

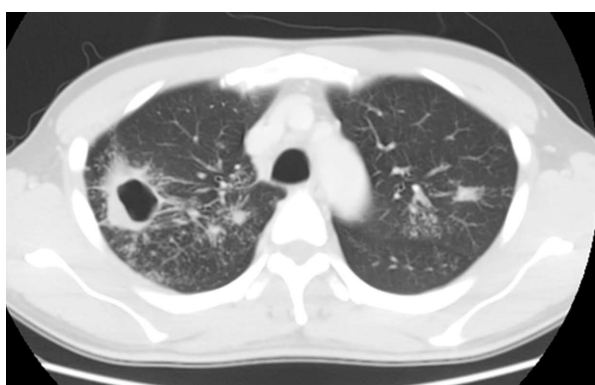


Figure 2 Thoracic computed tomography scan confirming a cavity in the right upper lung field and infiltration in the right upper and left middle lung field.

iliopsoas muscle abscess by TB) were similar in both patient groups. This raises a question regarding the infectious routes in patients without APTB, since TB rarely, if ever, occurs as a primary infection in a perianal region. Two possible explanations are as follows: first, hematogenous spread after reactivation of latent lung TB could be responsible^[7], and second, other foci may have not been sufficiently investigated, as seen in our cases wherein only 37 (62.7%) cases included data on intestinal examination.

The duration of disease in patients without APTB (66.4 mo) was significantly longer than that in patients with APTB (8.3 mo), as noted in a two-sample *t*-test (CI: 0.0760-0.9620; *P* < 0.05). Since perianal TB does not have any specific clinical characteristics^[5,10], its occurrence without APTB may be underestimated. In cases of chronic or recurrent fistula, the diagnosis of TB should be considered, and culture for MTB and histologic examination should be performed.

The patient in our case installed Japanese pinball machines (pachinko) for a living. In Tokyo patients developed TB without any apparent contact with TB patients most frequently spent their time and maybe acquired the infection at pachinko parlors (24%) and amusement parks (24%), followed by saunas (16%)^[33]. In the United States, residents and employees of

Table 1 Characteristics of perianal tuberculosis patients with active pulmonary tuberculosis and without active pulmonary tuberculosis *n* (%)

	Active pulmonary TB (<i>n</i> = 34)	Without APTB (<i>n</i> = 24)
Age (mean yr)	41.2	51.1
Sex (male)	30 (88.2)	22 (91.7)
Underling diseases	6 (17.6)	5 (20.8)
Previous anal surgery	4 (11.8)	5 (20.8)
TB complications	2 (5.9)	2 (8.3)
Intestinal TB	0	2 (8.3)
Anal carcinoma	2 (5.9)	1 (4.2)
Duration of anal lesion (mo)	6.8	66.5

TB complication: Miliary TB, peritoneal TB, and iliopsoas muscle abscess by TB. Underling disease: Respiratory diseases 3, diabetes mellitus 2, hepatitis 1, hepatitis + human immunodeficiency virus 1, chronic kidney disease 1, malignancy 1, autoimmune disease 1, cardiovascular disease 1. TB: Tuberculosis; APTB: Active pulmonary tuberculosis.

congregate settings such as hospitals, correctional facilities, nursing homes, and homeless shelters are at a high risk for TB exposure^[34-36]. Thus, an interview to collect information on the places that the patient stayed at or visited and employment situation often could be helpful in making a diagnosis of TB.

In conclusion, we report the case of an immuno-competent man with perianal TB and APTB. In cases of non-healing or recurrent perianal fistula, TB should be considered as a causative agent.

COMMENTS

Case characteristics

A 38-year-old male patient presented with pain in the perineum, which had developed 4 d earlier and persistently coughing for the past 6 mo.

Clinical diagnosis

The patient had redness, swelling, and tenderness in the right perineum.

Differential diagnosis

Testicular torsion, epididymitis, abscess, Fournier's gangrene, torsion of the appendix testis, trauma, testicular cancer, inguinal hernia, Henoch-Schönlein purpura (IgA vasculitis), mumps and Crohn's disease.

Laboratory diagnosis

Acid-fast bacilli were detected in the sputum and wound pus and PCR and culture analysis confirmed *Mycobacterium tuberculosis*.

Imaging diagnosis

Computed tomography scan showed a cavity in the right upper lung field.

Pathological diagnosis

Histological examination of the abscess showed epithelioid granulomas and Langhans' type multinucleated giant cells.

Treatment

Surgical drainage was performed, and oral anti-tuberculous drugs were administered for 6 mo.

Related reports

The authors reviewed 58 cases of perianal tuberculosis (TB) reported from

1970 to 2014 worldwide. And they found that the duration of persistent perianal lesion was much longer in patients without active pulmonary TB (APTb) than in those with APTb (66.4 mo vs 8.3 mo; CI: 0.0760-0.9620; $P = 0.0380$).

Experiences and lessons

This case report presents an immuno-competent patient with perianal TB and APTb. On literature on cases of perianal TB, the authors found that the duration of persistent perianal lesions was much longer in patients without APTb than in those with APTb. In cases of non-healing or recurrent perianal lesions, the diagnosis of TB should be considered.

Peer-review

The description of a case with perianal tuberculosis is per se of interest since this form of tuberculosis is very rare and diagnosis is delayed. The manuscript contains a complete and comprehensible description of clinical and microbiological finding.

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P- Reviewer: Hofmann-Thiel S, Viney K, van der Werf TS
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