## Contents

**Thrice Monthly Volume 11 Number 16 June 6, 2023**

### REVIEW

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3664</td>
<td>Kikuchi-Fujimoto disease: A comprehensive review</td>
<td>Mahajan VK, Sharma V, Sharma N, Rani R</td>
</tr>
<tr>
<td>3680</td>
<td>Current diagnostic tools and treatment modalities for rectal prolapse</td>
<td>Oruc M, Erol T</td>
</tr>
</tbody>
</table>

### MINIREVIEWS

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3694</td>
<td>Application of laparoscopic surgery in gallbladder carcinoma</td>
<td>Wu X, Li BL, Zheng CJ</td>
</tr>
<tr>
<td>3706</td>
<td>Current research of idiopathic normal pressure hydrocephalus: Pathogenesis, diagnosis and treatment</td>
<td>Ishida T, Murayama T, Kobayashi S</td>
</tr>
<tr>
<td>3714</td>
<td>Helicobacter pylori plays a key role in gastric adenocarcinoma induced by spasmolytic polypeptide-expressing metaplasia</td>
<td>Li ML, Hong XX, Zhang WJ, Liang YZ, Cai TT, Xu YF, Pan HF, Kang JY, Guo SJ, Li HW</td>
</tr>
<tr>
<td>3736</td>
<td>Diabetes more than retinopathy, it’s effect on the anterior segment of eye</td>
<td>Morya AK, Ramesh PV, Kaur K, Gurnani B, Heda A, Bhatia K, Sinha A</td>
</tr>
</tbody>
</table>

### ORIGINAL ARTICLE

**Retrospective Cohort Study**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3750</td>
<td>Long term outcomes of Cohen’s cross trigonal reimplantation for primary vesicoureteral reflux in poorly functioning kidney</td>
<td>Ansari MS, Banthia R, Jain S, Kaushik VN, Danish N, Yadav P</td>
</tr>
</tbody>
</table>

**Retrospective Study**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3756</td>
<td>Dexmedetomidine-induced anesthesia in elderly patients undergoing hip replacement surgery</td>
<td>Li JQ, Yuan H, Wang XQ, Yang M</td>
</tr>
</tbody>
</table>

**Observational Study**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3765</td>
<td>Hypoperfusion context as a predictor of 28-d all-cause mortality in septic shock patients: A comparative observational study</td>
<td>Kataria S, Singh O, Juneja D, Goel A, Bhide M, Yadav D</td>
</tr>
</tbody>
</table>
### Contents

**Thrice Monthly Volume 11 Number 16 June 6, 2023**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3780</td>
<td>Psychological review of hemodialysis patients and kidney transplant recipients during the COVID-19 pandemic</td>
<td>Gundogmus AG, Ogue EG, Guler-Cimen S, Kocyigit Y, Dogan AE, Ayli MD</td>
</tr>
<tr>
<td>3802</td>
<td>Coaxial radiography guided puncture technique for percutaneous transforaminal endoscopic lumbar discectomy: A randomized control trial</td>
<td>Chen LP, Wen BS, Xu H, Lu Z, Yan LJ, Deng H, Fu HB, Yuan HJ, Hu PP</td>
</tr>
<tr>
<td>3822</td>
<td>Valve repair after infective endocarditis secondary to perforation caused by <em>Streptococcus gordonii</em>: A case report</td>
<td>Qu YF, Yang J, Wang JY, Wei B, Ye XH, Li YX, Han SL</td>
</tr>
<tr>
<td>3830</td>
<td>Prevotella oris-caused meningitis and spinal canal infection: A case report</td>
<td>Zhang WW, Ai C, Mao CT, Liu DK, Guo Y</td>
</tr>
<tr>
<td>3847</td>
<td>TACC diagnosed by transoesophageal endoscopic ultrasonography: A case report</td>
<td>Pu XX, Xu QW, Liu BY</td>
</tr>
<tr>
<td>3852</td>
<td>Ruptured teratoma mimicking a pelvic inflammatory disease and ovarian malignancy: A case report</td>
<td>Lai PH, Ding DC</td>
</tr>
<tr>
<td>3858</td>
<td>Purpura annularis telangiectodes of Majocchi: A case report</td>
<td>Pu YJ, Jiang HJ, Zhang L</td>
</tr>
<tr>
<td>3864</td>
<td>Giant cyst in heterotopic pregnancy: A case report</td>
<td>Kong YY, Chanda K, Ying XY</td>
</tr>
</tbody>
</table>
## Contents

**World Journal of Clinical Cases**

Thrice Monthly Volume 11 Number 16 June 6, 2023

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3885</td>
<td>Traumatic pancreatic ductal injury treated by endoscopic stenting in a 9-year-old boy: A case report</td>
<td>Kwon HJ, Jung MK, Park J</td>
</tr>
<tr>
<td>3907</td>
<td>Unusual clinical presentation of oral pyogenic granuloma with severe alveolar bone loss: A case report and review of literature</td>
<td>Lomelí Martínez SM, Bocanegra Morando D, Mercado González AE, Gómez Sandoval JR</td>
</tr>
<tr>
<td>3915</td>
<td>Intraoperative photodynamic therapy for tracheal mass in non-small cell lung cancer: A case report</td>
<td>Jung HS, Kim HJ, Kim KW</td>
</tr>
<tr>
<td>3921</td>
<td>Coexistence of urinary tuberculosis and urothelial carcinoma: A case report</td>
<td>Tsai YC, Li CC, Chen BT, Wang CY</td>
</tr>
</tbody>
</table>

**LETTER TO THE EDITOR**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3929</td>
<td>Symmetric DWI hyperintensities in CMT1X patients after SARS-CoV-2 vaccination should not be classified as stroke-like lesions</td>
<td>Finsterer J</td>
</tr>
</tbody>
</table>
ABOUT COVER
Editorial Board Member of World Journal of Clinical Cases, Ashraf F. Hefny, MD, MSc, Associate Professor, Surgeon, Department of Surgery, College of Medicine and Health Sciences, UAE University, Al Ain 00000, United Arab Emirates. ahefny@uaeu.ac.ae

AIMS AND SCOPE
The primary aim of World Journal of Clinical Cases (WJCC, World J Clin Cases) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

INDEXING/ABSTRACTING
The WJCC is now abstracted and indexed in Science Citation Index Expanded (SCIE, also known as SciSearch®), Journal Citation Reports/Science Edition, Current Contents/Clinical Medicine, PubMed, PubMed Central, Scopus, Reference Citation Analysis, China National Knowledge Infrastructure, China Science and Technology Journal Database, and Superstar Journals Database. The 2022 Edition of Journal Citation Reports® cites the 2021 impact factor (IF) for WJCC as 1.534; IF without journal self cites: 1.491; 5-year IF: 1.599; Journal Citation Indicator: 0.28; Ranking: 135 among 172 journals in medicine, general and internal; and Quartile category: Q4. The WJCC’s CiteScore for 2021 is 1.2 and Scopus CiteScore rank 2021: General Medicine is 443/826.

RESPONSIBLE EDITORS FOR THIS ISSUE
Production Editor: Si Zhao; Production Department Director: Xu Guo; Editorial Office Director: Jin-Lai Wang.

NAME OF JOURNAL
World Journal of Clinical Cases

ISSN
ISSN 2307-8960 (online)

LAUNCH DATE
April 16, 2013

FREQUENCY
Thrice Monthly

EDITORS-IN-CHIEF
Bao-Gan Peng, Jerzy Tadeusz Chudek, George Kontogeorgos, Maurizio Serati, Ja Hyeon Ku

EDITORIAL BOARD MEMBERS
https://www.wjgnet.com/2307-8960/editorialboard.htm

PUBLICATION DATE
June 6, 2023

COPYRIGHT
© 2023 Baishideng Publishing Group Inc

INSTRUCTIONS TO AUTHORS
https://www.wjgnet.com/bpg/gerinfo/204

GUIDELINES FOR ETHICS DOCUMENTS
https://www.wjgnet.com/bpg/gerinfo/287

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH
https://www.wjgnet.com/bpg/gerinfo/240

PUBLICATION ETHICS
https://www.wjgnet.com/bpg/gerinfo/288

PUBLICATION MISCONDUCT
https://www.wjgnet.com/bpg/gerinfo/208

ARTICLE PROCESSING CHARGE
https://www.wjgnet.com/bpg/gerinfo/242

STEPS FOR SUBMITTING MANUSCRIPTS
https://www.wjgnet.com/bpg/gerinfo/239

ONLINE SUBMISSION
https://www.fi6publishing.com
Coexistence of urinary tuberculosis and urothelial carcinoma: A case report

Yu-Chi Tsai, Chiao-Ching Li, Bing-Tau Chen, Chien-Yao Wang

Abstract

BACKGROUND
Taiwan has a high prevalence of tuberculosis and urothelial carcinoma. However, the simultaneous occurrence of both disorders in one patient is uncommon. Tuberculosis and urothelial carcinoma share some common risk factors and could demonstrate overlapping clinical manifestations.

CASE SUMMARY
Herein, we report the case of a patient who presented with fever, persistent hematuria, and pyuria. Chest computed tomography scans revealed a bilateral upper lobes cavitary lesion with fibrosis. Severe hydronephrosis of the right kidney and renal stones and cysts in the left kidney were observed. Initial microbiological testing was negative; however, a polymerase chain reaction assay of the urine confirmed a urinary tuberculosis infection. The patient was started on an anti-tuberculosis regimen. Ureteroscopy performed to resolve obstructive nephropathy revealed the incidental finding of a left middle-third ureteral tumor.
Examination after biopsy and transurethral resection of the bladder tumor indicated urothelial carcinoma. The patient underwent laparoscopic nephroureterectomy, with bladder cuff excision for the right kidney and ureter, and holmium laser ablation of the ureteral lesion to preserve the left kidney and ureter. He has remained stable after the procedures.

**CONCLUSION**
Although establishing a causal relationship between tuberculosis and cancer is difficult, medical personnel should consider their correlation.

**Key Words:** Urinary tuberculosis; Urothelial carcinoma; Fever; Hematuria; Taiwan; Case report

©The Author(s) 2023. Published by Baishideng Publishing Group Inc. All rights reserved.

---

**Core Tip:** We have reported the case of a patient who presented with fever, persistent hematuria, and pyuria and was diagnosed with both urinary tuberculosis and urothelial carcinoma. Tuberculosis and urothelial carcinoma have some common risk factors such as smoking, alcohol consumption, chronic diseases, and malnutrition. Although it is difficult to establish a causal relationship between these two diseases, clinical medical personnel should consider the correlation between the two diseases.

---

**INTRODUCTION**
Taiwan has a high prevalence of tuberculosis and urothelial carcinoma. However, the simultaneous occurrence of these disorders is uncommon in the same patient. The concurrent development of both of these diseases in the same patient could be explained by the following mechanisms: Local long-term inflammatory response, leading to the destruction of the host protective barrier, resulting in the invasion of microorganisms or cancer cells[1]. In addition, the inflammatory response damages immune cells and weakens the host’s immunity.

Tuberculosis and urothelial carcinoma have some common risk factors, such as smoking, alcohol consumption, chronic diseases, and malnutrition. Although it is difficult to establish a causal relationship between these two diseases, clinical medical personnel should consider the correlation between the two. Herein, we report the case of a patient who presented with fever, persistent hematuria, and pyuria and was diagnosed with both urinary tuberculosis and urothelial carcinoma.

**CASE PRESENTATION**

**Chief complaints**
A 70-year-old man was transferred to our hospital for further management of intermittent fever, chills, and fatigue lasting for 10 d.

**History of present illness**
The patient experienced intermittent symptoms accompanied by severe night sweats. His body temperature was 38.5 °C, and his fever temporarily subsided after taking oral acetaminophen. He denied respiratory symptoms, such as cough, sore throat, or runny nose, and did not experience any gastrointestinal symptoms such as vomiting or diarrhea. Although the patient did not report urinary symptoms such as blood in urine, urgency, difficulty or pain during urination, or frequent voiding, he did report persistent bilateral lower back pain in the past 10 d. The patient had previously been diagnosed with lumbar herniated intervertebral disc disorder and had been undergoing rehabilitation therapy. As he believed that his current back pain was not significantly different from his previous pain, he did not pay particular attention to it.

**History of past illness**
The patient had developed anorexia, with a weight loss of 5.6 kg during the past year. Moreover, he had third–fourth lumbar herniated intervertebral disc disorder which had been treated with physical
rehabilitation therapy since the age of 63. He did not have any systemic disorders, such as diabetes mellitus or liver cirrhosis.

**Personal and family history**
The patient disclosed a smoking history of 31 pack-years and reported infrequent alcohol consumption. He worked as a bus driver and had been experiencing fatigue prior to this visit. The patient denied any recent travel history or engagement in unsafe sexual activities or drug abuse. Furthermore, he had no history of prescription medication use or underlying medical conditions.

**Physical examination**
During the physical examination, dull percussions were noted bilaterally in the upper back, along with the presence of rhonchi in the same region. Despite these findings, the patient did not exhibit any signs of respiratory distress. His vital signs were within normal limits, with a temperature of 36.5 °C, blood pressure of 144/87 mmHg, heart rate of 102 beats per minute, and respiratory rate of 18 breaths per minute. The patient did not display any pain or discomfort upon percussion of the bilateral kidney areas. No discharge was observed around the urethra, and there were no suspicious lumps, rashes, or wounds in the perineal or other areas of the body.

**Laboratory examinations**
The patient’s hemogram revealed leukocytosis with neutrophil predominance. The blood electrolytes, glucose levels, and hepatic function were all within normal ranges. His serum urea nitrogen and creatinine levels were elevated. The urinal analysis found microscopic hematuria and pyuria. Detailed laboratory test results are presented in Table 1.

**Imaging examinations**
Chest radiography revealed patchy consolidation with fibrosis in both upper lungs (Figure 1).

---

**MULTIDISCIPLINARY EXPERT CONSULTATION**

The patient was admitted to our ward for further management of the bilateral upper lung lesions observed on chest radiography.

Initially, the patient was prescribed intravenous ceftriaxone 2 g per day after blood and sputum cultures had been obtained. On day 3 of admission, the empiric antibiotics were escalated to intravenous piperacillin/tazobactam 2.25 g every 6 h for broad-spectrum coverage as the patient was experiencing persistent fever and worsening conditions. Additionally, testing for lung lesions was performed. Chest computed tomography (CT) scans revealed fibrotic lesions surrounded by parenchymal fibrosis, calcified granuloma, calcification atelectasis, and bronchiectasis over the bilateral upper and right lower lobes. Severe hydronephrosis of the right kidney was further observed. Sequential CT scans of the abdomen revealed an upper-third ureteral stone complicated by severe hydronephrosis of the right kidney. Moreover, renal stones and cysts were observed in the left kidney with hemorrhagic changes (Figure 2).

Owing to the lack of an initial adequate microbiological clue, repeated sputum cultures and rapid serology tests, including pneumococcus urine antigen and Cryptococcus antigen serum test, were performed. However, they all demonstrated negative results. Four acid-fast stain sputum smear sets and the final tuberculosis culture results were also all negative. Sputum fungus culture yielded negative results as well.

A urologist was consulted for renal function deterioration and persistent turbid urine passage by the patient. On admission day 5, a decompressive percutaneous nephrostomy (PCN) was performed on the right kidney to correct the worsening infection and collect adequate microbiological evidence. Urine culture and cytology samples from the right kidney were collected, and acid-fast staining of the urine demonstrated positive results.

A polymerase chain reaction assay of the urine confirmed a urinary tuberculosis infection on admission day 12. The patient was initiated on empirical anti-tuberculosis regimen (isoniazid, rifampin, pyrazinamide, and ethambutol).

Ureteroscopy was performed to resolve obstructive nephropathy on admission day 15. However, during the procedure, a cauliflower-like lesion was incidentally observed over the right posterior and right lateral wall junction of the urinary bladder. A left middle-third ureter tumor was also incidentally diagnosed during the same procedure (Figure 3). After discussion with the family, a biopsy of the left ureteral tumor with double-J catheterization was performed.

Histological examination of the specimen obtained from the left middle third ureter revealed high-grade papillary pattern urothelial carcinoma with lamina propria invasion (cT1). Immunohistochemical staining was positive for CK7, CK20, and Ki67. Urothelial carcinoma of the urinary bladder was identified based on pathological evidence after transurethral resection of the bladder tumor.
An integrated tumor study was conducted for comprehensive disease staging. Through a dynamic renal function scan, it was discovered that the renal function of the left kidney was intact. Meanwhile, the right kidney was non-functioning.

**FINAL DIAGNOSIS**

Based on clinical manifestations, laboratory examinations, imaging examination, and pathological biopsy, the patient was finally diagnosed with coexisting urinary tuberculosis and urothelial carcinoma.
Tsai YC et al. Coexistence of urinary tuberculosis and urothelial carcinoma

TREATMENT
After discussion, the surgeon decided to perform laparoscopic nephroureterectomy, with bladder cuff excision for the right kidney and ureter, and to preserve the left kidney and ureter with holmium laser ablation of the ureteral lesion on admission day 25. There were no surgery-related complications. The patient was discharged on admission day 30.

OUTCOME AND FOLLOW-UP
The initial anti-tuberculosis regimen consisted of four drugs (isoniazid, rifampin, pyrazinamide, and ethambutol) for 2 mo, followed by isoniazid and rifampin for 4 mo owing to susceptibility to the first-line therapy. One month after antibiotic treatment commencement, the patient’s urine culture demonstrated no growth of the tuberculosis species. Although the patient’s renal function did not fully recover, it also did not deteriorate to the extent of requiring dialysis. The patient continued regular follow-ups at our clinic.

DISCUSSION
In Taiwan, the incidence of genitourinary tuberculosis is approximately 0.19 cases per 100000 indi-
individuals per year, which has been demonstrating a downward trend since 2000[2]. Moreover, Taiwan has a high incidence of upper tract urothelial carcinoma, with 3.14–3.41 cases being diagnosed in approximately 100 000 people each year[3]. It is very rare for both of these disorders to coexist in the same patient.

The simultaneous occurrence of both diseases in the same patient may be explained by the fact that tuberculosis may cause a long-term local inflammatory response, which may in turn induce cellular carcinogenesis. This could be further explained by the relationship between pulmonary tuberculosis and lung cancer[4], and ulcerative lesions of intestinal tuberculosis acting as a precursor to intestinal mucosal cancer[5]. Mycobacterium tuberculosis may also promote the development of cancer by inducing a chronic inflammatory state and compromising T cell-mediated immunity[6]. However, tumor cells may also weaken the host’s ability to resist the invasion of microorganisms such as mycobacteria by destroying the local infection barrier[7]. These tumor cells can also affect pathogen resistance through systemic immunosuppression[8,9].

Chen et al[6] have conducted a retrospective study of 45455 cancer patients and reported that tuberculosis is an independent risk factor for the development of all cancers. Hence, tuberculosis could increase the risk of specific cancers in patients[6]. A retrospective study by Lien et al[10] in Taiwan that analyzed national data also reported that urinary tract tuberculosis was associated with the development of urothelial carcinoma[10].

However, cancer has been recognized as a risk factor for active Mycobacterium tuberculosis infection since the 1970s. All types of cancers increase the risk of developing active tuberculosis disease, albeit to varying degrees. This could be due to intrinsic immunosuppression caused by the cancer itself, immunosuppressive effects of chemotherapy, or factors related to the patients themselves. Tuberculosis shares several disease risk factors with cancer, such as smoking[11], alcohol consumption, chronic diseases such as diabetes[3], malnutrition, and low socioeconomic status[12]. A previous study conducted in Taiwan on a large population reported that cancer was an independent risk factor for tuberculosis, with the highest risk observed 1 year before and 1 year after cancer diagnosis[13].

Although the temporal association between cancer and tuberculosis and a potential causal relationship between the two have not been established in the literature, as this may be challenging in clinical practice, clinicians should nonetheless be aware of this relationship[6,9,13].

The diagnosis and identification of a suitable treatment strategy in the present case were challenging, primarily because the patient had persistent pyuria and fever, and microbiological pathogenic evidence was lacking. To improve his condition and obtain relevant samples, we arranged decompressive PCN of the right kidney. Although the urine collected via PCN confirmed the tuberculosis infection, this patient already exhibited signs suggestive of urinary tuberculosis, including chest radiography resembling old pulmonary tuberculosis and persistent pyuria despite antibiotic treatment with sterile routine microbial cultures[14]. After several consecutive sets of negative urine cultures, clinicians should perhaps consider urinary tuberculosis as a differential diagnosis.

Surgery is the treatment of choice for early localized urothelial carcinoma. The mainstay of treatment for genitourinary tuberculosis is anti-tuberculosis drugs[15]. Indications for nephrectomy in case of genitourinary tuberculosis combination urothelial carcinoma include a nonfunctioning kidney, extensive disease involving the entire kidney along with hypertension and ureteropelvic junction obstruction, and renal carcinoma[16]. Considering that this patient only had unilateral residual renal function and was worried about the coexistence of potential tumors in the right kidney, he eventually chose the surgical option to remove the non-functional right kidney and is undergoing regular follow-ups to closely monitor the left urinary system that still has renal function.
CONCLUSION

The association between tuberculosis and cancer could be multifaceted. Although the causal relationship between the two has not yet been established, clinicians should be aware of the link between cancer and tuberculosis.

ACKNOWLEDGEMENTS

Yu-Chi Tsai would like to thank his wife Meng-Huang Chang for being considerate and helpful.

FOOTNOTES

Author contributions: Tsai YC and Wang CY designed this study; Li CC and Chen BT participated in the surgery; Tsai YC, Li CC, Chen BT, and Wang CY were involved in data acquisition; Tsai YC, Li CC, Chen BT, and Wang CY were involved in the statistical analysis and data interpretation; Tsai YC, Li CC, Chen BT, and Wang CY drafted the manuscript; Tsai YC made the final revisions; All authors have read and approved the final manuscript.

Informed consent statement: Informed written consent was obtained from the patient for publication of this report and any accompanying images.

Conflict-of-interest statement: All the authors report no relevant conflicts of interest for this article.

CARE Checklist (2016) statement: The authors have read CARE Checklist (2016), and the manuscript was prepared and revised according to CARE Checklist (2016).

Open-Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: https://creativecommons.org/Licenses/by-nc/4.0/

Country/Territory of origin: Taiwan

ORCID number: Yu-Chi Tsai 0000-0001-8196-7800; Chien-Yao Wang 0000-0002-7583-2173.

REFERENCES

Tsai YC et al. Coexistence of urinary tuberculosis and urothelial carcinoma


