

出國報告（參加國際會議）

2018 年歐洲泌尿學協會第十屆歐洲泌尿
系腫瘤多學科大會暨第七次泌尿系統影
像學會年會年會

服務機關：台中榮民總醫院放射線部

姓名職稱：放射線部科主任

派赴國家：荷蘭

出國期間：民國107年11月7日至11月13日

報告日期：民國 107 年 11 月 14 日

摘要（含關鍵字）

受邀參加2018年歐洲泌尿學協會第十屆歐洲泌尿系腫瘤多學科大會暨第七次泌尿系統影像學會年會，受邀以”酷似尿路上皮癌的醫學影像：病例介紹”為題，於大會以壁報方式發表論文成果。

關鍵字: 尿路上皮癌、醫學影像。

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一、目的

受邀參加2018年歐洲泌尿學協會第十屆歐洲泌尿系腫瘤多學科大會暨第七次泌尿系統影像學會年會，受邀以”酷似尿路上皮癌的醫學影像：病例介紹”為題，於大會以壁報方式發表論文成果。

二、過程

本次會議地點位於荷蘭阿姆斯特丹，職於11月6日由桃園中正國際機場經泰國曼谷轉機至荷蘭阿姆斯特丹國際機場，再經由機場火車至阿姆斯特丹中央火車站，再轉捷運到達位於阿姆斯特丹RAI國際會展中心大會現場開會。本次大會由11月8日舉行至11月11日，會後再自荷蘭阿姆斯特丹國際機場搭機至泰國曼谷再轉機回國。

三、心得

本次2018年歐洲泌尿學協會第十屆歐洲泌尿系腫瘤多學科大會年會是聚歐洲泌尿學屆及其他包括泌尿系統影像及泌尿腫瘤病理學等專業領域等多學科的專家大會。適逢歐洲泌尿學會下的一個部門「泌尿系統影像學會」合併開第七次年會。因此為歐洲泌尿學屆的一次盛會。本次會議亦有包含南韓、日本及星加坡等亞洲的各國參加，臺灣只有本院獲得邀請。本次的大會已經進入第十個年頭，本期專注於臨床困難，當前機遇，進步和未來前景。來自歐洲各地的專家利用EMUC18的機會，將研究管理泌尿生

殖系統惡性腫瘤的困境和最佳實踐的心得成為一個專業和科學交流的領先平台。

本次除了能夠進一步吸收泌尿影像的新知，對臺中榮民總醫院放射線部在泌尿疾病的診療，無論是診斷流程以及治療的方法上，都增加很大的認知，今後在相關的醫學診斷上都要和這些世界頂尖的醫學研究中心跟進而極起直追。其實臺中榮民總醫院放射線部泌尿影像的診斷技術，已經和世界並駕齊驅。

會議中提出前列腺磁振造影檢查中的兩大判讀的方式：李克特量表（Likert scale）及 PIRADS(Prostate Imaging Reporting and Data System)，這個也是本院臨床醫師也十分有興趣的兩個量表。由於前列腺存在增生、前列腺炎或出血都會同時出現的問題，因此放要利用前列腺磁振造影檢查去診斷和定位前列腺癌並不容易。李克特量表是針對整體前列腺磁振造影中的 T2W, DCE 及 DWI 三種方式的整體結果作 1 至 5 分的評估。而 PIRADS 則把前列腺分為外圍及中心腺體兩個區域分別用 T2W 及 DWI 以 1 至 5 分去評估，由最具有影響力的四個腫瘤去加總去看整體的嚴重程度。在過去的文章中一般認為此兩種評估方法的結果都差不多，但是此次會議中有學者發現李克特量表的方法在臨床顯著疾病(clinical significant disease)有比較高的正確率。這倒是我們很少注意到的觀點，會在近期和其他在前列腺磁振造影報告相關主治醫師開會討論。

本次大會中提出討論有關未來前列腺癌的磁振造影將由多參數(multi parametric)改變為「雙參數」或甚至為「單參數」的專家意見，正如目前

臺中榮民總醫院今年所發表的「多參數前列腺癌的磁振造影」一文中提到的意見一致，回台後將盡快把心得見聞整理及繼續收集更多類似發表的內容，以期早日撰寫文章投稿。PIRADS 將要推出第三版的消息，從 2015 年開始，PIRADS 由第一版更新為第二版後，已經修正了原本第一版中比較難認定的標準。第二版也已經把眾多的磁振造影脈衝序列 (pulse sequence) 中主要留下 T2W 及 DWI 這兩個序列。而第二版在統合分析 (Meta-analysis) 中結果顯示不管在敏感性與特異度 (Sensitivity and Specificity) 上都有所改善。第三版則著重於檢討 PIRADS 第二版對於臨床情節 (Clinical Scenario) 的缺失以及是否有針對追蹤或穿刺的臨床指引。

另外一個在大會中的熱比較和我會議中有提到如何減輕前列腺磁振造影檢查整體檢查的時間縮短。目前我們常規的前列腺磁振造影檢查的整體檢查時間為 40 分鐘到 50 分鐘。若我們減少了 DCE 的 25 分鐘，則整體檢查時間將可以縮短至 30 分鐘之內。

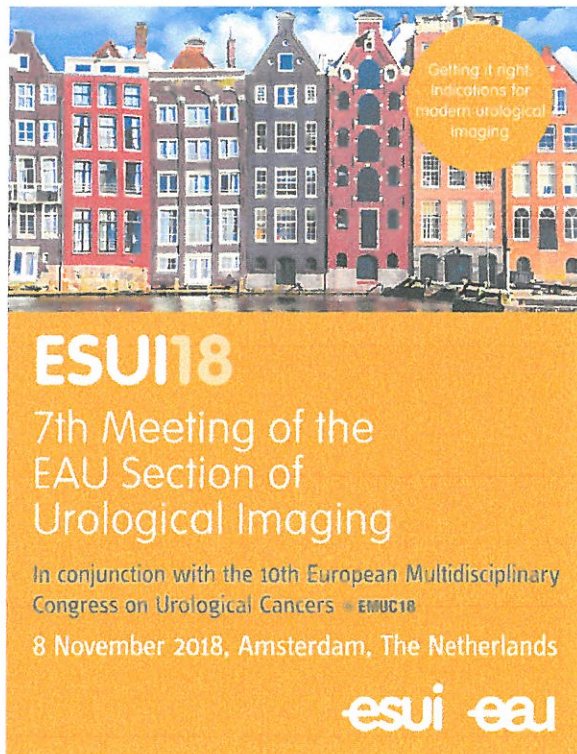
此外，本次大會也有一個題目提及目前最熱門的話題「人工智慧」，大會的講員比較人工智慧與大數據之間的演進。大數據約在 2013 至 2014 年之間有一個高峰，但隨著 2014 至 2015 年之後便慢慢的降下來。人工智慧則是一直到 2016 年才忽然有一個很急的爬升，至 2017 年則已經為大數據的約 2.5 倍。未來前列腺磁振造影的判讀應該會就是否可以利用人工智慧的方法去增加判讀的準確性及的整體判讀時間。

四、建議事項（包括改進作法）

此次難得的泌尿醫學影像盛會，亞洲各國都有參加，但是臺灣地區只有職代表臺中榮民總醫院放射線部以壁報方式發表論文成果，實為可惜。但是相關其他的「高解析度超音波」檢查及混合動力（hybrid）影像學的應用研究應該是我們有很多加強學習的空間。此外，國外在醫療資源的豐厚及工作之餘對研究重視上仍有待臺灣迎頭趕上。在現今臺灣健保及醫療的環境下，只能首先增加年輕泌尿醫學影像人才的研究及出國參加國際會議的機會，再者是利用各學會年會或特別專題座談會的機會，邀請國內外知名專家學者出席講授其獨到的技術。

全文完

附錄



Presentations	
08:30 - 08:35	Welcome and introduction Georg Salomon
08:35 - 10:00	From finger guided to imaging targeted biopsy Jelle Barentsz, Tillmann Loch
10:00 - 10:25	Coffee break and poster viewing
10:25 - 11:25	Is innovative ultrasound sensitive enough? Vincenzo Scattoni, Jochen Walz
11:25 - 12:35	Back to the future part I: What to expect in the next Jurgen Futterer, Massimo Mischì, Hessel Wijkstra
12:35 - 13:35	Lunch symposium
13:35 - 14:45	mpMRI – Reading – Reporting – Biopsy Tillmann Loch, Arnauld Villers
14:45 - 15:25	Abstract session: Oral presentations of the 6 best ab Georg Salomon, Arnauld Villers
15:25 - 15:50	Coffee break and poster viewing
10-Nov-2018	
08:00 - 10:00	Plenary Session 06 - New trials update: What we need to know Alberto Bossi, Laurence Coiletto, Ganesh Palapattu
09:50 - 10:00	Plenary Session 07 - Report from new consensus projects Berardino De Bari, Hein Van Poppel
11:00 - 11:30	Plenary Session 07.5 - PIONEER session Berardino De Bari, Hein Van Poppel
11:30 - 12:00	Plenary Session 08 - New developments in prostate cancer evaluation Rodolfo Montironi, Carl Salembier, Harriet Thoeny, Henk Van Der Poel
12:40 - 12:45	Late breaking abstract presentation - Late breaking abstract presentation Theo De Reijke, Jan Oldenburg, Thomas Wiegel
14:05 - 15:00	FALCON - FALCON contouring workshop on Post-operative radiotherapy in prostate cancer Berardino De Bari, Julia Murray, Piet Ost
14:00 - 16:00	Plenary Session 09 - BCG refractory disease: Is cystectomy avoidable? Marek Babjuk, Robert Huddart, Susanne Osanto
16:30 - 17:30	Plenary Session 10 - Nightmare session: It could happen to you Ferran Algaba, Susanno Osanto, Piet Ost, Shahrokh Shariat
11-Nov-2018	
08:45 - 09:00	Plenary Session 11 - EAU Research Foundation
09:00 - 11:05	Plenary Session 12 - Current dilemmas in the management of metastatic prostate cancer Silke Gillissen Sommer, Peter Hoskin, Hein Van Poppel
11:05 - 11:50	Plenary Session 13 - Take home messages
11:55 - 12:00	Plenary Session 14 - Closing remarks Aristotelis Bamias, Peter Hoskin, Hein Van Poppel



08-Nov-2018

14:30 - 17:30

ESUP Symposium - ESUP Symposium, jointly organized with ESUR and European Society of Pathology Uro... >
Alberto Briganti, Kerstin Junker, Antonio Lopez-Beltran, Rodolfo Montironi, Hein Van Poppel

09-Nov-2018

08:30 - 08:40

Plenary Session - Welcome and introduction >
Peter Hoskin, Manuela Schmidinger, Hein Van Poppel

08:40 - 10:30

Plenary Session 01 - Prostate cancer management: Implementation without good evidence? >
Kerstin Junker, James N'Dow, Jan Oldenburg, Bradley Pieters

11:00 - 12:25

Plenary Session 02 - Controversies and contradictions in staging of prostate cancer >
Igle Jan De Jong, Thomas Gevaert

12:25 - 12:45

Plenary Session 03 - Update on consensus meetings >
Silke Gillessen Sommer, Antonio Lopez-Beltran, Jeroen Van Moorselaar

14:00 - 15:30

Plenary Session 04 - Immunotherapy: Evolving paradigms in GU cancers >
Ananya Choudhury, Maurizio Colecchia, Igle Jan De Jong, Silke Gillessen Sommer

16:00 - 17:30

Plenary Session 05 - Kidney cancer in the frail patient >
Axel Bex, Kerstin Junker, Gladell Paner

17:45 - 18:45

Urothology Course - Urothology Course: Bladder and prostate cancer with neuroendocrine differen... >
Antonio Lopez-Beltran, Rodolfo Montironi, Gladell Paner

10-Nov-2018

09:00 - 10:00

Plenary Session 06 - New trials update: What we need to know

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Plenary Session 11 - EAU Research Foundation

09:00 - 11:05

Plenary Session 12 - Current dilemmas in the management of metastatic prostate cancer

Silke Gillessen Sommer, Peter Hoskin, Hein Van Poppel

11:05 - 11:50

Plenary Session 13 - Take home messages

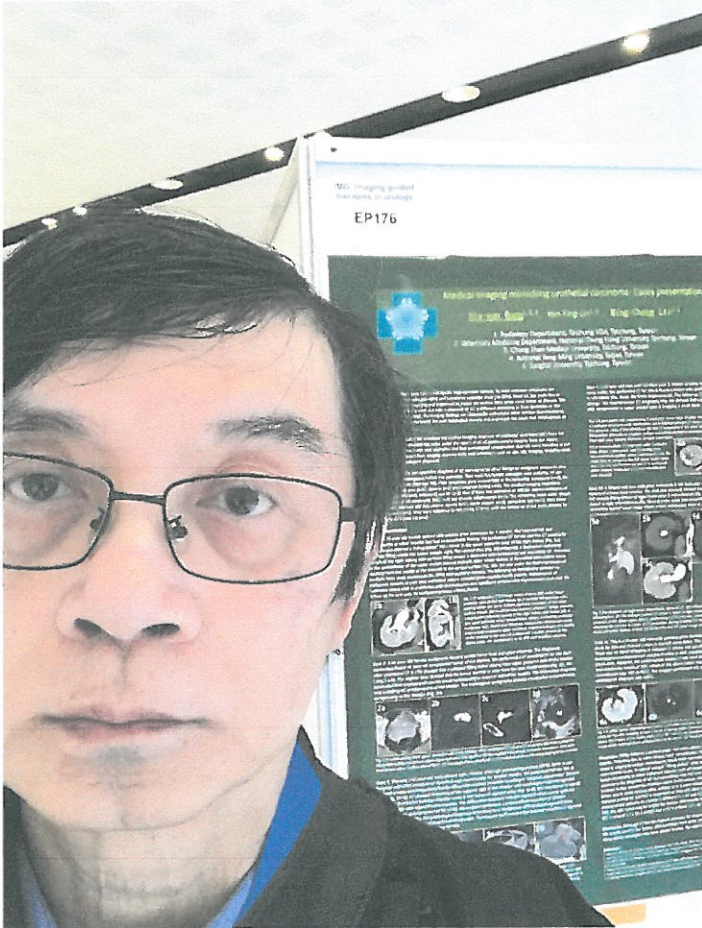
11:55 - 12:00

Plenary Session 14 - Closing remarks

Aristotelis Bamias, Peter Hoskin, Hein Van Poppel



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Medical Imaging mimicking urothelial carcinoma: Cases presentation

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4. National Yang-Ming University, Taipei, Taiwan
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Object: Urothelial carcinoma (UC) is the fourth most common tumors. Its most common symptoms are hematuria (70-80%), flank pain (25-40%) and sometimes palpable mass (10-30%). Since UC has many different synchronous lesions, the screening and treatment of clones are started from other renal tumor or disease. The accuracy of the modalities to work out with a diagnosis of UC is different according to the limitation of the patient's condition. Sometimes, the imaging findings are nonspecific and maybe other entities that mimicking the UC. Our purpose is to review the past radiological reports and to present the cases that mimic UC at UC.

Materials and Methods: We reviewed the medical imaging diagnosis of urothelial carcinoma (UC) from Jan 2013 to Dec 2017. We collected the cases under the report of UC of previous imaging from our reports information system. These cases with operation and final pathological proved other than UC were included in our collecting list. We reviewed their imaging characteristics and parameters such as age, sex, imaging modality used, location and final pathological diagnosis.

Results: 13 cases had a pre-operative diagnosis of UC from out to be either benign or malignant processes and one case was near misdiagnosis before the operation. They were five female and eight male patients, of age range 32 to 83 years old (Average: 78). Their symptoms were summarized as the following: hematuria (n=10), flank pain (n=3), renal colic (n=2) and renal colic (n=1). The medical imaging modalities included: CT (n=10), MRI (n=2), MRU (n=1) and RP (n=2). Five of them had operative URS for Adenocarcinoma of Gallbladder (n=2), renal cell carcinoma (RCC, n=2) and Chronic inflammation (n=1). The remaining cases were: vesical compression (4, one had URS), uterine myoma (n=1), micro-aneurysm (n=1), parapelvic cyst (n=1), renal stone (n=1) and normal (n=1). They were follow-up by MRI (n=1), CT (n=4), with one follow-up at the same session by CT urography, CTU and US (n=2).

Case Presentation

Case 3: A 75-year-old female patient with painless gross hematuria for 4 months. She received URS and ureteroscopy at other hospital but had no remarkable finding. We performed CT for her and the CT urography (CTU) images showed a filling defect-like tumor at the upper posterior calyx of the right kidney (Fig. 1a). Contrast filling within the tumor (white arrow). The coronal view (Fig. 1b) presented a duplication collecting system of the right kidney with contrast filling around a dilated calyx (orange arrow) mimicking UC. However, at the periphery of the upper moiety showed multiple other similar lesion of decreased attenuation areas locating from the papilla of the medulla to the cortical surface (Fig. 1c). She was under the final impression of multiple focal acute pyelonephritis (APN) with papillary necrosis. The following up conservatively showed no malignant process in such area and blood culture revealed gram-negative bacilli growth. Administration of hydration status with IV antibiotics and dehydrated and significant symptomatic improvements occurred. On follow-up for one year, no malignant process being found.



Fig. 1. CT urography (CTU) image shows a tumor (M) at the lower posterior calyx of the right kidney (a). Contrast filling defect with punctate filling within the tumor (white arrow) and microcystic structure (yellow arrow) (b). Coronal view shows a duplication collecting system of the right kidney with contrast filling around a dilated calyx (orange arrow) mimicking UC. However, at the periphery of the upper moiety showed multiple other similar lesion of decreased attenuation areas locating from the papilla of the medulla to the cortical surface with similar pattern as the above lesion. We considered it to be APN with papillary necrosis.

Case 4: A 45-year-old female incidentally found a vesicle tumor from a physical check-up. The diagnostic cystoscopy found an external compression tumor of the bladder. We performed a CT examination for her. Both after contrasted CT & CTU showed that a papillary filling defect arising from upper posterior wall of the bladder (Fig. 2 a-b). The sagittal view showed that the tumor extended to arise from the ureteral orifice (Fig. 2c). We considered that a submucosal invasive tumor compressing the superior wall of the bladder. The differential diagnosis was including UC or leiomyoma of the bladder. The transvaginal sonography showed a suspected endometriosis compressing the bladder (Fig. 2d).



Fig. 2. A tumor arising from upper posterior wall of the bladder. After contrasted CT (a) and CT urography (b) show a papillary filling defect arising from upper posterior wall of the bladder (c). The sagittal view shows the tumor seemed to arise from the ureteral orifice (d). Transvaginal ultrasonography showed an endometriosis (e) compressing to the bladder.

Case 5: This case of 60-year-old male patient with a history of benign prostatic hyperplasia (BPH) came to our hospital with chief complaint of dysuria & urge incontinence for several months. We performed RP for him & showed a mass with irregularly border filling with hyper-echoic material resulting in "spiculate appearance" (spiculate sign) (Fig. 3 a-b). CT showed thickening of the superior wall of the bladder with involving to adjacent sigmoid colon. We find a tract between sigmoid colon & the bases of sigmoid colon (Fig. 3c-d). We considered it was UC of the bladder with sigmoid colon invasion. The differential diagnosis included sigmoid colon cancer with UB invasion. Under an impression of UC of UB, the surgeon performed a transurethral resection of bladder tumor (TURBT) for him. The pathological diagnosis turned out to be moderately differentiated sigmoid colon adenocarcinoma with direct invasion to the bladder. The surgeon performed a low anterior resection of sigmoid colon tumor and partial cystectomy for him.

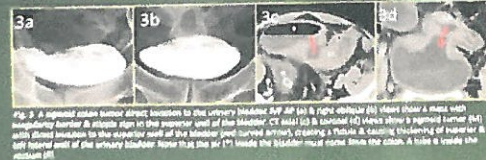


Fig. 3. A sigmoid colon tumor direct invasion to the urinary bladder. RP AP (a) & RP sagittal (b) show spiculate sign with irregularly border. A spiculate sign in the superior wall of the bladder. CT axial (c) & sagittal (d) views show a sigmoid tumor (b) with a tract between sigmoid colon & the bases of sigmoid colon (c) & a pelvic & sacral continuity of tumor (b) and found wall of the urinary bladder (b) at the RP. Inside the bladder (b) found some tumor. A tube is inside the bladder (b).

Case 6: A 28-year-old man with left flank pain & history of being an old smoker. The local hospital found a left renal tumor. We performed CT for him & found a lesion with calcification posterior calyx of upper major calyx of left kidney (Fig. 4a-b). We finally impressed UC. The follow-up CT four months later showed no remarkable change. The reconstruction CT urography (Fig. 4c) showed that a para-pelvic cyst arising from the renal hilum with compression to upper major calyx & trapping a small stone inside (previously noted calcification).

Fig. 4. A para-pelvic cyst compressing to posterior minor calyx of upper major calyx, resulting in complete cut-off with calcification. (a) & without contrast CT show a calcification in the posterior calyx of the left kidney. (b) The CT urography of the same location shows a filling defect (M) with an irregular surface mimicking urothelial carcinoma with calcification (arrow with white arrow). (c) Reconstruction CT urography after 4 months later shows a para-pelvic cyst (N) arising from the renal hilum (yellow arrow) and extend into the hilum (yellow arrow) compressing to posterior minor calyx (black arrow) and trapping a small stone (black arrow) inside due to direct invasion (blue arrow) (shown).

Case 10: A 70-year-old man with gross hematuria & left flank pain with abdominal distention for two days. He had a history of urinary tract calculus. The scan (not shown) showed bowel loop compressing on the left side of abdomen. RP showed filling defects at right lower calyx & fundibulum (Fig. 5a). We performed a CT scan for him and showed masses at right fundibulum (Fig. 5b-c) & lower ureter (not shown) and left distal end ureter (Fig. 5d). Retrospectively review the left UVP scan image shows a faint retrograde stone at the same location of the right lower fundibulum (Fig. 5e).

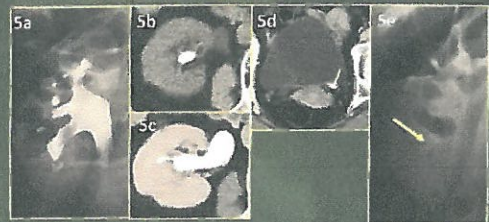


Fig. 5. Mimicking right lower fundibulum stone as UC. (a) 5 minutes RP shows a filling defect at right lower calyx and fundibulum. (b) The initial scan shows a mass in right fundibulum. (c) The CT of the same portion showing no evidence of the above mass. Inverse performing a CT urography with contrast filling the portion of urinary duct. We realized the location of the central & center of CT urography during the RP image. (d) A filling defect shows CT scan shows the left distal end ureter (yellow arrow). (e) Retrospectively review the left UVP scan image shows a faint retrograde stone at the same location of the right lower fundibulum.

Case 11: This is a 55-year-old man with painless gross hematuria for two months. We performed a 1.5T MRI study for him and showed a mass in the left renal pelvis (Fig. 6a). We considered that a filling defect in the renal pelvis. There was no signal dropping in between in-phase and out-of-phase gradient echo T1 weighted images. Heterogeneous enhancement and low b value in ADC mapping were found. We at first considered it was UC with blood clot. However, the ureteroscopy biopsy of left renal pelvis revealed only chronic inflammation. Retrospectively review ADC values of the above tumor was $1.5 \times 10^{-3} \text{ mm}^2/\text{s}$. We changed the diagnosis of conventional type RCC. The surgical platform left-side laparoscopic nephrectomy for him and pathological diagnosis was correct.

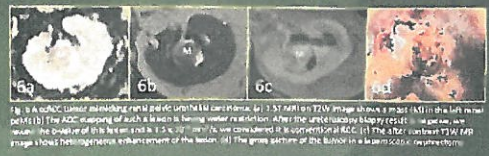


Fig. 6. A renal pelvis mimicking renal pelvis urothelial carcinoma. (a) 1.5T MRI on T2W image shows a mass (M) in the left renal pelvis (b). The ADC mapping of such a lesion is being lower restriction. After the ureteroscopy biopsy (c) we realize the nature of the lesion and a 1.5T MRI (d) we considered it conventional RCC (e). The ADC contrast T2W MRI image shows heterogeneous enhancement of the lesion. (f) The gross specimen of the tumor is a brownish-red specimen.

Discussion: Filling defect in a picture under non-contrast section imaging modalities such as RP or UVP are non-specific. They may due to acute urinary tract compression. For a tiny filling defect, it may be due to existing vesical or enlarged vesical contractions result from muscospasm syndrome. They may be located in renal pelvis or upper-pelvic levels. In case of larger filling defect close to renal pelvis location, para-pelvic cyst, para-pelvic lymphadenopathy or other malignant process such as lymphoma, myeloid, renal pelvis UC. CT has the highest accuracy in the diagnosis of UC but sometimes may still have mimicking. CTU is good at diagnosis of UC, however, it may sometimes miss a lesion in the urinary tract. Using a non-contrast CT for case such as UC, better way to avoid missing other entities is to be more sensitivity in direction of contrast. The differential between a renal UC and RCC is important as they will affect the pre-operative plan and further treatment. The enhancement patterns of a tumor is different in UC and RCC. In case of having a tumor, degree of restriction MRI, the ADC value may be helpful for further differentiate between UC or RCC. In a 1.5T MRI, the average renal RCC is around $3.3 \times 10^{-3} \text{ mm}^2/\text{s}$ but UC is around $1.0 \times 10^{-3} \text{ mm}^2/\text{s}$.

Conclusion: Although CT has the highest accuracy for diagnosis of UC, sometimes it may have mimicking finding. We should use CTU for further differentiation from other entities. The filling defect is a non-specific finding. Being similar etiologies may have similar finding. The radiologist and urologist should aware of this possibility.

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