## REVIEW

10823  New insights into the interplay between intestinal flora and bile acids in inflammatory bowel disease  
Zheng L

10840  Role of visfatin in obesity-induced insulin resistance  
Abdalla MMI

## MINIREVIEWS

10852  Hyperthermic intraperitoneal chemotherapy and colorectal cancer: From physiology to surgery  

10862  New-onset diabetes secondary to acute pancreatitis: An update  
Yu XQ, Zhu Q

10867  Ketosis-prone diabetes mellitus: A phenotype that hospitalists need to understand  
Boike S, Mir M, Rauf I, Jama AB, Sunesara S, Mushtaq H, Khedr A, Nitesh J, Surani S, Khan SA

10873  2022 Monkeypox outbreak: Why is it a public health emergency of international concern? What can we do to control it?  
Ren SY, Li J, Guo RD

## ORIGINAL ARTICLE

### Retrospective Cohort Study

10882  Clinical characteristics and prognosis of non-small cell lung cancer patients with liver metastasis: A population-based study  

### Retrospective Study

10896  Prevalence and risk factors for *Candida* esophagitis among human immunodeficiency virus-negative individuals  
Chen YH, Jao TM, Shiue YL, Feng LJ, Hsu PI

10906  Prognostic impact of number of examined lymph nodes on survival of patients with appendiceal neuroendocrine tumors  
Du R, Xiao JW

### Observational Study

10921  Clinical and epidemiological features of ulcerative colitis patients in Sardinia, Italy: Results from a multicenter study  
### Contents

**Thrice Monthly Volume 10 Number 30 October 26, 2022**

#### Clinical observation of laparoscopic cholecystectomy combined with endoscopic retrograde cholangiopancreatography or common bile duct lithotripsy  
*Niu H, Liu F, Tian YB*

**Prospective Study**

#### Patient reported outcome measures in anterior cruciate ligament rupture and reconstruction: The significance of outcome score prediction  
*Al-Dadah O, Shepstone L, Donell ST*

#### Body mass index and outcomes of patients with cardiogenic shock: A systematic review and meta-analysis  
*Tao WX, Qian GY, Li HD, Su F, Wang Z*

#### Impact of being underweight on peri-operative and post-operative outcomes of total knee or hip arthroplasty: A meta-analysis  
*Ma YP, Shen Q*

#### Branched-chain amino acids supplementation has beneficial effects on the progression of liver cirrhosis: A meta-analysis  
*Du JY, Shu L, Zhou YT, Zhang L*

#### Wells' syndrome possibly caused by hematologic malignancy, influenza vaccination or ibrutinib: A case report  
*Šajn M, Luzar B, Zver S*

#### Giant cutaneous squamous cell carcinoma of the popliteal fossa skin: A case report  
*Wang K, Li Z, Chao SW, Wu XW*

#### Right time to detect urine iodine during papillary thyroid carcinoma diagnosis and treatment: A case report  
*Zhang SC, Yan CJ, Li YF, Cui T, Shen MP, Zhang JX*

#### Two novel mutations in the VPS33B gene in a Chinese patient with arthrogryposis, renal dysfunction and cholestasis syndrome 1: A case report  
*Yang H, Lin SZ, Guan SH, Wang WQ, Li JY, Yang GD, Zhang SL*

#### Effect of electroacupuncture for Pisa syndrome in Parkinson's disease: A case report  
*Lu WJ, Fan JQ, Yan MY, Mukaeda K, Zhuang LX, Wang LL*

#### Neonatal Cri du chat syndrome with atypical facial appearance: A case report  
*Bai MM, Li W, Meng L, Sang YF, Cui YJ, Feng HY, Zong ZT, Zhang HB*

#### Complete colonic duplication presenting as hip fistula in an adult with pelvic malformation: A case report  
*Cai X, Bi JT, Zheng ZX, Liu YQ*
Autoimmune encephalitis with posterior reversible encephalopathy syndrome: A case report
Dai SJ, Yu QJ, Zhu XY, Shang QZ, Qu JB, Ai QL

Hypophysitis induced by anti-programmed cell death protein 1 immunotherapy in non-small cell lung cancer: Three case reports

Different intraoperative decisions for undiagnosed paraganglioma: Two case reports
Kang D, Kim BE, Hong M, Kim J, Jeong S, Lee S

Hepatic steatosis with mass effect: A case report

Bone marrow metastatic neuroendocrine carcinoma with unknown primary site: A case report and review of the literature
Shi XB, Dong WX, Jin FX

Child with adenylosuccinate lyase deficiency caused by a novel complex heterozygous mutation in the ADSL gene: A case report

Recovery of brachial plexus injury after bronchopleural fistula closure surgery based on electrodiagnostic study: A case report and review of literature
Go YI, Kim DS, Kim GW, Won YH, Park SH, Ko MH, Seo JH

Severe Klebsiella pneumoniae pneumonia complicated by acute intra-abdominal multiple arterial thrombosis and bacterial embolism: A case report
Bao XL, Tang N, Wang YZ

Spontaneous bilateral femur neck fracture secondary to grand mal seizure: A case report
Senocak E

Favorable response after radiation therapy for intraductal papillary mucinous neoplasms manifesting as acute recurrent pancreatitis: A case report
Harigai A, Kume K, Takahashi N, Omata S, Umezawa R, Jingu K, Masamune A

Acute respiratory distress syndrome following multiple wasp stings treated with extracorporeal membrane oxygenation: A case report
Cai ZY, Xu BP, Zhang WH, Peng HW, Xu Q, Yu HB, Chu QG, Zhou SS

Morphological and electrophysiological changes of retina after different light damage in three patients: Three case reports

Perirectal epidermoid cyst in a patient with sacrococcygeal scoliosis and anal sinus: A case report
Ji ZX, Yan S, Gao XC, Lin LF, Li Q, Yao Q, Wang D
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>11162</td>
<td>Longest survival with primary intracranial malignant melanoma: A case report and literature review</td>
<td>Wong TF, Chen YS, Zhang XH, Hu WM, Zhang XS, Lv YC, Huang DC, Deng ML, Chen ZP</td>
</tr>
<tr>
<td>11172</td>
<td>Spontaneous remission of hepatic myelopathy in a patient with alcoholic cirrhosis: A case report</td>
<td>Chang CY, Liu C, Duan FF, Zhai H, Song SS, Yang S</td>
</tr>
<tr>
<td>11178</td>
<td>Cauda equina syndrome caused by the application of DuraSeal™ in a microlaminectomy surgery: A case report</td>
<td>Yeh KL, Wu SH, Fuh CS, Huang YH, Chen CS, Wu SS</td>
</tr>
<tr>
<td>11185</td>
<td>Bioceramics utilization for the repair of internal resorption of the root: A case report</td>
<td>Riyahi AM</td>
</tr>
<tr>
<td>11198</td>
<td>Accidental esophageal intubation via a large type C congenital tracheoesophageal fistula: A case report</td>
<td>Hwang SM, Kim MJ, Kim S, Kim S</td>
</tr>
<tr>
<td>11204</td>
<td>Ventral hernia after high-intensity focused ultrasound ablation for uterine fibroids treatment: A case report</td>
<td>Park JW, Choi HY</td>
</tr>
</tbody>
</table>

**LETTER TO THE EDITOR**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>11210</td>
<td>C-Reactive protein role in assessing COVID-19 deceased geriatrics and survivors of severe and critical illness</td>
<td>Nori W</td>
</tr>
</tbody>
</table>
ABOUT COVER
Editorial Board Member of World Journal of Clinical Cases, Rajeev Gurunath Redkar, FRCS, FRCS (Ed), FRCS (Gen Surg), MBBS, MCh, MS, Dean, Professor, Surgeon, Department of Pediatric Surgery, Lilavati Hospital and Research Centre, Mumbai 400050, Maharashtra, India. rajeev.redkar@gmail.com

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: Ying-Yi Yuan; Production Department Director: Xu Gan; 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
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
October 26, 2022

COPYRIGHT
© 2022 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
Right time to detect urine iodine during papillary thyroid carcinoma diagnosis and treatment: A case report

Shi-Chang Zhang, Cheng-Jing Yan, Yun-Fei Li, Ting Cui, Mei-Ping Shen, Jie-Xin Zhang

Abstract

BACKGROUND
This is the first documentation of a spontaneous and nonspecific chemical reaction of an iodinated contrast media with ammonium persulfate used in As³⁺-Ce⁴⁺ catalytic spectrophotometry for urine iodine concentration (UIC) detection.

CASE SUMMARY
We herein report an incidental case who had a dual source computed tomography examination for papillary thyroid carcinoma diagnosis. Serial spot urine specimens were collected during her hospitalization and were measured by As³⁺-Ce⁴⁺ catalytic spectrophotometry on a Beckman Coulter AU5800. The reacted solutions were “brownish”, and the results showed extremely high iodine concentrations despite serial dilutions. The patient claimed no dietary habit of iodized salt or iodine-containing medical history, which strongly pointed to iodinated contrast media (ICM) via intravenous injection. Even with 0.01% ICM, its interruption is still profound on the desired urine iodine reaction with ammonium persulfate, leading to inaccurate UIC and possibly inappropriate treatment.

CONCLUSION
The following laboratory suggestions should be considered: (1) As³⁺-Ce⁴⁺ catalytic spectrophotometry is only suitable for UIC measurement after confirmed ICM renal clearance; (2) A mass spectrometry-based method can be applied as an alternative during the ICM clearance period; and (3) The UIC baseline can be confirmed after ICM injection by consecutive detection for at least 2 mo.

Key Words: Papillary thyroid carcinoma; Urine iodine concentration; Iodinated contrast media
Core Tip: There has been no report on the nonspecific chemical reaction of an iodinated contrast media with ammonium persulfate used in As<sup>3+</sup>-Ce<sup>4+</sup> catalytic spectrophotometry thus far. We herein report a typical case, which might contribute to improving our understanding of the biochemistry mechanism as well as interpretation of the results of UIC detection during papillary thyroid carcinoma (PTC) diagnosis and treatment. This report also serves as a reminder to establish an individual flowchart to evaluate prognosis during PTC follow-up.

INTRODUCTION
As the most widely used marker to assess the plasmatic iodine pool, urine iodine concentration (UIC) measurement is recommended to assess the iodine status of a population<sup>1,2</sup>. With the increased use of iodinated contrast media (ICM) for chest and neck computed tomography (CT), excess iodine exposure has increased in patients with thyroid disease (TD). Several studies suggest that ICM increases the total body iodine stores for at least 3 mo following contrast exposure and, in some situations, for as long as 2 years. The introduction of approximately 0.1% inorganic iodine free from ICM into serum might compete with radioactive iodine or disturb thyroid function due to the Wolff-Chaikoff effect<sup>3,4</sup>. Considering that accurate UIC detection is very important to guide radioactive iodine treatment in patients with TD, it is necessary to understand the effect of excess iodine exposure on UIC after ICM injection in patients with TD.

CASE PRESENTATION
Chief complaints
A 39-year-old female patient was admitted to our hospital on January 11, 2020 for a re-examination of a thyroid nodule.

History of present illness
The thyroid nodule was found 1 year ago. Ultrasound examination revealed a 6.1 cm × 4.9 cm × 6.7 cm hypoechoic area in the right lobe of the thyroid gland. The lesion was classified by the thyroid imaging reporting and data system (TI-RADS) as TI-RADS 4C (highly suspected malignancy).

History of past illness
The patient had a medical history that was free of previous illness.

Personal and family history
The patient had no personal or family history.

Physical examination
Upon physical examination, a solid mass was found in the right lobe of the thyroid gland.

Laboratory examinations
The patient’s laboratory blood test results on January 13, including AFP and thyroid function indicators (free triiodothyronine, free thyroxine, thyroid stimulating hormone, thyroid peroxidase antibody, thyroglobulin antibody, thyroglobulin, and parathyroid hormone), were all within the reference ranges. However, the spot UICs (sUICs) determined on January 14 were reported as errors (Figure 1A–C). We contacted her doctor to obtain new spot urine specimens on January 15 (preoperation) and 17 (1 d before discharge). Each specimen was serially diluted (10-fold, 50-fold, and 100-fold). All sUICs were extremely high (> 3 mg/L, Figure 2). Nevertheless, the reaction curves gradually changed when...
Zhang SC, et al. Urine iodine concentration: True or false?

Figure 1 Spot urine iodine concentration detected by As⁴⁺-Ce⁶⁺ catalytic spectrophotometry on January 14 by on a Beckman Coulter AU5800. A and B: Appearances of the reacted solution of the original urine specimen (A) and its 2-, 5-, 10-, and 20-fold serial dilutions after digestion at 100 °C for 60 min (B); C: Ce⁶⁺ absorbance curve of the original urine specimen.

Comparing the same dilution ratio between different specimens over time and finally became valid in 100-fold dilution on January 17. The results indicated that the iodine concentration in the patient was actually dropping.

**Imaging examinations**

On January 13, 2020, the patient underwent dual source CT of the thyroid, and the result indicated a low density, ground-glass enhanced lesion near the back side of the right lobe. No obvious abnormality was found in the left lobe or the isthmic portion. There were multiple nodules in the II, III, IV, and VI regions of the bilateral neck with normal shapes that showed no early-stage enhancement.

**FINAL DIAGNOSIS**

The final diagnosis of the presented case was PTC.

**TREATMENT**

The patient underwent radical thyroidectomy on January 15, 2020. Histological examination of the frozen sections from the resected lesion confirmed PTC.
Zhang SC et al. Urine iodine concentration: True or false?

Figure 2 Ce⁴⁺ absorbance curves of two specimens during admission-discharge procedures to calculate the actual spot urine iodine concentrations. A-C: Original random urine specimen on January 15 (preoperation) (A) and its 10- (B) and 100-fold (C) dilutions; D-F: Original random urine specimen on January 17 (1 d before discharge) (D) and its 10- (E) and 100-fold (F) dilutions.

OUTCOME AND FOLLOW-UP

The patient had a good recovery. Her thyroid function indicators were normal until this article is written.

DISCUSSION

For the determination of iodine in urine, As³⁻-Ce⁴⁺ catalytic spectrophotometry is recommended as the standard assay according to WS/T 107.2-2016 by the National Health and Family Planning Commission in China. The protocol is as follows: (1) Add 600 μL ammonium persulfate to 200 μL urine and digest the mixture for 60 min in a 100 °C incubator; (2) Transfer the digested mixture to a Beckman Coulter AU5800; (3) Add 120 μL reagent 1 containing As³⁻ to 25 μL digested mixture; (4) Add 36 μL reagent 2 containing Ce⁴⁺ to reduce the yellow Ce⁴⁺ to colorless Ce³⁺; and (5) The decreasing absorbance curve of Ce⁴⁺ at a wavelength of 410 nm is positively proportional to the concentration of iodine over a designated period of time[5]. On January 14, we incidentally found that the digested solution of a spot urine specimen as well as its 2-fold dilution was “brownish”. We contacted the patient, and she recalled that the specimen was collected within 1 h after intravenous ICM injection on January 13. The ICM was iohexol (35 g I/100 mL). We tested iohexol instead of urine in serial dilutions. The results strongly indicated that a chemical reaction immediately started once iohexol was mixed with ammonium persulfate, even prior to digestion (Figure 3A), and we perfectly reproduced the “brownish” solution as well as the solid purple precipitates (Figure 3B). We believe that this automatic chemical reaction would disrupt the desired reaction of urine iodine with ammonium persulfate and cause inaccurate sUIC values.

There are three important studies that provide convincing and detailed data on urine iodine clearance [6-8]. In general, if a patient undergoes intravenous contrast CT examination, it will take at least 1 mo for the UIC to return to the baseline level. Unfortunately, there is a lack of data for the Chinese population to date. As³⁻-Ce⁴⁺ catalytic spectrophotometry has a sensitivity of 10 μg/L and a reportable range of 0-3000 μg/L in our laboratory. Notably, the color shade of the spot urine specimen on January 14 was between those of 35 mg iohexol (100% renal clearance assuming 200 mL urine output) and 3.5 mg iohexol (90% renal clearance). More importantly, as shown in Figure 1B, the color faded for the 2-fold dilution and disappeared for the 5-fold dilution, which allowed us to speculate that the original urine specimen probably contained at least 17.5 mg iohexol (50% renal clearance). This value was very different from that calculated on January 14, which was 1.05 mg/L (Figure 1C). We also checked the Ce⁴⁺ absorbance curve for 3.5 mg iohexol. Consistent with the curve of the 5-fold dilution of urine specimens on January 14, there was a background optical density value indicating a nonspecific reaction (Figure 3C and D). Therefore, the spontaneous and nonspecific chemical reaction of ICM with ammonium persulfate used in As³⁻-Ce⁴⁺ catalytic spectrophotometry can interfere with the accuracy of

DOI: 10.12998/wjcc.v10i30.11010 Copyright ©The Author(s) 2022.
Zhang SC et al. Urine iodine concentration: True or false? 

CONCLUSION

We suggest that the following scenarios should be considered for PTC patients who may have UIC measurement: (1) Pre-examination quality control of urine specimen. As$^{3+}$-Ce$^{4+}$ catalytic spectrophotometry is only suitable for the determination of the sUIC as well as the 24-h UIC after confirmed ICM renal clearance; (2) Appropriate laboratory methods for UIC detection. A mass spectrometry-based method can be applied as a favorable alternative during the ICM clearance period to evaluate potential ICM impairment; and (3) Optimal UIC detection intervals. The UIC should be detected for at least two consecutive months to confirm the baseline after ICM injection.

FOOTNOTES

Author contributions: Yan CJ and Li YF participated in data collection; Cui T and Shen MP gave expertise advice; Zhang SC and Zhang JX conceived and coordinated the study; all authors participated in manuscript writing.

Supported by: the “The Six Top Talent Project” of Jiangsu Province, No. WSW-004; the Key Laboratory for Laboratory Medicine of Jiangsu Province of China, No. ZDXKB2016005.

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

Conflict-of-interest statement: The authors declare that they have no conflicts of interest for this article.

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).

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: China

ORCID number: Shi-Chang Zhang, 0000-0002-6587-2518; Cheng-Jing Yan, 0000-0003-4381-5325; Yun-Fei Li, 0000-0003-2324-713X; Ting Cui, 0000-0002-3101-9500; Mei-Ping Shen, 0000-0003-1407-7562.

S-Editor: Chang KL
L-Editor: Wang TQ
P-Editor: Chang KL

REFERENCES


6 Padovani RP, Kasamatsu TS, Nakabashi CC, Camacho CP, Andreoni DM, Malouf EZ, Marone MM, Maciel RM, Biscolla RP. One month is sufficient for urinary iodine to return to its baseline value after the use of water-soluble iodinated contrast agents in post-thyroidectomy patients requiring radiiodine therapy. Thyroid 2012; 22: 926-930 [PMID: 22827435 DOI: 10.1089/thy.2012.0099]

