## Contents

**REVIEW**

1499  
Review of the risk factors for SARS-CoV-2 transmission  
*Li X, Xia WY, Jiang F, Liu DY, Lei SQ, Xia ZY, Wu QP*

**MINIREVIEWS**

1513  
Regulation of the expression of proinflammatory cytokines induced by SARS-CoV-2  
*Zhang XN, Wu LJ, Kong X, Zheng BY, Zhang Z, He ZW*

**ORIGINAL ARTICLE**

**Case Control Study**

1524  
Efficacy and safety of short duration radiotherapy combined with chemotherapy for advanced rectal cancer  

**Retrospective Study**

1532  
Effects of transjugular intrahepatic portosystemic shunt using the Viatorr stent on hepatic reserve function in patients with cirrhosis  
*Yao X, Zhou H, Huang S, Tang SH, Qiu JP*

1543  
Primary and secondary postoperative hemorrhage in pediatric tonsillectomy  
*Xu B, Jin HY, Wu K, Chen C, Li L, Zhang Y, Gu WZ, Chen C*

1554  
Dynamic monitoring of serum liver function indexes in patients with COVID-19  
*Lin H, Wu LJ, Guo SQ, Chen RL, Fan JR, Ke B, Pan ZQ*

1563  
Construction of a clinical survival prognostic model for middle-aged and elderly patients with stage III rectal adenocarcinoma  
*Liu H, Li Y, Qu YD, Zhao JJ, Zheng ZW, Jiao XL, Zhang J*

1580  
Short-term outcomes of radiofrequency ablation for hepatocellular carcinoma using cone-beam computed tomography for planning and image guidance  
*Yao XS, Yan D, Jiang XX, Li X, Zeng HY, Li H*

1592  
Intra-arterial thrombolysis for early hepatic artery thrombosis after liver transplantation  
*Li T, Sun XD, Yu Y, Lv GY*

1600  
Study on pathogenic genes of dwarfism disease by next-generation sequencing  
*Yang LL, Liang SS*
## Contents

**World Journal of Clinical Cases**  
**Thrice Monthly Volume 9 Number 7 March 6, 2021**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1610</td>
<td>Effects of cooperative nursing and patient education on postoperative infection and self-efficacy in gastrointestinal tumors</td>
<td>Qiao L, Zeng SQ, Zhang N</td>
</tr>
</tbody>
</table>

### Observation Study

**CASE REPORT**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1631</td>
<td>Balloon-assisted endoscopic submucosal dissection for treating small intestinal lipomas: Report of two cases</td>
<td>Chen HY, Ning SB, Yin X, Li BR, Zhang J, Jin XW, Sun T, Xia ZB, Zhang XP</td>
</tr>
<tr>
<td>1639</td>
<td>Dysphagia in a patient with ankylosing spondylitis: A case report</td>
<td>Wang WX, Zhang WZ</td>
</tr>
<tr>
<td>1646</td>
<td>Autologous scalp skin grafting to treat toxic epidermal necrolysis in a patient with a large skin injury: A case report</td>
<td>Xue DD, Zhou L, Yang Y, Ma SY</td>
</tr>
<tr>
<td>1654</td>
<td>Epstein-Barr virus-positive diffuse large B-cell lymphoma with human immunodeficiency virus mimicking complicated frontal sinusitis: A case report</td>
<td>Yoon S, Ryu KH, Baek HJ, An HJ, Joo YH</td>
</tr>
<tr>
<td>1661</td>
<td>Multiple well-differentiated retroperitoneal liposarcomas with different patterns of appearance on computed tomography: A case report</td>
<td>Xie TH, Ren XX, Fu Y, Ha SN, Liu LT, Jin XS</td>
</tr>
<tr>
<td>1668</td>
<td>Sarcomatoid carcinoma of the prostate with bladder invasion shortly after androgen deprivation: Two case reports</td>
<td>Wei W, Li QG, Long X, Hu GH, He HJ, Huang YB, Yi XL</td>
</tr>
<tr>
<td>1676</td>
<td>Metastatic thymic-enteric adenocarcinoma responding to chemoradiation plus anti-angiogenic therapy: A case report</td>
<td>Li M, Pu XY, Dong LH, Chang PY</td>
</tr>
<tr>
<td>1696</td>
<td>Vancomycin-induced thrombocytopenia in endocarditis: A case report and review of literature</td>
<td>Guleng SR, Wu RH, Guo XB</td>
</tr>
<tr>
<td>1705</td>
<td>Human menstrual blood-derived stem cells as immunoregulatory therapy in COVID-19: A case report and review of the literature</td>
<td>Lu J, Xie ZY, Zhu DH, Li LJ</td>
</tr>
<tr>
<td>Page</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>1720</td>
<td>Hyperglycemic hemianopia: A case report</td>
<td>Xiang XH, Fang JJ, Yang M, Zhao GH</td>
</tr>
<tr>
<td>1728</td>
<td>Mucinous appendiceal neoplasm: A case report</td>
<td>Chirca A, Negreanu L, Iliesiu A, Costea R</td>
</tr>
<tr>
<td>1734</td>
<td>Reconstructing abdominal wall defects with a free composite tissue flap: A case report</td>
<td>Wang J</td>
</tr>
<tr>
<td>1748</td>
<td>Congenital fiber-type disproportion presenting with type II respiratory failure after delivery: A case report</td>
<td>Yang HM, Guo JX, Yang YM</td>
</tr>
<tr>
<td>1755</td>
<td>Use of three dimensional-printing in the management of floating aortic thrombus due to occult aortic dissection: A case report</td>
<td>Wang TH, Zhao JC, Xiong F, Yang Y</td>
</tr>
</tbody>
</table>
ABOUT COVER
Chin-Hsiao Tseng, MD, PhD, Full Professor, Department of Internal Medicine, National Taiwan University College of Medicine, No. 1 Jen Ai Road Section 1, Taipei 100, Taiwan. ccktsh@ms6.hinet.net

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 indexed in Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, Scopus, PubMed, and PubMed Central. The 2020 Edition of Journal Citation Reports® cites the 2019 impact factor (IF) for WJCC as 1.013; IF without journal self cites: 0.991; Ranking: 120 among 165 journals in medicine, general and internal; and Quartile category: Q3. The WJCC’s CiteScore for 2019 is 0.3 and Scopus CiteScore rank 2019: General Medicine is 394/529.

RESPONSIBLE EDITORS FOR THIS ISSUE
Production Editor: Yan-Xia Xing; Production Department Director: Yun-Xiaoqian Wu; Editorial Office Director: Jin-Lei 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
Dennis A Bloomfield, Sandro Vento, Bao-Gan Peng

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

PUBLICATION DATE
March 6, 2021

COPYRIGHT
© 2021 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.f6publishing.com

© 2021 Baishideng Publishing Group Inc. All rights reserved. 7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA
E-mail: bpgoffice@wjgnet.com https://www.wjgnet.com
Sarcomatoid carcinoma of the prostate with bladder invasion shortly after androgen deprivation: Two case reports

Wei Wei, Qi-Guang Li, Xian Long, Gao-Hua Hu, Hua-Jie He, Yuan-Bi Huang, Xian-Lin Yi

Orcid numbers: Wei Wei 0000-0002-8322-037X; Qi-Guang Li 0000-0002-8600-535X; Xian Long 0000-0002-3120-1134; Gao-Hua Hu 0000-0002-8999-2762; Hua-Jie He 0000-0002-0804-1451; Yuan-Bi Huang 0000-0001-5630-1871; Xian-Lin Yi 0000-0002-3615-3784.

Author contributions: Wei W, Li QG, and Long X are joint first authors; Yi XL, He HJ, Li QG, and Huang YB contributed to the study design; Yi XL, Wei W, and Hu GH contributed to acquisition, analysis and interpretation of data, drafting of the manuscript; and all authors have read and approved the final manuscript, and written consent for publication was obtained.

Supported by National Natural Science Foundation of China, No. 31860289.

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

Conflict-of-interest statement: No competing interests.

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

Abstract

BACKGROUND
To summarize the imaging, morphological and biological characteristics of sarcomatoid carcinoma (SC) of the prostate with bladder invasion not long after castration.

CASE SUMMARY
Our two cases were initially diagnosed with adenocarcinoma of the prostate due to dysuria. However, prostate SC was diagnosed after transurethral resection of the prostate (TURP) and castration after only 5 and 10 mo, respectively. Distinctive liver-like tissues appeared in the second TURP procedure in case 1, while a white, fish flesh-like, narrow pedicled soft globe protruded from the prostate to the bladder in case 2.

CONCLUSION
The sarcomatoid component of SC may arise from one of the specific groups of cancer cells that are resistant to hormonal therapy. Morphological characteristics of SCs can present as “red hepatization” and “fish flesh”. SCs grow rapidly and have a poor prognosis, and thus, extensive TURP plus radiation may be the treatment of choice.

Key Words: Sarcomatoid carcinoma; Prostate; Androgen deprivation; Bladder; Prostatic adenocarcinoma; Case report
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: http://creativecommons.org/licenses/by-nc/4.0/

Manuscript source: Unsolicited manuscript

Specialty type: Medicine, research and experimental

Country/Territory of origin: China

Peer-review report's scientific quality classification
Grade A (Excellent): 0
Grade B (Very good): B
Grade C (Good): 0
Grade D (Fair): 0
Grade E (Poor): 0

Received: September 17, 2020
Peer-review started: September 17, 2020
First decision: October 27, 2020
Revised: November 3, 2020
Accepted: November 13, 2020
Article in press: November 13, 2020
Published online: March 6, 2021

P-Reviewer: Vikey AK
S-Editor: Huang P
L-Editor: Webster JR
P-Editor: Yuan YY

©The Author(s) 2021. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: The sarcomatoid component of prostate sarcomatoid carcinomas (SCs) may arise from one of the specific groups of cancer cells that are resistant to hormonal therapy. Morphological characteristics of the SCs can present as “red hepatization” and “fish flesh”. The SCs grow rapidly and have a poor prognosis, and thus, extensive transurethral resection of the prostate plus radiation may be the treatment of choice. Sarcomatoid components may be another pathway of lineage plasticity during prostate adenocarcinoma progression and therapy resistance.

Citation: Wei W, Li QG, Long X, Hu GH, He HJ, Huang YB, Yi XL. Sarcomatoid carcinoma of the prostate with bladder invasion shortly after androgen deprivation: Two case reports. World J Clin Cases 2021; 9(7): 1668-1675
URL: https://www.wjgnet.com/2307-8960/full/v9/i7/1668.htm
DOI: https://dx.doi.org/10.12998/wjcc.v9.i7.1668

INTRODUCTION
Sarcomatoid carcinoma (SC) of the prostate accounts for less than 1% of all prostate malignancies, and may arise from both mesenchymal and epithelial components of the prostate1-3. Most SCs reported in the literature are single cases or small series, while only two studies examining more than 40 cases have been published. Both of these studies were from Johns Hopkins University, and the interval between the two studies was close to 10 years1-5.

Endocrine therapy is one of the most important treatments for prostate cancer. However, androgen ablation and traditional chemotherapy cannot alter the natural course of SCs. It has been reported that there were no durable responses, although different chemotherapy regimens were used4.

SCs are aggressive and have a poor prognosis. The median overall survival (OS) of patients with advanced SCs is 7.1 to 9 mo4. Among the cases with advanced disease, up to 60% are local prostate SCs with bladder invasion. Once the tumor invades the bladder, the OS is similar to that of metastatic SCs. However, their biological characteristics have rarely been well-reported previously. We report two cases of prostate SC with bladder invasion not long after transurethral resection of the prostate (TURP) and androgen deprivation. To the best of our knowledge, this is the first detailed report of the morphological characteristics of SC.

CASE PRESENTATION

Chief complaints
An 80-year-old male patient complained of worsening dysuria, hematuria and pain on urination for 7 mo. A 72-year-old male patient complained of worsening dysuria and hematuria for 5 mo.

History of present illness
Case 1: A biopsy before admission indicated adenocarcinoma of the prostate. He received several cycles of catheterization due to acute urinary retention. Computed tomography (CT) showed local prostate nodules, which did not rule out prostatic hyperplasia. Signs of metastasis to the right eighth posterior ribs, pelvic and sacral bone were indicated by emission computed tomography (ECT).

Case 2: A TURP was performed to relieve urinary retention 5 mo ago. Orchiectomy was then performed as prostate adenocarcinoma was diagnosed. Unfortunately, the patient experienced almost constant hematuria after surgery. Bladder cancer was found one week before attending our hospital due to dysuria and urinary retention (Figure 1A).
Figure 1 Clinical and pathological features of case 2 at the diagnosis of sarcomatoid carcinoma. A: Ultrasound: The size of the prostate was 3.9 cm × 3.2 cm, and a 1.5 cm × 1.1 cm round mass was present in the gland (arrow); B and C: The mass was approximately 4.1 cm × 3.0 cm × 4.0 cm on computed tomography (arrow), and enhanced scanning was uneven. No obvious abnormality was found in the bilateral seminal vesicles; D-F: A white, narrow pediced, spherical solid tumor blocked the internal orifice of the urethra. The spherical lesion mainly arose from the 8-11 o'clock position of the prostate and resembled fish flesh in sections (arrow); G and H: Various heteromorphic tumor cells showed infiltrating growth, which included immature small round cells, subepithelial cells, spindle cells, lipoblasts and tumor giant cells (arrow), etc. G: Original magnification × 100; H: × 200.

**History of past illness**

**Case 1:** He received several cycles of catheterization due to acute urinary retention.

**Case 2:** A TURP was performed to relieve urinary retention 5 mo ago. Orchiectomy was then performed as prostate adenocarcinoma was diagnosed.
Personal and family history
No relevant personal or family history.

Physical examination
Acute urinary retention was observed in both patients.

Laboratory examinations
CT showed local prostate nodules, which did not rule out prostatic hyperplasia. Signs of metastasis to the right eighth posterior ribs, pelvic and sacral bone were indicated by ECT.

Case 1: TURP and bilateral orchiectomy were performed. The histopathology specimen showed Gleason scores of $3 + 4 = 7$, prostate adenocarcinoma involving $>90\%$ of the prostate with nerve invasion, but no vascular tumor thrombus (Table 1). Androgen resistant treatment was given after surgery. The histopathology specimen showed a poorly differentiated carcinoma with extensive necrosis. The majority of the tumor tissue was undifferentiated sarcoma with prostate adenocarcinoma involving less than $2\%$ of the prostate (Figure 2A). The tumor cells were spindle-shaped, diffuse, and distributed with significant atypia and pleomorphism, mitotic activity, and tumor giant cells were visible.

Case 2: The volume of residual urine was approximately 291 mL. A TURP and TURBT were performed. A white, narrow pedicled globe protruded from the prostate to the bladder, and its sections were fish-like (Figure 1D-F). The patient is still alive with no dysuria. The histopathology specimen showed a high-grade sarcoma, consistent with pleomorphic liposarcoma (FNCLCC G3) (Figure 1G and H). The structures of the prostate and bladder tissues were similar under the microscope. Diverse cells, such as lipoblasts, immature small round cells, subepithelial cells, spindle cells and tumor giant cells were mixed with sparse prostate cells. The mitotic figures were counted as $12/2\, mm$. There was massive necrosis and interstitial vein thrombosis. Immunohistochemistry showed that P504 was negative in the hyperplastic prostate (Table 1).

Imaging examinations
Case 1: The patient was readmitted for dysuria 10 mo later. A CT scan showed an irregular mixed density range approximately $4.7\, cm \times 4.8\, cm \times 4.2\, cm$ in the previous operation area with heterogeneous enhancement (Figure 2B and C). The CT value was $50\, HU$ in the plain scan and $82\, HU$ in the enhanced image. Necrosis and an area of liquefaction were observed in the mass. The surface of the mass was not smooth, but the boundary of the rectum was still clear. The bladder wall was pushed upwards (Figure 2C). The mass extended from the lateral wall of the bladder to the internal orifice of the urethra. It was red in color and extremely soft. The appearance resembled a clot, and the texture was liver-like (Figure 2B).

Case 2: A $4.1\, cm \times 3.0\, cm \times 4.0\, cm$ tumor with marked inhomogeneous enhancement was observed on CT imaging (Figure 1B and C).

FINAL DIAGNOSIS
The final diagnosis in both patients was SC of the prostate with bladder invasion shortly after androgen deprivation for prostate adenocarcinoma.

TREATMENT
Radiochemotherapy was not accepted by case 1 after TURP. The second case accepted only TURP, and radiochemotherapy was not performed in this patient.

OUTCOME AND FOLLOW-UP
Case 1 died eight months later. The second case accepted only TURP and was satisfied with the improvement of his dysuria. He is still alive.
# Table 1 Laboratory test results before the first and second surgery

<table>
<thead>
<tr>
<th>Test</th>
<th>Case 1 First TURP</th>
<th>Case 1 Second TURP</th>
<th>Case 2 First TURP</th>
<th>Case 2 Second TURP</th>
<th>Normal reference range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPSA</td>
<td>37.12</td>
<td>7.19</td>
<td>&lt; 4</td>
<td>0.01</td>
<td>0-4 ng/mL</td>
</tr>
<tr>
<td>FPSA</td>
<td>7.7</td>
<td>1.17</td>
<td>&lt; 1.3</td>
<td>0</td>
<td>0-1.3 ng/mL</td>
</tr>
<tr>
<td>CRP</td>
<td>8.3</td>
<td>3.4</td>
<td>8.88</td>
<td>ND</td>
<td>0-10 mg/L</td>
</tr>
<tr>
<td>hs-CRP</td>
<td>3.21</td>
<td>1.08</td>
<td>&lt; 3</td>
<td>ND</td>
<td>0-3 mg/L</td>
</tr>
<tr>
<td>IgG</td>
<td>12.82</td>
<td>12.92</td>
<td>1.04</td>
<td>0.29</td>
<td>8-16 g/L</td>
</tr>
<tr>
<td>Alexin C3</td>
<td>1.14</td>
<td>1.2</td>
<td>1.04</td>
<td>ND</td>
<td>0.9-1.5 g/L</td>
</tr>
<tr>
<td>Alexin C4</td>
<td>0.3</td>
<td>0.3</td>
<td>0.29</td>
<td>ND</td>
<td>0.2-0.4 g/L</td>
</tr>
<tr>
<td>Creatinine</td>
<td>76</td>
<td>76</td>
<td>&lt; 123</td>
<td>83</td>
<td>53-123 μmol/L</td>
</tr>
<tr>
<td>Platelets</td>
<td>193.92</td>
<td>231</td>
<td>283</td>
<td>ND</td>
<td>100-300 × 10^9/L</td>
</tr>
<tr>
<td>ALP</td>
<td>111</td>
<td>72</td>
<td>88</td>
<td>ND</td>
<td>25-135 g/L</td>
</tr>
<tr>
<td>LDH</td>
<td>235</td>
<td>214</td>
<td>126</td>
<td>ND</td>
<td>114-240 g/L</td>
</tr>
<tr>
<td>SF</td>
<td>257</td>
<td>299</td>
<td>622</td>
<td>ND</td>
<td>20-300 μg/L</td>
</tr>
<tr>
<td>Albumin globulin ratio</td>
<td>0.68</td>
<td>1.26</td>
<td>1.09</td>
<td>ND</td>
<td>1-2.5</td>
</tr>
<tr>
<td>White blood cell count</td>
<td>5.03</td>
<td>5.41</td>
<td>&lt; 9.15</td>
<td>8.78</td>
<td>3.97-9.15 × 10^9/L</td>
</tr>
<tr>
<td>Percent neutrophils</td>
<td>66.40%</td>
<td>72.20%</td>
<td>59.90%</td>
<td>ND</td>
<td>45-77%</td>
</tr>
<tr>
<td>Percent lymphocytes</td>
<td>21.50%</td>
<td>16.20%</td>
<td>29.90%</td>
<td>ND</td>
<td>20-40%</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>115</td>
<td>106</td>
<td>119</td>
<td>ND</td>
<td>131-172 g/L</td>
</tr>
<tr>
<td>MCV</td>
<td>91.35</td>
<td>90</td>
<td>87.3</td>
<td>ND</td>
<td>86-100 fl</td>
</tr>
<tr>
<td>MCH</td>
<td>29.31</td>
<td>28.9</td>
<td>28.1</td>
<td>ND</td>
<td>26-31 pg</td>
</tr>
<tr>
<td>D-Dimer</td>
<td>11.74</td>
<td>1.83</td>
<td>0.5</td>
<td>ND</td>
<td>0-4 mg/L</td>
</tr>
<tr>
<td>FSH</td>
<td>13.52</td>
<td>ND</td>
<td>ND</td>
<td>53.5</td>
<td>1.5-12.5 mIU/mL</td>
</tr>
<tr>
<td>LH</td>
<td>10.18</td>
<td>ND</td>
<td>ND</td>
<td>27</td>
<td>1.7-8.6 mIU/mL</td>
</tr>
<tr>
<td>Testosterone</td>
<td>7.2</td>
<td>ND</td>
<td>ND</td>
<td>0.23</td>
<td>2.6-8 ng/mL</td>
</tr>
<tr>
<td>Urine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RBC</td>
<td>&gt; 250</td>
<td>150</td>
<td>174</td>
<td>120</td>
<td>0-5 μL</td>
</tr>
<tr>
<td>WBC</td>
<td>&gt; 400</td>
<td>5 μL</td>
<td>33.6</td>
<td>30</td>
<td>0-5 μL</td>
</tr>
<tr>
<td>CEA</td>
<td>5.7</td>
<td>5.23</td>
<td>5.23</td>
<td>≤ 5 ng/mL</td>
<td></td>
</tr>
<tr>
<td>IgM</td>
<td>2.72</td>
<td>0.5-2.2 g/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IgG</td>
<td>12.82</td>
<td>12.92</td>
<td>14.86</td>
<td>ND</td>
<td>8-16 g/L</td>
</tr>
<tr>
<td>C1q</td>
<td>269.87</td>
<td></td>
<td></td>
<td></td>
<td>159-233 mg/L</td>
</tr>
<tr>
<td>Immunohistochemistry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>Vimentin (+++), Ki-67 (+, &gt; 90%)</td>
<td></td>
<td>Ki-67 80%, P53 20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>CKpan, EMA, CK7, P504s, PSA</td>
<td></td>
<td>CK, CK5/6, P63, Gata-3, CD34, DES, SMA, myogenin, S100, HMB45, MelanA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CRP: C-reactive protein; ALP: Alkaline phosphatase; LDH: Lactate dehydrogenase; SF: Ferritin; MCV: Mean corpuscular volume; MCH: Mean corpuscular hemoglobin; FSH: Follicle stimulating hormone; LH: Luteinizing hormone; CEA: Carcinoembryonic antigen; RBC: Red blood cell; WBC: White blood cell; EMA: Epithelial membrane antigen; PSA: Prostate-specific antigen; CK: Creatine kinase; DES: Desmin; SMA: Smooth muscle actin; FPSA: Free prostate-specific antigen; TPSA: Total prostate-specific antigen.
DISCUSSION

SC of the prostate is a rare disease with slightly over 100 reported cases in the English literature\(^1\). Early localized prostate SCs can be effectively treated with prostatectomy and/or radiation. However, the prognosis is very poor in patients with bladder invasion whether the treatment is hormonal therapy, cystoprostatectomy, radiotherapy or chemotherapy\(^1\). Extensive TURP combined with radiation therapy seems to have a limited effect in delaying the progression of SCs\(^1\).

The study from Johns Hopkins University suggests that the sarcomatoid component may be androgen-independent\(^1\). This is based on its lack of a prostate-specific antigen (PSA) or radiographic response to androgen deprivation. Our data strongly support these views since the tumors in our two cases arose shortly after orchietomy.

In the current study, the morphological characteristics of the sarcomatoid components were recorded. The mass resected in the second operation of the first case was red and very soft like liver, very unlike the tissues removed during the first operation in case 1 (Figure 2B, arrow). The new texture was called “red hepatization of the prostate” and was easily differentiated from blood clots, prostatic cancer, and normal bladder tissue. In case 2, the bladder tumor was only found one week before surgery, although the patient underwent 4 cystoscopes within the previous 5 mo. The white, fish flesh-like, narrow pedicled globe protruded from the prostate to the bladder (Figure 1B and C). We can conclude that the masses in our cases developed within 5 to 10 mo after castration as the sarcomatoid component tends to grow rapidly\(^8\). However, the average interval between the original diagnosis and the detection of an SC has been reported to be 6.8 years (6 mo to 16 years) and 8.3 years (9 mo to 20 years), respectively\(^9\).

Our study results suggest that SCs may originate from a special group of hormonal resistant prostate stromal cancer cells found near the bladder neck and they may accelerate their growth when exposed to stimulation and changes in their environment. The bladders were normal in appearance in the first and second operations in the current cases. Various heteromorphic tumor cells showed infiltrating growth, which included immature small round cells, subepithelial cells, spindle cells, lipoblasts and tumor giant cells, etc (Figure 1G and H). The tumors were located near the proximal of the caruncle in the current cases and the tumor was limited to the bladder neck and proximal end of the prostate.

Several clues showed that the tumors arose from the prostate in the present cases. At first, the liver-like textures were mainly located in the junction of the prostate with the bladder, but they were also scattered and distributed on the distant part of the seminal colliculus in case one. The spherical lesions mainly arose from the 8 to 11 o’clock position of the prostate in case 2 (Figure 1D-F and Supplementary material). Second, the tumor may be derived from the transition zone\(^10\) or the peripheral zone of the prostate near the bladder neck (Figure 1B-F and Figure 2C).

Consistent with the majority of SC patients with a prior history of adenocarcinoma, both of the current cases had a history of adenocarcinoma and underwent hormonal deprivation therapy. The most common clinical presentation was local symptoms. A worsened progressive intensive dysuria resulting in acute urinary retention is the major symptom\(^11\). The very soft mass near the internal orifice of the urethra also resulted in dysuria in case 1. The intraurethral orifice was blocked by a spherical tumor in case 2 (Figure 1D-F).

Epithelial-to-mesenchymal transition may contribute to an aggressive malignant process\(^11\). A poor prognosis, castration resistance, chemoresistance, and cancer stem cell generation are associated with an epithelial-to-mesenchymal transition in prostate cancer. Animal research into specific transcription factors showed that they could convert mouse adult fibroblasts into hepatocyte-like cells\(^12\). Moreover, epithelial-to-mesenchymal transition allows cancer cell phenotypic plasticity for rapid adaptation to targeted therapy. A metastatic prostate cancer patient undergoing PARP inhibitor treatment will experience upregulation of cancer stem cells followed by drug resistance\(^13\). Conversion to a mesenchymal state would benefit the invasion of tumor cells but inhibit their stemness, and therefore, hybrid epithelial and mesenchymal traits favor the ability of tumor self-renewal and initiation capacity\(^14\).

The ability of cancer cells to transition from one stipulated developmental pathway to another pathway is known as lineage plasticity. Lineage plasticity acts as a source of intratumoral heterogeneity and an adaptation to therapeutic resistance. Cancer cell conversion into different histological subtypes may help achieve therapeutic resistance. A typical pathway of lineage plasticity is the neuroendocrine transformation of prostate adenocarcinoma in the presence of antiandrogens\(^15\). SCs may be another pathway of lineage plasticity during prostate adenocarcinoma
Figure 2 Clinical and pathological features of case 1 when diagnosed with sarcomatoid carcinoma. A: Histopathology specimen showed poorly differentiated carcinoma with extensive necrosis. Adenocarcinoma involved < 2% of the prostate; B: Completely different lesions were dull red in color resembling fresh clots and were isolated and soft (resembling liver) in texture (orange arrow). However, the prostate cancer tissues were pale due to ischemia, as shown in the figure (orange arrow); C: Computed tomography scan showing an irregular mixed density range approximately 4.7 cm × 4.8 cm × 4.2 cm near the previous operation area (arrow). The mass extended from the prostate to the lateral wall of the bladder and the internal orifice of the urethra.

progression and therapy resistance. The main disadvantage of our study is the lack of epigenetic data.

CONCLUSION

We present the morphological characteristics of the sarcomatoid components of prostate tumors with bladder invasion. Red hepatization of the prostate and the presence of white “fish flesh” were the primary morphological characteristics of these SCs. SCs have a poor prognosis and may originate from a special group of hormonal
resistant prostate stromal cancer cells. Radiation therapy and extensive TURP may be the treatments of choice for SCs.

REFERENCES


