中山醫學大學附設醫院

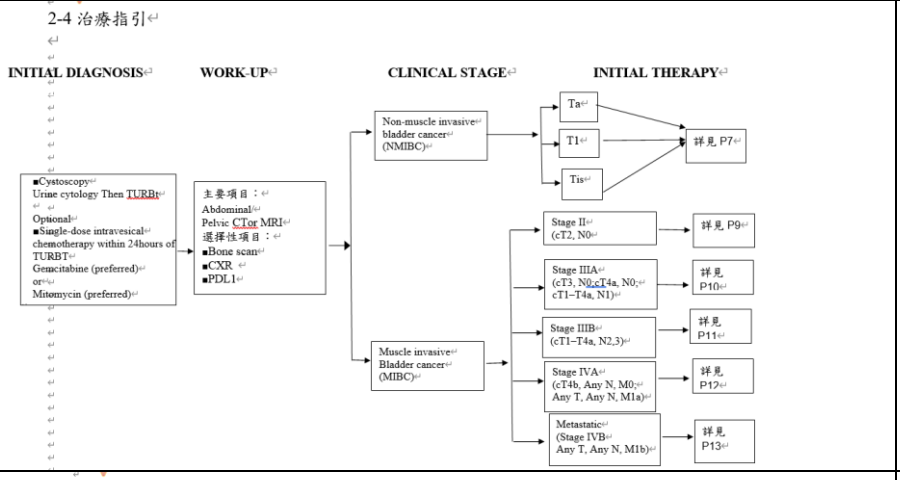
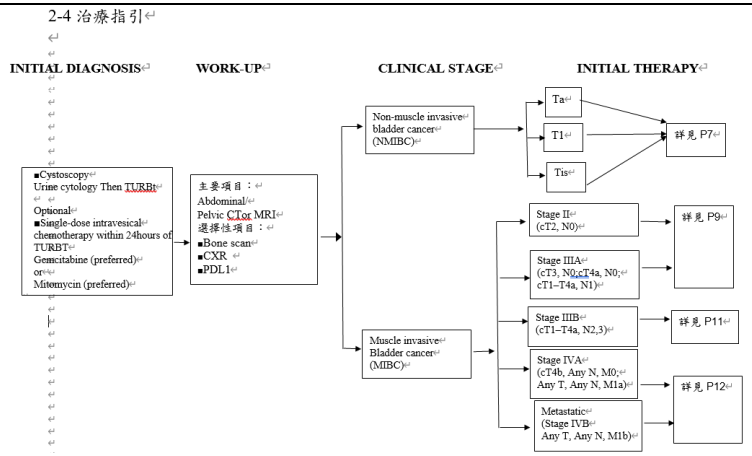
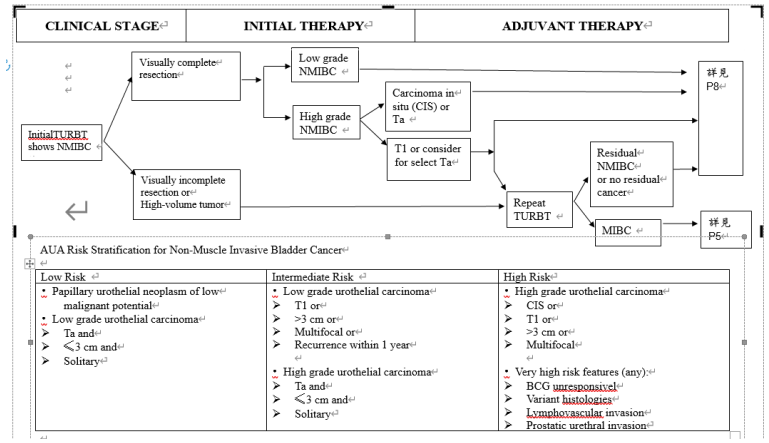
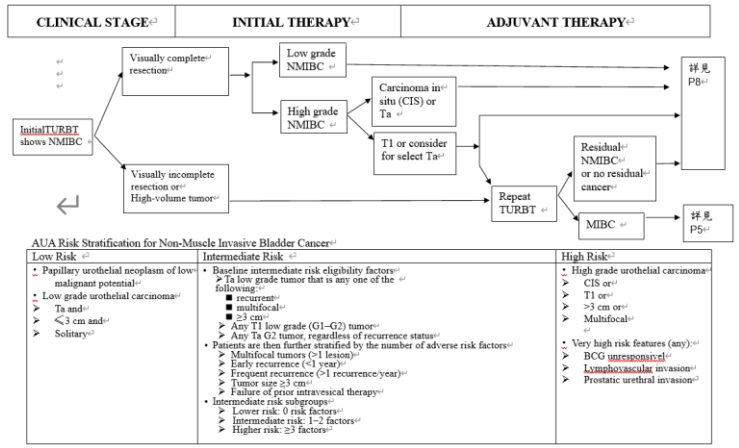
泌尿道系統癌診療指引

2026/04/10 Version18.1
2025/12/19 Version18.0
2024/11/22 Version17.0
2023/11/17 Version16.0
2023/06/09 Version15.0
2022/12/09Version14.0
2021/12/17Version 13.0
2020/11/27 Version 12.0
2019/12/06 Version 11.0
2018/04/02 Version 10.0
2017/12/01 Version 9.0
2016/11/04 Version 8.0
2015/11/20 Version 7.0
2014/12/19 Version 6.0
2013/12/27 Version 5.0
2012/12/07 Version 4.0
2011/11/18 Version 3.1
2011/01/21 Version 3.0
2010/05/28 Version 2.0
2009/12/16 Version 1.0

臨床指引參考台灣國家衛生研究院、與美國 NCCN 版本
再依據中山醫學大學附設醫院泌尿道癌小組經驗作編修
112.4 月癌委會提案通過除膀胱癌，新增腎癌、腎盂癌、輸尿管癌為泌尿道系統癌

癌症委員會主任委員	癌症委員會執行長	癌症中心主任	抗癌藥物安全小組	團隊負責人

修訂內容

頁數	第 18 版	第 18.1 版
第 1 頁	美國 National Comprehensive Cancer Network (NCCN) 的 Practice Guide-lines in Bladder Cancer-Version 2 2025 版	美國National Comprehensive Cancer Network (NCCN) 的 Practice Guide-lines in Bladder Cancer-Version 1.2026
第 5 頁		
第 6		

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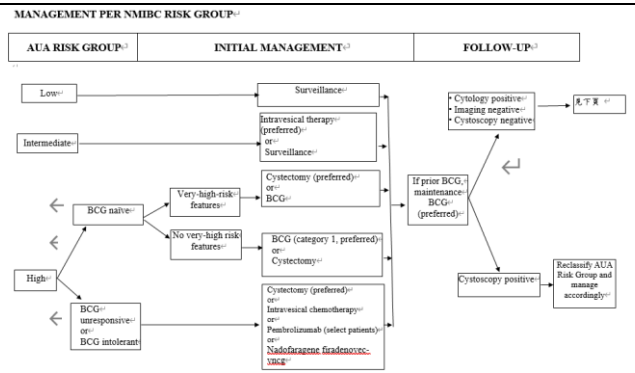

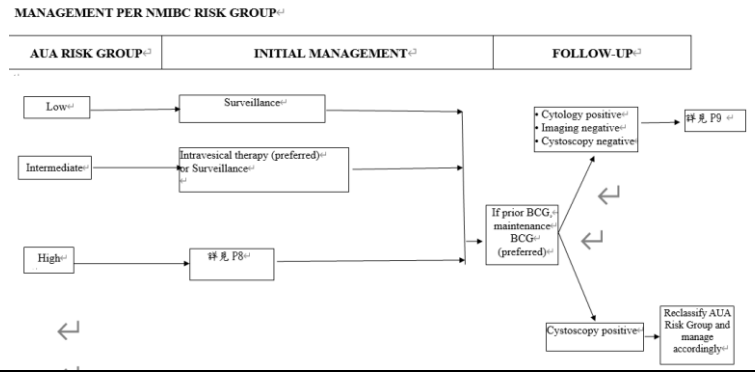

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MANAGEMENT PER NMIBC RISK GROUP

BCG naive high-risk NMIBC		
Preferred • BCG induction followed by maintenance therapy	Other recommended • Intravesical chemotherapy • Clinical trial	Useful in certain circumstances • Cystectomy
BCG unresponsive NMIBC, CIS +/- Ta/T1 papillary		
Preferred • Cystectomy • Clinical trial	Other recommended • Gemcitabine intravesical system • Intravesical multi-agent chemotherapy • Nadofaragene firadenovec-vncg • Nogapendekin alfa inbakicept-pmln + BCG	Useful in certain circumstances • Pembrolizumab • Intravesical single-agent chemotherapy (category 2B)
BCG unresponsive NMIBC, Ta/T1 papillary only without CIS		
Preferred • Cystectomy • Clinical trial	Other recommended • Gemcitabine intravesical system • Intravesical multi-agent chemotherapy • Nadofaragene firadenovec-vncg • Nogapendekin alfa inbakicept-pmln + BCG • Intravesical single-agent chemotherapy (category 2B)	Useful in certain circumstances • Pembrolizumab (category 2B)
BCG exposed high-risk NMIBC		
Preferred • Repeat BCG induction (particularly if initial BCG course inadequate) • Clinical trial	Other recommended • Intravesical multi-agent chemotherapy • Intravesical single agent chemotherapy	Useful in certain circumstances • Cystectomy

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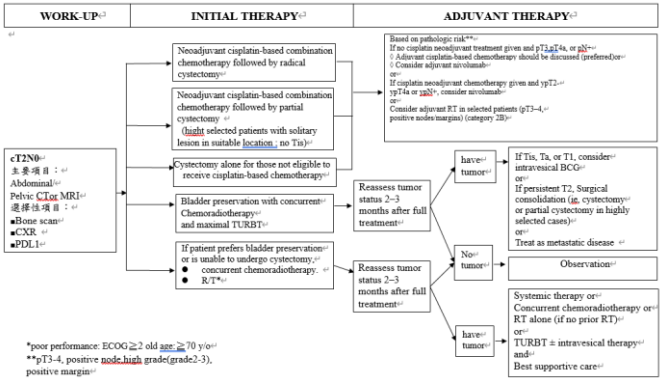

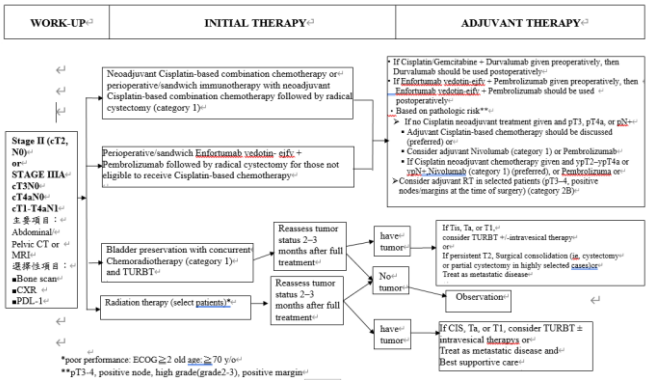

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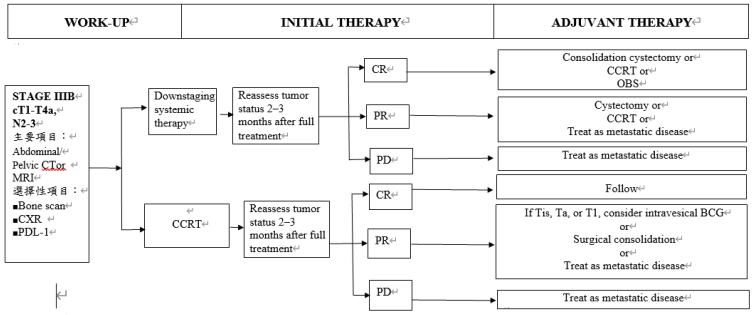

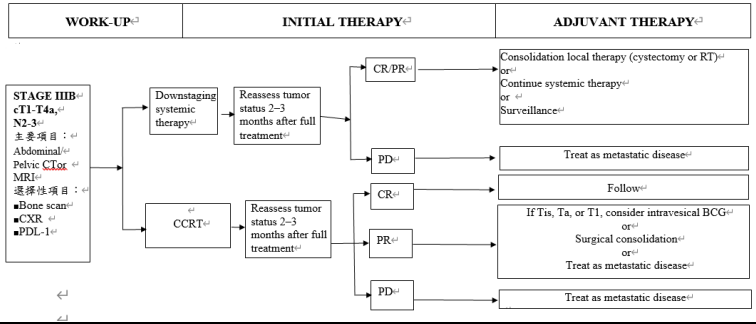

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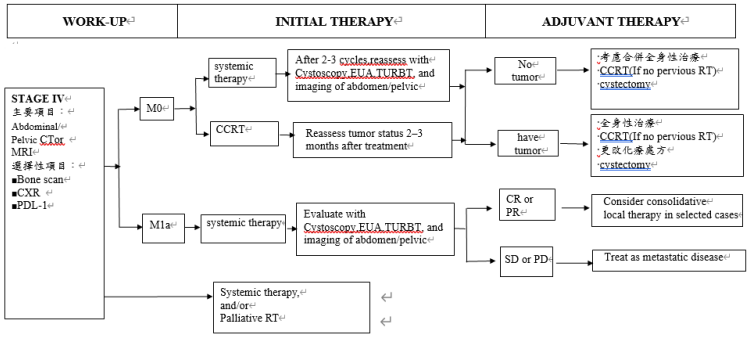

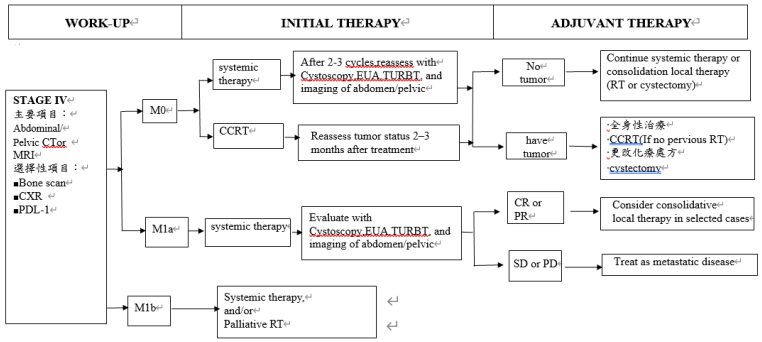

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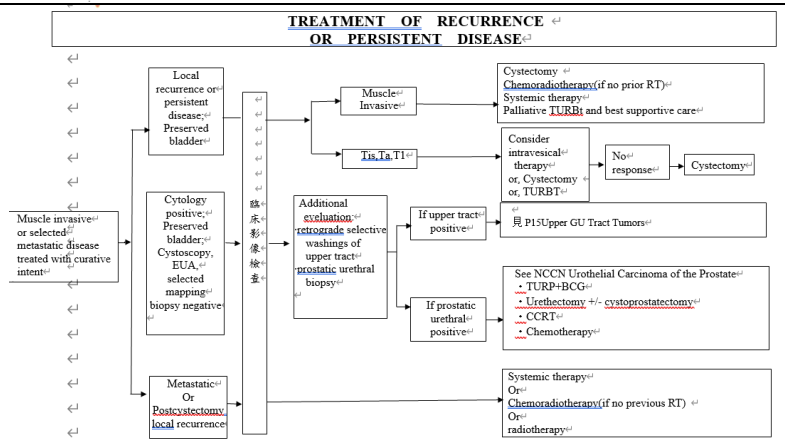

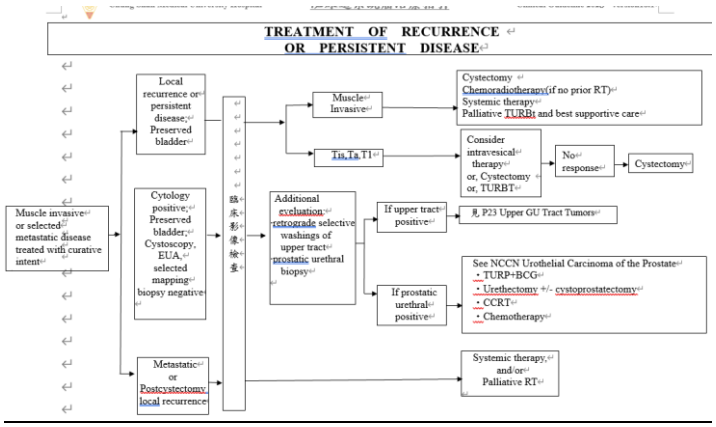

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FOLLOW – UP

AUA Risk Stratification for Non-muscle invasive Bladder Cancer

Low Risk	Intermediate Risk	High Risk
►Papillary urothelial neoplasm of low malignant potential ►Low grade(LG) ● Solitary and ● Ta and ● ≤3 cm	・Low grade urothelial carcinoma T1 or >3 cm or Multifocal or Recurrence within 1 year ・High grade urothelial carcinoma Ta and ≤3 cm and Solitary	・High grade urothelial carcinoma CIS or T1 or >3 cm or Multifocal ・Very high risk features (any): BCG unresponsive Variant histologies Lymphovascular invasion Prostatic urethral invasion

Low-Risk, Non-muscle invasive Bladder Cancer

test	year						
	1	2	3	4	5	5-10	>10
cystoscopy	3,12	annually				As clinically indicated	
Upper tract and abdominal/pelvic image	Baseline imaging	As clinically indicated					
Blood tests	N/A						
Urine tests	N/A						

FOLLOW – UP

Low-Risk, Non-muscle invasive Bladder Cancer

test	year						
	1	2	3	4	5	5-10	>10
cystoscopy	3,12	annually				As clinically indicated	
Upper tract and abdominal/pelvic image	Baseline imaging	As clinically indicated					
Blood tests	N/A						
Urine tests	N/A						

Intermediate Risk, Non-muscle invasive Bladder Cancer

test	year						
	1	2	3	4	5	5-10	>10
cystoscopy	3,6,12	Every 6 mo	annually			As clinically indicated	
Upper tract and abdominal/pelvic image	Baseline imaging	As clinically indicated					
Blood tests	N/A						
Urine tests	Urine cytology 3,6,12	Urine cytology every 6 mo	annually			As clinically indicated	

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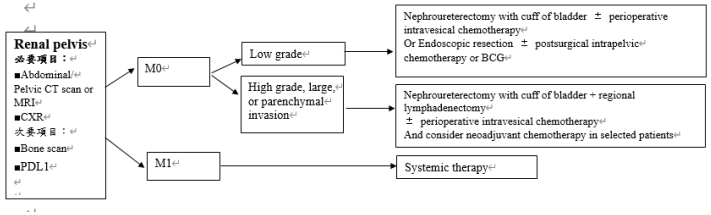
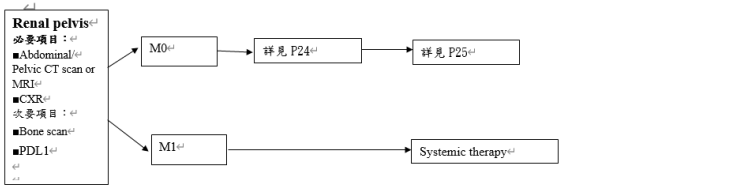
3-4 治療指引

腎盂癌



3-4 治療指引

腎盂癌



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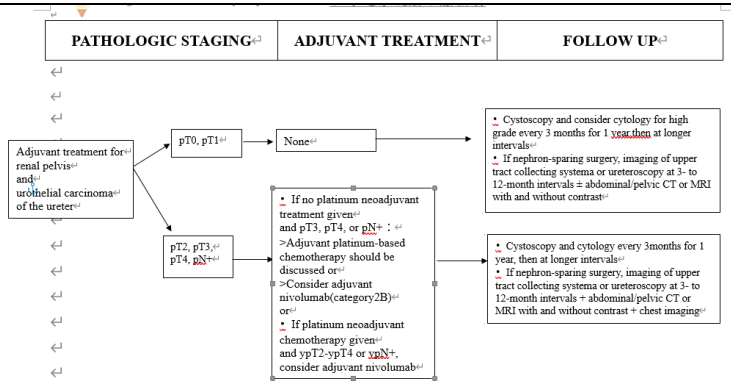
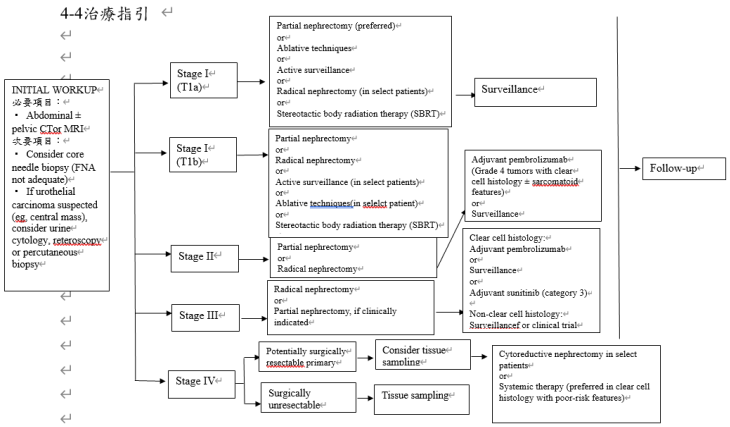
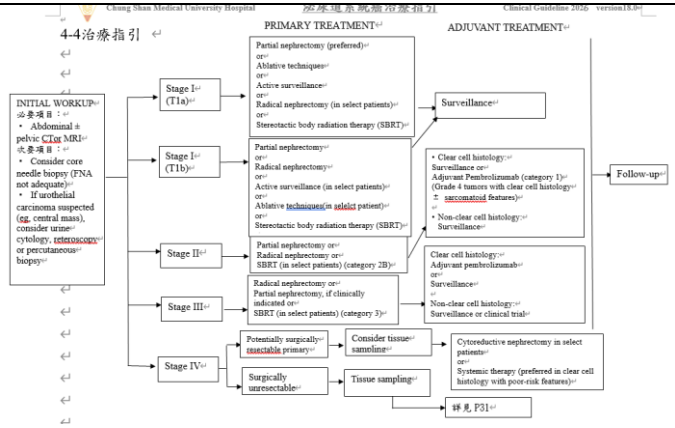
MANAGEMENT PER UTUC RISK GROUP

UTUC Risk	Grade	Focality & Size	Management	Imperative for nephron sparing
Low	Low	Unifocal & <1.5 cm	Endoscopic ablation[e] (thermal or laser) or chemo-ablation or Surveillance with periodic endoscopy and upper tract urography	Not applicable
Low Intermediate	Low	Multifocal or >1.5 cm	Endoscopic ablation[e] (thermal or laser) + intrapelvic (retrograde or antegrade) therapy[f]	Not applicable
High Intermediate	High	Unifocal & <1.5 cm	Radical nephroureterectomy with cuff of bladder +/- perioperative intravesical chemotherapy[f] and consideration of neoadjuvant chemotherapy in select patients[g]	Endoscopic ablation (thermal or laser) + intrapelvic (retrograde or antegrade) therapy[f]
High	High	Multifocal or >1.5 cm or high-grade renal obstruction or invasion on axial imaging	Radical nephroureterectomy with cuff of bladder +/- perioperative intravesical chemotherapy[f] and consideration of neoadjuvant chemotherapy in select patients[g]	Systemic therapy + radiation therapy (BL-G 6 of 8)

第25頁		pT2, pT3,pT4, pN+： 加上Pembrolizumab
第30		
第32頁	無	Perioperative/Sandwich Therapy： 加上 Enfortumab vedotin-ejfv + Pembrolizumab for 3 cycles prior to cystectomy, then Enfortumab vedotin-ejfv (6 cycles) + Pembrolizumab (14 cycles) after cystectomy (for cisplatin-ineligible bladder cancer only)

<table>
<tr>
<td>第36頁</td>
<td>
Chemotherapy for metastatic cancer
Principles of systemic therapy
<table>
<tr><th colspan="2">First-line chemotherapy for locally advanced or metastatic disease(Stage IV)</th></tr>
<tr><td>Cisplatin eligible</td><td>Preferred regimens
• Pembrolizumab and enfortumab vedotin-ejfv (category 1)
Other recommended regimens
• Gemcitabine and cisplatin (category 1) followed by avelumab maintenance therapy (category 1)
• Nivolumab, gemcitabine, and cisplatin (category 1) followed by nivolumab maintenance therapy(category 1)
Useful under certain circumstances
• DDMVAC with growth factor support (category 1)followed by avelumab maintenance therapy (category 1)</td></tr>
<tr><td>Cisplatin ineligible</td><td>Preferred regimens
• Gemcitabine and carboplatin followed by avelumab maintenance therapy
• Pembrolizumab (for the treatment of patients with locally advanced or metastatic urothelial carcinoma whoare not eligible for any platinum-containing chemotherapy)
• Pembrolizumab and enfortumab vedotin-ejfv
Other recommended regimens
• Gemcitabine
• Gemcitabine and paclitaxel
• Atezolizumab (only for patients whose tumors express PD-L1) (category 2B)
Useful under certain circumstances
• Ifosfamide, doxorubicin, and gemcitabine (for patients with good kidney function and good PS)
• Atezolizumab (only for patients who are not eligible for any platinum-containing chemotherapy regardless of PD-L1 expression) (category 3)</td></tr>
</table>
</td>
<td>
Chemotherapy for metastatic cancer
Principles of systemic therapy
<table>
<tr><th colspan="3">First-Line Systemic Therapy for Locally Advanced or Metastatic Disease (Stage IV)</th></tr>
<tr><td>Preferred
• Enfortumab vedotin-ejfv+ Pembrolizumab (category 1)</td><td>Other recommended
• Cisplatin/Gemcitabine(category 1) followed by Avelumab maintenance therapy (category 1)
• Cisplatin/Gemcitabine + Nivolumab (category 1) followed by Nivolumab maintenance therapy (category 1)
• DDMVAC with growth factor support (category 1) followed by Avelumab maintenance therapy (category 1)</td><td>Useful in certain circumstances
• Carboplatin/Gemcitabine followed by Avelumab maintenance therapy (category 1)
• Pembrolizumab (for the treatment of patients with locally advanced or metastatic urothelial carcinoma who are not eligible for any platinum-containing chemotherapy)
• Atezolizumab (only for patients whose tumors express PD-L1 or who are not eligible for any platinum-containing chemotherapy regardless of PD-L1 expression) (category 2B)</td></tr>
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<td>第37頁</td>
<td>
<table>
<tr><th colspan="3">Second-Line Systemic Therapy for Locally Advanced or Metastatic Disease (Stage IV)</th></tr>
<tr><th colspan="3">Previous immunotherapy and enfortumab vedotin-ejfv (no previous chemotherapy)</th></tr>
<tr><td>Preferred regimens
• DDMVAC with growth factor support
• Gemcitabine and cisplatin
• Gemcitabine and carboplatin (category 2B)
• Enfortumab vedotin-ejfv
• Enfortumab vedotin-ejfv and pembrolizumab
• Biomarker-directed therapy (see biomarker-directed therapy table)</td><td>Other recommended regimens
• Paclitaxel or docetaxel
• Gemcitabine</td><td>Useful in certain circumstances
• Gemcitabine, cisplatin, and nivolumab (category 2B)
• Ifosfamide, doxorubicin, and gemcitabine30(category 2B)
• Gemcitabine and paclitaxel31 (category 2B)</td></tr>
<tr><th colspan="3">Previous chemotherapy (no previous immunotherapy or enfortumab vedotin-ejfv)</th></tr>
<tr><td>Preferred regimens
• Pembrolizumab (category 1 post-platinum)
• Enfortumab vedotin-ejfv and pembrolizumab
• Enfortumab vedotin-ejfv
• Nivolumab(category 2B)
• Avelumab (category 2B)
• Biomarker-directed therapy (see biomarker-directed therapy table)</td><td>Other recommended regimens
• Paclitaxel or docetaxel
• Gemcitabine</td><td>Useful in certain circumstances
• DDMVAC with growth factor support2 (category 2B)
• Ifosfamide, doxorubicin, and gemcitabine30 (category 2B)
• Gemcitabine and paclitaxel31 (category 2B)
• Gemcitabine and cisplatin4 (category 2B)</td></tr>
<tr><th colspan="3">Previous chemotherapy and immunotherapy (no previous enfortumab vedotin-ejfv)</th></tr>
<tr><td>Preferred regimens
• Enfortumab vedotin-ejfv(category 1)
• Biomarker-directed therapy (see biomarker-directed therapy table)</td><td>Other recommended regimens
• Enfortumab vedotin-ejfv and pembrolizumab
• Paclitaxel or docetaxel
• Gemcitabine
• Gemcitabine and cisplatin4
• DDMVAC with growth factor support2
• Ifosfamide, doxorubicin, and gemcitabine (category 2B)</td><td>Useful in certain circumstances
• Sacituzumab govitecan-hziy</td></tr>
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<td>第38頁</td>
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<table>
<tr><td></td><td>• Gemcitabine and paclitaxel (category 2B)</td><td></td></tr>
<tr><th colspan="3">Subsequent-Line Systemic Therapy for Locally Advanced or Metastatic Disease (Stage IV)d,e</th></tr>
<tr><th colspan="3">Previous chemotherapy, immunotherapy, and enfortumab vedotin-ejfv</th></tr>
<tr><td>Preferred regimen
• Biomarker-directed therapy Biomarker-directed therapy (see biomarker-directed therapy table)</td><td>Other recommended regimens
• Gemcitabine
• Paclitaxel or docetaxel
• Ifosfamide, doxorubicin, and gemcitabine(category 2B)
• Gemcitabine and paclitaxel31 (category 2B)</td><td>Useful in certain circumstances
• Sacituzumab govitecan-hziy</td></tr>
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</td>
<td>1. 刪除用藥圖表
2. 新增化療組套 CheckMate 901</td>
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第40頁

5-2 腎臟癌

PRINCIPLES OF SYSTEMIC THERAPY FOR RELAPSE OR STAGE IV DISEASE

FIRST-LINE THERAPY FOR CLEAR CELL HISTOLOGY			
Risk	Preferred Regimens	Other Recommended Regimens	Useful in Certain Circumstances
Favorable	• Axitinib + pembrolizumab (category 1) • Cabozantinib + nivolumab (category 1) • Lenvatinib + pembrolizumab (category 1) •Ipilimumab + nivolumab	• Axitinib + avelumab • Cabozantinib (category 2B) • Pazopanib • Sunitinib	• Active surveillance • Axitinib (category 2B)
Poor/intermediate	Axitinib + pembrolizumab(category 1) • Cabozantinib + nivolumab (category 1) • Ipilimumab + nivolumab(category 1) • Lenvatinib + pembrolizumab(category 1) • Cabozantinib	• Axitinib + aveluma • Pazopanib • Sunitinib	• Axitinib (category 2B) •

SUBSEQUENT THERAPY FOR CLEAR CELL HISTOLOGY (IN ALPHABETICAL ORDER BY CATEGORY)				
Immuno-oncology (IO)Therapy History Status	Preferred Regimens	Other Recommended Regimens	Useful in Certain Circumstances	
IO Therapy NaÏve	• None	• Axitinib + pembrolizumab • Cabozantinib • Cabozantinib + nivolumab • Ipilimumab + nivolumab • Lenvatinib + everolimus • Lenvatinib + pembrolizumab • Nivolumab	• Axitinib • Everolimus • Pazopanib • Sunitinib • Tivozanib • Belzutifan (category 2B) • Bevacizumab (category 2B)	• Axitinib + avelumab (category 3) • Lenvatinib
Prior IO Therapy	• None	• Axitinib • Cabozantinib • Lenvatinib + everolimus • Belzutifan	• Axitinib + pembrolizumab • Cabozantinib + nivolumab • Everolimus • Ipilimumab + nivolumab • Lenvatinib + pembrolizumab • Pazopanib • Sunitinib	• Bevacizumab(category 2B) • Axitinib + avelumab (category 3)

SYSTEMIC THERAPY FOR NON-CLEAR CELL HISTOLOGY		
Preferred Regimens	Other Recommended Regimens	Useful in Certain Circumstances
• Clinical trial • Cabozantinib •Nivolumab + cabozantinib •Lenvatinib + pembrolizumab	• Lenvatinib + everolimus • Nivolumab • Pembrolizumab •Sunitinib • Bevacizumab + erlotinib for selected patients with advanced papillary RCC including hereditary leiomyomatosis and renal cell carcinoma (HLRCC)-associated RCC	• Axitinib • Bevacizumabf + everolimus • Everolimus • Nivolumab + ipilimumab (category 2B)

刪除 SUBSEQUENT THERAPY FOR CLEAR CELL HISTOLOGY 之用藥圖表

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一、前言

本共識手冊內所提之各種診治意見，為原則性之建議，希望能為癌症患者及其家屬提供一個正確的指引；但對臨床醫師之醫療行為無絕對之法律性約束力！由於醫藥科技持續在進步，每位患者的病情亦不盡相同；醫師應就病人之病情做個別的考量，病人和家屬亦應與醫師溝通討論，以決定最適當之診治方式。

根據2022年12月出版的國健署癌症登記年報，腎惡性腫瘤(C64)發生個案數占全部惡性腫瘤發生個案數的1.35%，當年因此死亡人數占全部惡性腫瘤死亡人數的1.14%。發生率的排名於男性為第15位、女性為第17位；死亡率的排行於男性為第14位、女性為第17位；腎盂及其他泌尿器官惡性腫瘤(C65-66,C68)發生個案數占全部惡性腫瘤發生個案數的1.42%，當年因此惡性腫瘤死亡人數占全部惡性腫瘤死亡人數的1.34%。發生率的排名於男性為第17位、女性為第14位；死亡率的排行於男性為第16位、女性為第13位；膀胱惡性腫瘤(C67)發生個案數占全部惡性腫瘤發生個案數的1.99%，當年因此惡性腫瘤死亡人數占全部惡性腫瘤死亡人數的2.12%。發生率的排名於男性為第11位、女性為第16位；死亡率的排行於男性為第11位、女性為第14位。

本院自2009年6月開始由泌尿外科、病理科、醫學影像部、放射腫瘤科與血液/腫瘤內科組成膀胱癌團隊，個案數逐年增加，自2023年4月癌委會提案通過除膀胱癌，新增腎癌、腎盂癌、輸尿管癌為泌尿道系統癌。本院泌尿道系統癌治療，藉由科際合作及定期開會討論，得到很好的治療成果。尤其是本院的病人群中有一定的比例是腎移植後併發癌病的泌尿移形上皮細胞癌，他們的移形上皮細胞癌，常是多發性，散見於病人本身已衰竭的腎臟，或是輸尿管及膀胱上，我們認為若能在病人發生血尿或腰痛時作篩檢，將可提早發現癌症這個併發症。這也讓我們累積了相當豐富的處理經驗及成為中台灣腎移植病人照顧中心。

本院泌尿道系統癌診斷及治療指引的建立，除了依據已發表的實證醫學證據及專家意見外，並參考國家衛生研究院膀胱癌臨床指引、美國National Comprehensive Cancer Network (NCCN) 的 Practice Guide-lines in Bladder Cancer-Version 1.2026版、及中山醫學大學附設醫院泌尿道系統癌治療經驗進行編修。

二、膀胱癌

2-1 症狀、診斷和檢查

膀胱癌的一些常見症狀包括：

(1)血尿（顏色呈淺褐色至深紅色）。

(2)解尿疼痛。

(3)頻尿或是常有尿意感但卻無小便。

當上述這些症狀產生時，並不確定是膀胱癌。也有可能是因為感染，良性腫瘤、膀胱癌結石或其它原因所造成，必須靠醫師來確定診斷，如此才能早期診斷，早期治療。

為了找出症狀的原因，醫生會詢問患者的病史並執行一些身體檢查。身體檢查包括直腸或陰道檢查，來幫助醫師檢查是否有腫瘤的存在。另外，尿液檢體會被送到實驗室檢驗來檢查是否有血液和癌細胞的存在。

使用膀胱鏡檢查直接檢查膀胱，檢查過程可能需要採局部或全身麻醉，可藉由膀胱鏡取出組織標本做切片檢查，這是唯一可以確定是否有癌細胞的方法。如果整個癌症在膀胱鏡下切片時被移除，膀胱癌便在單一的治療程序下被診斷及治療。膀胱癌的分期可能在診斷的同時就可以確定，或者它可能需要再做一些其它的檢查。這些檢查可能包括影像學檢查--電腦斷層掃描、磁振造影、超音波、靜脈腎盂攝影術、骨骼掃描或胸腔 X 光等。

2-2 組織病理分類與分化

膀胱癌的病理組織分化依2004 WHO grading分為：

Urothelial papilloma

Papillary urothelial neoplasm of low malignant potential (PUNLMP)

Low-grade papillary urothelial carcinoma

High-grade papillary urothelial carcinoma

2-3 分期

American Joint Committee on Cancer (AJCC)TNM Staging System for **Bladder Cancer** 8th ed., 2017)

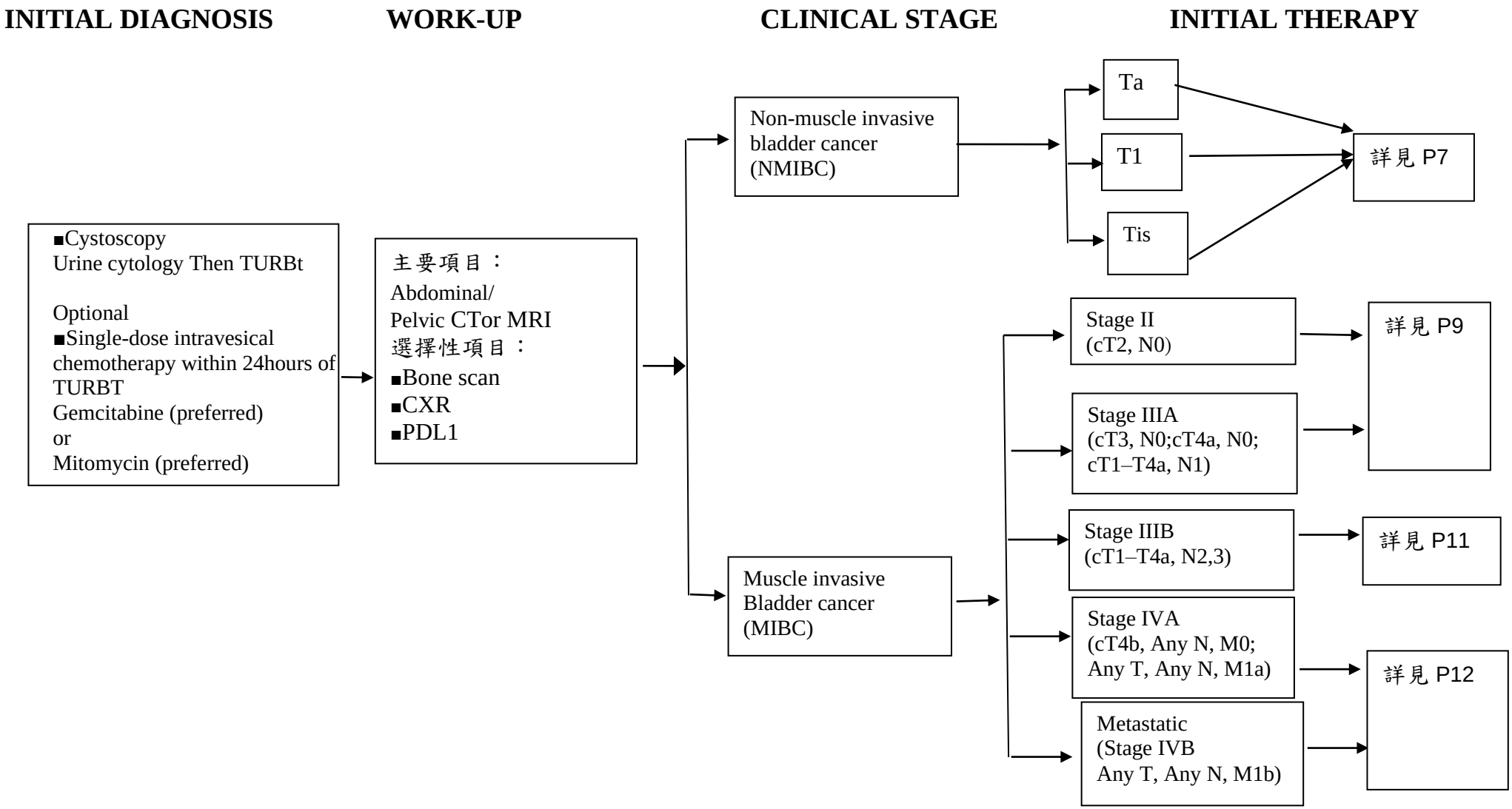
T		Primary Tumor
TX		Primary tumor cannot be assessed
T0		No evidence of primary tumor
Ta		Non-invasive papillary carcinoma
Tis		Urothelial carcinoma in situ:“flat tumor”
T1		Tumor invades lamina propria (subepithelial connective tissue)
T2		Tumor invades muscularis propria
	pT2a	Tumor invades superficial muscularis propria (inner half)
	pT2b	Tumor invades deep muscularis propria (outer half)
T3		Tumor invades perivesical tissue
	pT3a	microscopically
	pT3b	macroscopically (extravesical mass)
T4		Extravesical tumor directly invades any of the following: prostatic stroma, seminal vesicles, uterus, vagina, pelvic wall, abdominal wall
	T4a	Extravesical tumor invades prostatic stroma, seminal vesicles, uterus, vagina
	T4b	Extravesical tumor invades pelvic wall, abdominal wall

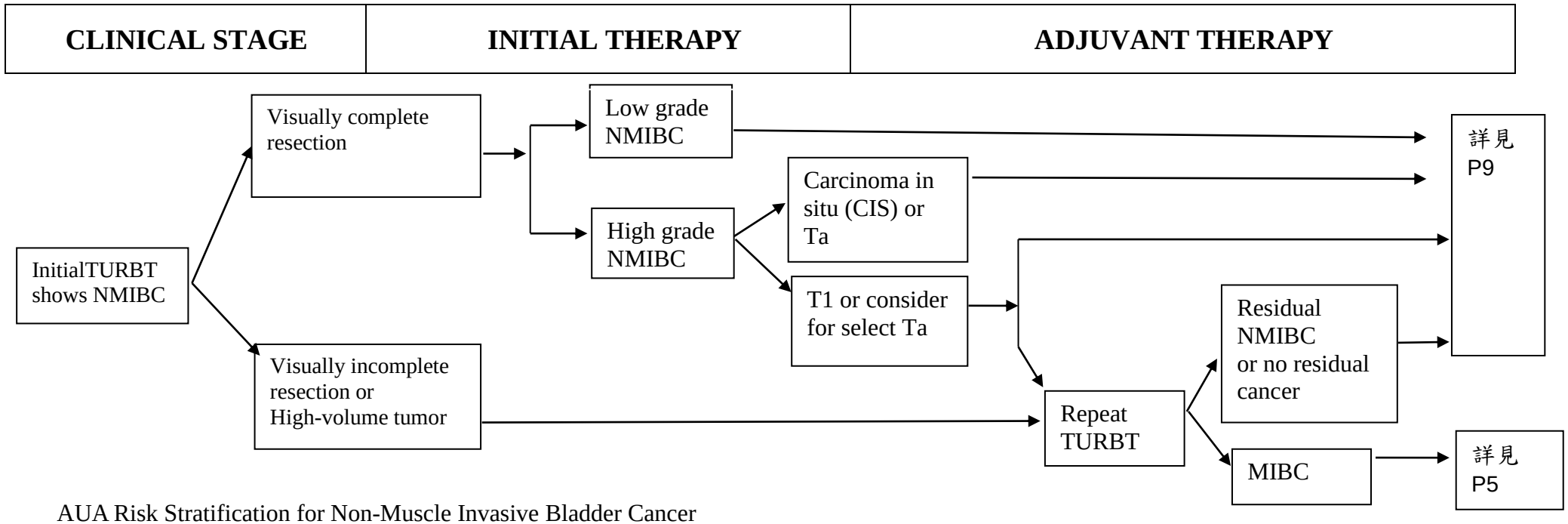
N	Regional Lymph Nodes
NX	Lymph nodes cannot be assessed
N0	No lymph node metastasis
N1	Single regional lymph node metastasis in the true pelvis (perivesical, obturator, internal and external iliac, or sacral lymph node)
N2	Multiple regional lymph node metastasis in the true pelvis (perivesical, obturator, internal and external iliac, or sacral lymph node metastasis)
N3	Lymph node metastasis to the common iliac lymph nodes

M	Distant Metastasis
M0	No distant metastasis
M1	Distant metastasis
M1a	Distant metastasis limited to lymph nodes beyond the common iliacs
M1b	Non-lymph node distant metastasis

When T is…	And N is…	And M is…	Then the stage group is…
Ta	N0	M0	0a
Tis	N0	M0	0is
T1	N0	M0	I
T2a	N0	M0	II
T2b	N0	M0	II
T3a, T3b, T4a	N0	M0	IIIA
T1 - T4a	N1	M0	IIIA
T1 - T4a	N2, N3	M0	IIIB
T4b	Any N	M0	IVA
Any T	Any N	M1a	IVA
Any T	Any N	M1b	IVB

2-4 治療指引

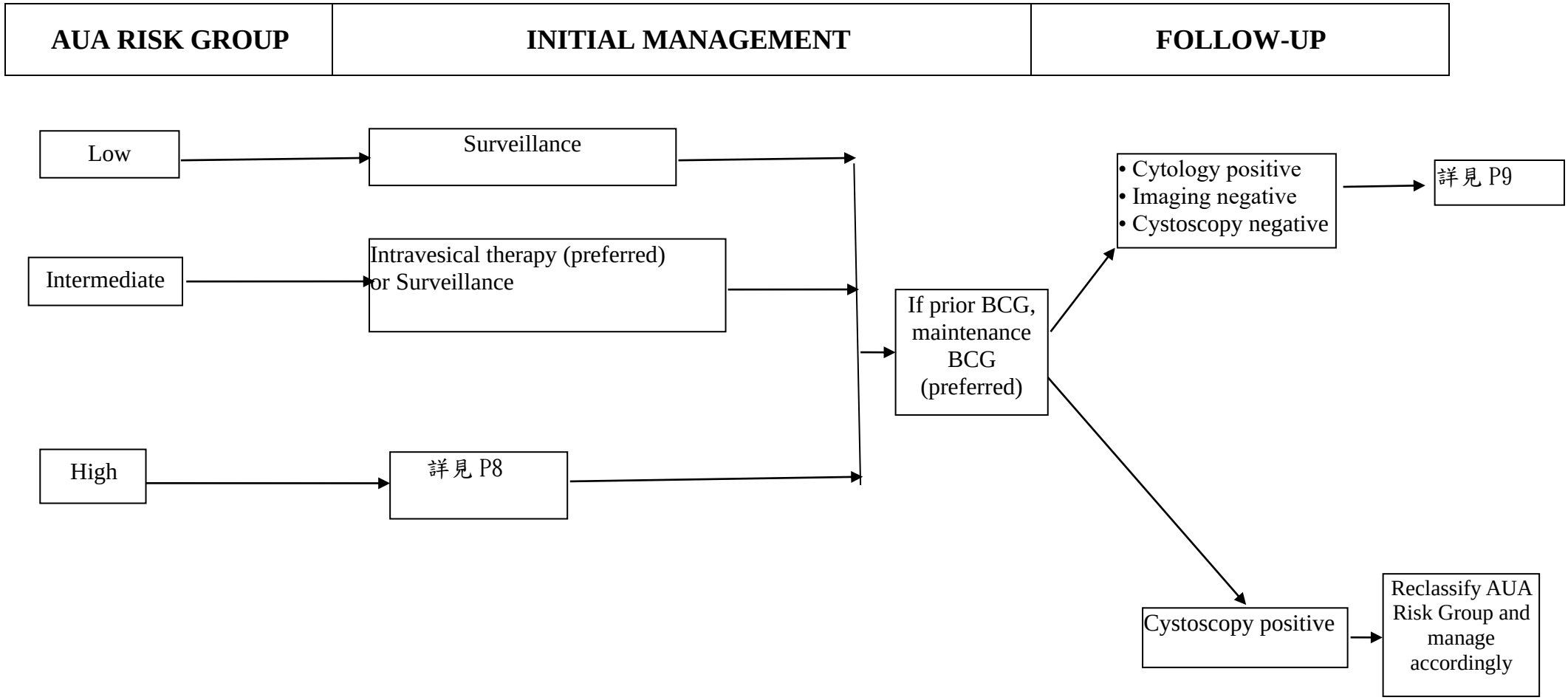

INITIAL DIAGNOSIS
WORK-UP
CLINICAL STAGE
INITIAL THERAPY
■Cystoscopy
Urine cytology Then TURBt
Optional
■Single-dose intravesical chemotherapy within 24hours of TURBT
Gemcitabine (preferred)
or
Mitomycin (preferred)
主要項目：
Abdominal/
Pelvic CTor MRI
選擇性項目：
■Bone scan
■CXR
■PDL1
Non-muscle invasive bladder cancer (NMIBC)
Ta
T1
Tis
詳見 P7
Muscle invasive Bladder cancer (MIBC)
Stage II (cT2, N0)
詳見 P9
Stage IIIA (cT3, N0;cT4a, N0; cT1–T4a, N1)
Stage IIIB (cT1–T4a, N2,3)
詳見 P11
Stage IVA (cT4b, Any N, M0; Any T, Any N, M1a)
詳見 P12
Metastatic (Stage IVB Any T, Any N, M1b)



AUA Risk Stratification for Non-Muscle Invasive Bladder Cancer

Low Risk	Intermediate Risk	High Risk
• Papillary urothelial neoplasm of low malignant potential • Low grade urothelial carcinoma ➢ Ta and ➢ ≤3 cm and ➢ Solitary	• Baseline intermediate risk eligibility factors ➢ Ta low grade tumor that is any one of the following: ■ recurrent ■ multifocal ■ ≥3 cm ➢ Any T1 low grade (G1–G2) tumor ➢ Any Ta G2 tumor, regardless of recurrence status • Patients are then further stratified by the number of adverse risk factors ➢ Multifocal tumors (>1 lesion) ➢ Early recurrence (<1 year) ➢ Frequent recurrence (>1 recurrence/year) ➢ Tumor size ≥3 cm ➢ Failure of prior intravesical therapy • Intermediate risk subgroups ➢ Lower risk: 0 risk factors ➢ Intermediate risk: 1–2 factors ➢ Higher risk: ≥3 factors	• High grade urothelial carcinoma ➢ CIS or ➢ T1 or ➢ >3 cm or ➢ Multifocal • Very high risk features (any): ➢ BCG unresponsivel ➢ Lymphovascular invasion ➢ Prostatic urethral invasion

MANAGEMENT PER NMIBC RISK GROUP



MANAGEMENT PER NMIBC RISK GROUP

BCG naïve high-risk NMIBC		
Preferred • BCG induction followed by maintenance therapy	Other recommended • Intravesical chemotherapy • Clinical trial	Useful in certain circumstances • Cystectomy
BCG unresponsive NMIBC, CIS +/- Ta/T1 papillary		
Preferred • Cystectomy • Clinical trial	Other recommended • Gemcitabine intravesical system • Intravesical multi-agent chemotherapy • Nadofaragene firadenovec-vncg • Nogapendekin alfa inbakicept-pmln + BCG	Useful in certain circumstances • Pembrolizumab • Intravesical single-agent chemotherapy (category 2B)
BCG unresponsive NMIBC, Ta/T1 papillary only without CIS		
Preferred • Cystectomy • Clinical trial	Other recommended • Gemcitabine intravesical system • Intravesical multi-agent chemotherapy • Nadofaragene firadenovec-vncg • Nogapendekin alfa inbakicept-pmln + BCG • Intravesical single-agent chemotherapy (category 2B)	Useful in certain circumstances • Pembrolizumab (category 2B)
BCG exposed high-risk NMIBC		
Preferred • Repeat BCG induction (particularly if initial BCG course inadequate) • Clinical trial	Other recommended • Intravesical multi-agent chemotherapy • Intravesical single agent chemotherapy	Useful in certain circumstances • Cystectomy

Management of Positive Urine Cytology

RECURRENT OR PERSISTENT DISEASE FOLLOW-UP RESULTS	EVALUATION	TREATMENT
• Cytology positive • Imaging negative • Cystoscopy negative	• If initial positive cytology, consider repeating cytology test within 3 months or • If repeated positive cytology, Consider selected mapping biopsies including transurethral biopsy of prostate and Cytology of upper Tract and Consider Ureteroscopy and Consider enhanced cystoscopy (if available) available) and Consider nonurinary tract source (eg, vagina, cervix, rectum) and referral to gynecology or other specialist, as appropriate.	Bladder, prostate, and upper tract negative → Follow-up at 3 mo, then at longer intervals or If prior BCG, maintenance BCG (optional) Bladder positive → 回非肌肉侵犯型路徑 Prostate positive → See Urothelial Carcinoma of the Prostate 詳見 P Upper tract positive → See Upper GU Tract Tumors 詳見 P23

WORK-UP	INITIAL THERAPY	ADJUVANT THERAPY

Stage II (cT2, N0)
or
STAGE IIIA
cT3N0
cT4aN0
cT1-T4aN1
主要項目：
Abdominal/ Pelvic CT or MRI
選擇性項目：
▪Bone scan
▪CXR
▪PDL-1

→ Neoadjuvant Cisplatin-based combination chemotherapy or perioperative/sandwich immunotherapy with neoadjuvant Cisplatin-based combination chemotherapy followed by radical cystectomy (category 1)

→ Perioperative/sandwich Enfortumab vedotin- ejfv + Pembrolizumab followed by radical cystectomy for those not eligible to receive Cisplatin-based chemotherapy

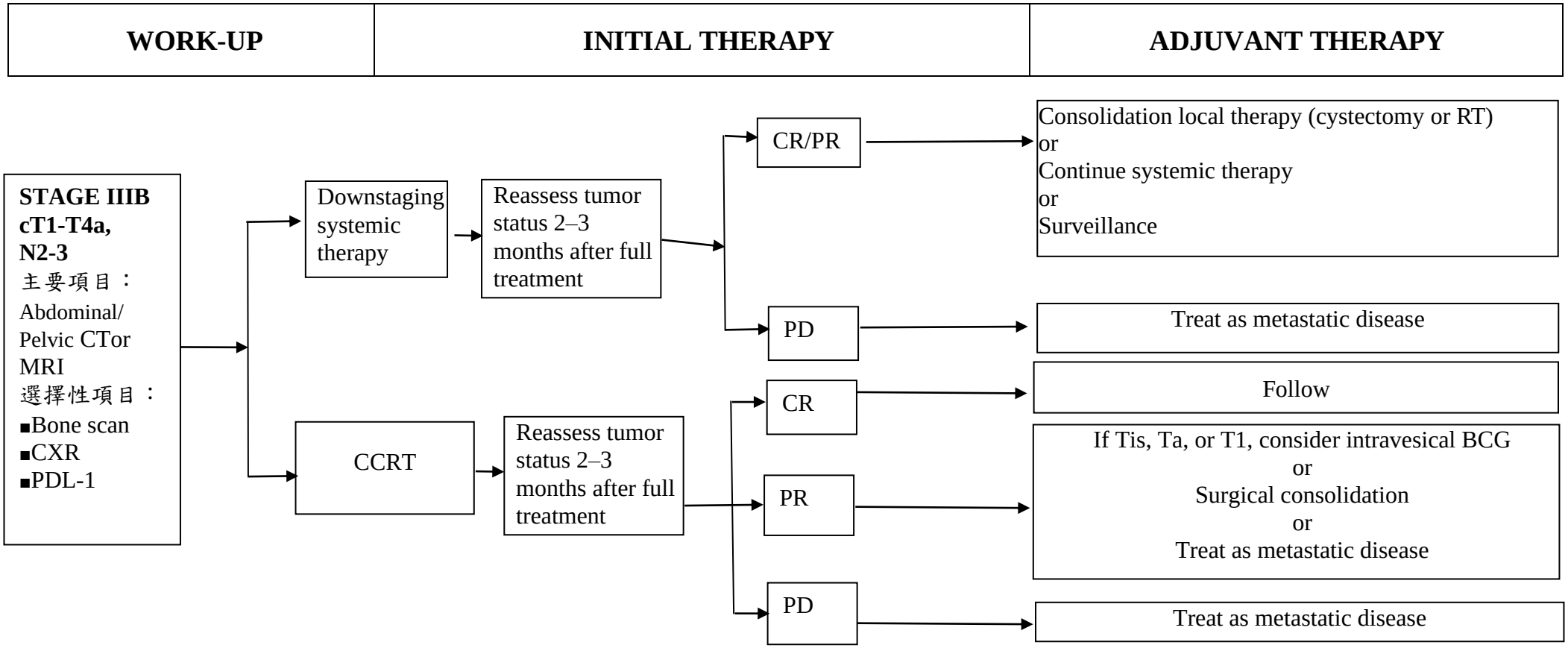
→ Bladder preservation with concurrent Chemoradiotherapy (category 1) and TURBT → Reassess tumor status 2–3 months after full treatment

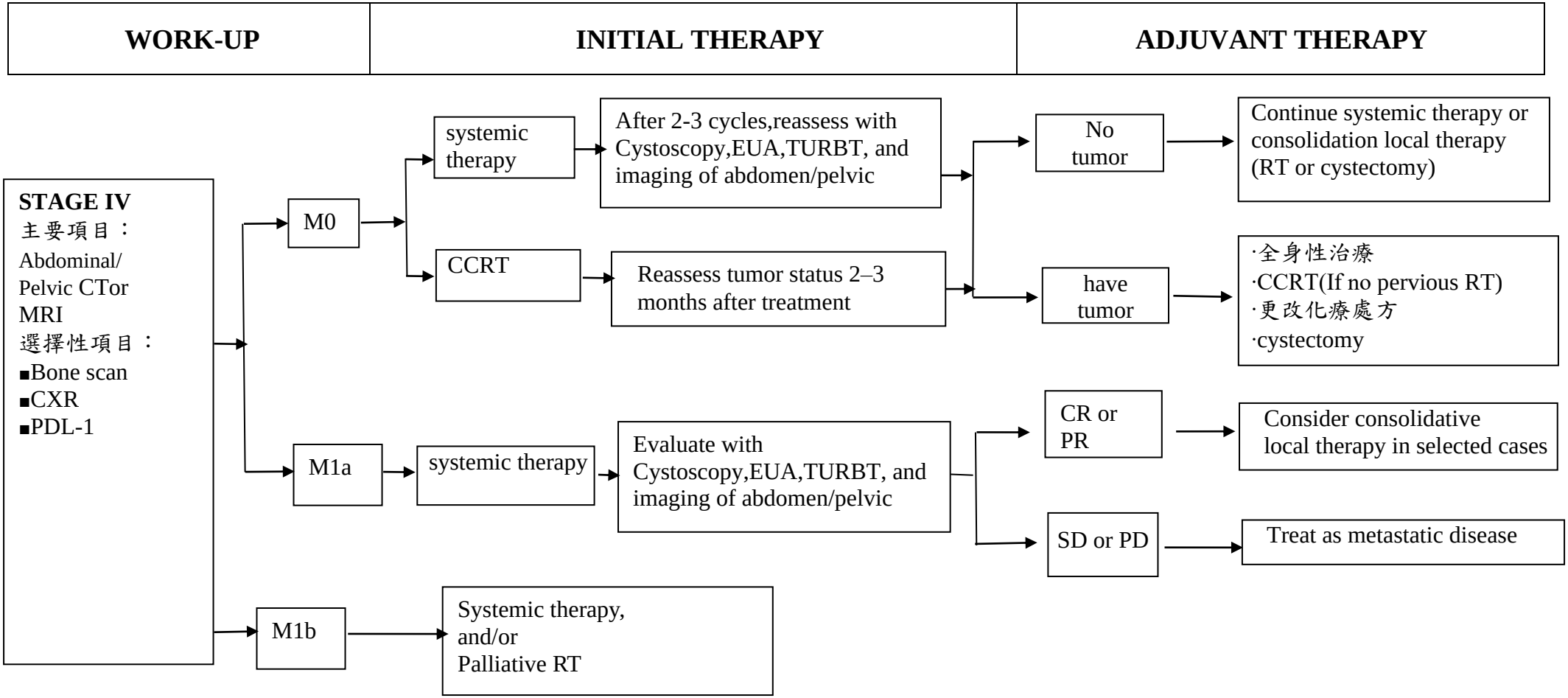
→ Radiation therapy (select patients)* → Reassess tumor status 2–3 months after full treatment

Reassess tumor status 2–3 months after full treatment:
- have tumor → If Tis, Ta, or T1, consider TURBT +/-intravesical therapy or If persistent T2, Surgical consolidation (ie, cystectomy or partial cystectomy in highly selected cases)or Treat as metastatic disease
- No tumor → Observation
- have tumor → If CIS, Ta, or T1, consider TURBT ± intravesical therapys or Treat as metastatic disease and Best supportive care

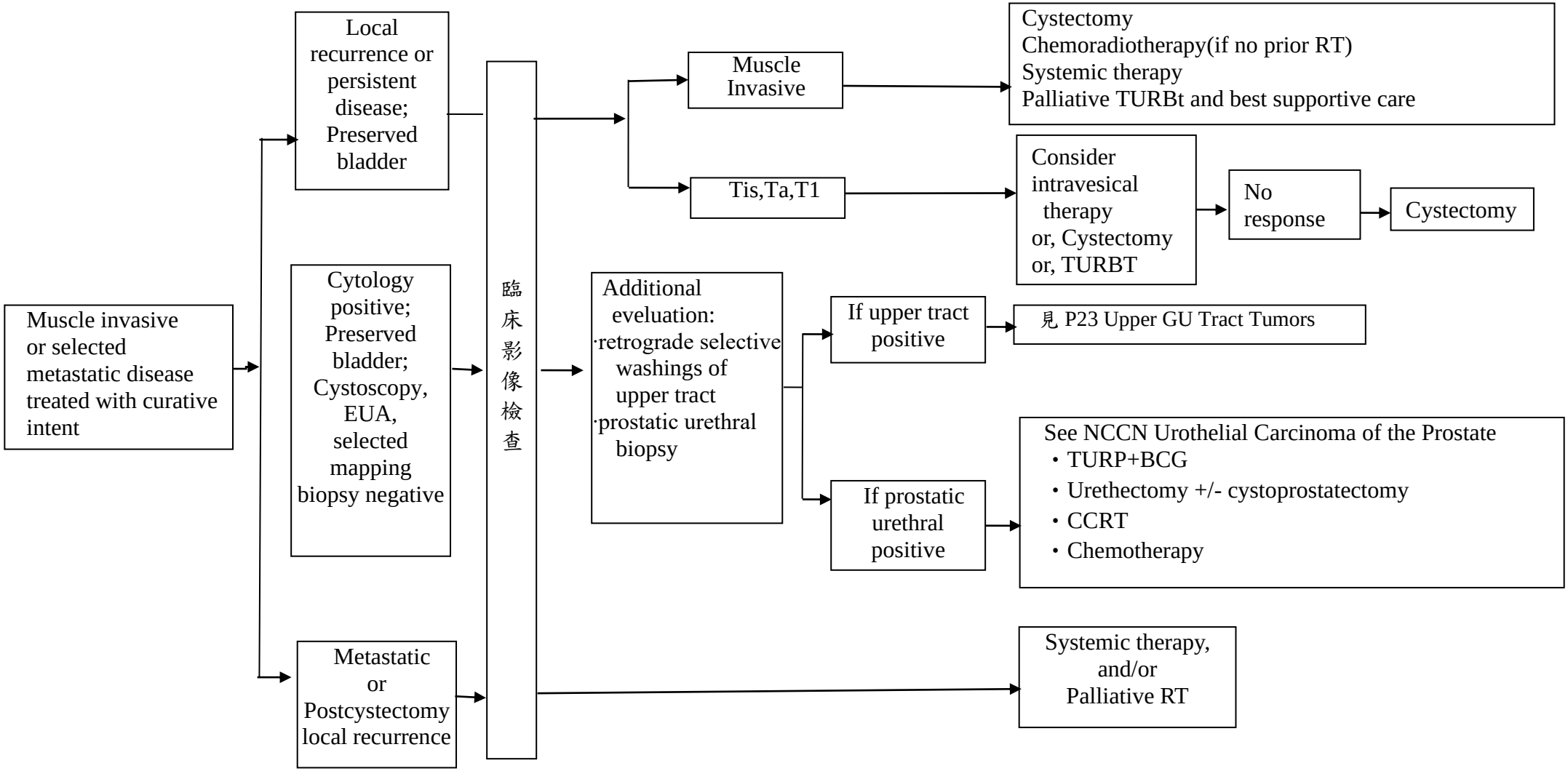
→ ADJUVANT THERAPY:
- If Cisplatin/Gemcitabine + Durvalumab given preoperatively, then Durvalumab should be used postoperatively
- If Enfortumab vedotin-ejfv + Pembrolizumab given preoperatively, then Enfortumab vedotin-ejfv + Pembrolizumab should be used postoperatively
- Based on pathologic risk**
  - ➢ If no Cisplatin neoadjuvant treatment given and pT3, pT4a, or pN+
    - ▪ Adjuvant Cisplatin-based chemotherapy should be discussed (preferred) or
    - ▪ Consider adjuvant Nivolumab (category 1) or Pembrolizumab
    - ▪ If Cisplatin neoadjuvant chemotherapy given and ypT2–ypT4a or ypN+,Nivolumab (category 1) (preferred), or Pembrolizuma or
  - ➢ Consider adjuvant RT in selected patients (pT3–4, positive nodes/margins at the time of surgery) (category 2B)

*poor performance: ECOG≧2 old age:≧70 y/o
**pT3-4, positive node, high grade(grade2-3), positive margin


WORK-UP
INITIAL THERAPY
ADJUVANT THERAPY
STAGE IIIB
cT1-T4a,
N2-3
主要項目：
Abdominal/
Pelvic CTor
MRI
選擇性項目：
■Bone scan
■CXR
■PDL-1
Downstaging systemic therapy
Reassess tumor status 2–3 months after full treatment
CR/PR
Consolidation local therapy (cystectomy or RT)
or
Continue systemic therapy
or
Surveillance
PD
Treat as metastatic disease
CCRT
Reassess tumor status 2–3 months after full treatment
CR
Follow
PR
If Tis, Ta, or T1, consider intravesical BCG
or
Surgical consolidation
or
Treat as metastatic disease
PD
Treat as metastatic disease


WORK-UP
INITIAL THERAPY
ADJUVANT THERAPY
STAGE IV
主要項目：
Abdominal/
Pelvic CTor
MRI
選擇性項目：
■Bone scan
■CXR
■PDL-1
M0
systemic therapy
After 2-3 cycles,reassess with Cystoscopy,EUA,TURBT, and imaging of abdomen/pelvic
No tumor
Continue systemic therapy or consolidation local therapy (RT or cystectomy)
CCRT
Reassess tumor status 2–3 months after treatment
have tumor
·全身性治療
·CCRT(If no pervious RT)
·更改化療處方
·cystectomy
M1a
systemic therapy
Evaluate with Cystoscopy,EUA,TURBT, and imaging of abdomen/pelvic
CR or PR
Consider consolidative local therapy in selected cases
SD or PD
Treat as metastatic disease
M1b
Systemic therapy, and/or Palliative RT

TREATMENT OF RECURRENCE OR PERSISTENT DISEASE



FOLLOW – UP

Low-Risk, Non-muscle invasive Bladder Cancer							
test	year						
	1	2	3	4	5	5-10	>10
cystoscopy	3,12	annually				As clinically indicated	
Upper tract and abdominal/pelvic image	Baseline imaging	As clinically indicated					
Blood tests	N/A						
Urine tests	N/A						

Intermediate Risk, Non-muscle invasive Bladder Cancer							
test	year						
	1	2	3	4	5	5-10	>10
cystoscopy	3,6,12	Every 6 mo	annually			As clinically indicated	
Upper tract and abdominal/pelvic image	Baseline imaging	As clinically indicated					
Blood tests	N/A						
Urine tests	Urine cytology 3,6,12	Urine cytology every 6 mo	annually			As clinically indicated	

High Risk, Non-muscle invasive Bladder Cancer							
test	year						
	1	2	3	4	5	5-10	>10
cystoscopy	Every 3 mo		Every 6 mo			annually	As clinically indicated
Upper tract image	Baseline imaging, and at 12 mo	Every 1-2 y					As clinically indicated
Abdominal/pelvic image	Baseline imaging	As clinically indicated					
Blood tests	N/A						
Urine tests	Urine cytology every 3mo Consider urinary urothelial tumor markers*optional		Urine cytology every 6mo			annually	As clinically indicated

<table>
<tr><th colspan="8">Post-cystectomy Non-muscle invasive Bladder Cancer</th></tr>
<tr><th rowspan="2">test</th><th colspan="7">year</th></tr>
<tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>5-10</th><th>>10</th></tr>
<tr><td>cystoscopy</td><td colspan="7">N/A</td></tr>
<tr><td>image</td><td>CTU or MRU(image upper tracts + axial imaging of abd/pelvis at 3 and 12 mo)</td><td colspan="4">CTU or MRU(image upper tracts + axial imaging of abd/pelvis) annually</td><td>Renal US annually</td><td>As clinically indicated</td></tr>
<tr><td>Blood tests</td><td>·Renal function testing(electrolytes and creatinine every 3-6 mo)
·LFT every 3-6 mo
·CBC,CMP every 3-6 mo if received chemotherapy</td><td colspan="4">·Renal function testing(electrolytes and creatinine)annually
·LFT annually
·B12 annually*optional</td><td colspan="2">B12 annually*optional</td></tr>
<tr><td>Urine tests</td><td colspan="2">Urine cytology every 6-12 mo
Consider urethral wash cytology every6-12 mo*optional</td><td colspan="5">Urine cytology as clinically indicated
urethral wash cytology as clinically indicated</td></tr>
</table>

<table>
<tr><th colspan="8">Post-cystectomy Muscle invasive Bladder Cancer</th></tr>
<tr><th rowspan="2">test</th><th colspan="7">year</th></tr>
<tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>5-10</th><th>>10</th></tr>
<tr><td>cystoscopy</td><td colspan="7">N/A</td></tr>
<tr><td>image</td><td colspan="2">·CTU or MRU(image upper tracts + axial imaging of abd/pelvis) every 3 and 6 mo
·Chest X-ray or CT chest every 3 and 6 mo or
·PET/CT only if metastatic disease suspected</td><td colspan="3">·Abd/pelvis CT or MRI annually
·Chest X-ray or CT chest annually or
·PET/CT only if metastatic disease suspected</td><td>Renal US annually</td><td>As clinically indicated</td></tr>
<tr><td>Blood tests</td><td>·Renal function testing(electrolytes and creatinine) every 3-6 mo
·LFT every 3-6 mo
·CBC,CMP every 3-6 mo if received chemotherapy</td><td colspan="4">·Renal function testing(electrolytes and creatinine)annually
·LFT annually
·B12 annually*optional</td><td colspan="2">B12 annually*optional</td></tr>
<tr><td>Urine tests</td><td colspan="2">·Urine cytology every 6-12 mo
·Consider urethral wash cytology every6-12 mo*optional</td><td colspan="5">Urine cytology as clinically indicated
urethral wash cytology as clinically indicated</td></tr>
</table>

<table>
<tr><th colspan="8">Post- Bladder Sparing(ie,partial cystectomy or chemoradiation)</th></tr>
<tr><td rowspan="2">test</td><td colspan="7">year</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>5-10</td><td>>10</td></tr>
<tr><td>cystoscopy</td><td colspan="2">every 3 mo</td><td colspan="2">every 6 mo</td><td colspan="2">annually</td><td>As clinically indicated</td></tr>
<tr><td>image</td><td colspan="2">·CTU or MRU(image upper tracts + axial imaging of abd/pelvis) every 3 -6 mo for MIBC
·Chest X-ray or CT chest every 3 - 6 mo for MIBC or
·PET/CT only if metastatic disease suspected</td><td colspan="4">·Abd/pelvis CT or MRI annually
·Chest X-ray or CT chest annually or
·PET/CT only if metastatic disease suspected</td><td colspan="2">As clinically indicated</td></tr>
<tr><td>Blood tests</td><td>·Renal function testing(electrolytes and creatinine) every 3-6 mo
·LFT every 3-6 mo
·CBC,CMP every 3-6 mo if received chemotherapy</td><td colspan="6">·Renal function testing(electrolytes and creatinine)As clinically indicated
·LFT As clinically indicated</td></tr>
<tr><td>Urine tests</td><td colspan="2">·Urine cytology every6-12 mo</td><td colspan="5">Urine cytology as clinically indicated</td></tr>
</table>

Metastatic Disease: Surveillance							
test	year						
	1	2	3	4	5	5-10	>10
cystoscopy	• Every 3–6 mo as clinically indicated						
image	• CTU or MRU (image upper tracts + axial imaging of abdomen/pelvis) every 3–6 mo if clinically indicated and with any clinical change or new symptoms • CT chest/abdomen/pelvic every 3–6 mo and with any clinical change or new symptoms Or FDG PET/CT (category 2B)						
Blood tests	• CBC, CMP every 1–3 mo • B12 annually for patients who had undergone a cystectomy						
Urine tests	• Urine cytology5 as clinically indicated						

2-5外科治療處置

Principles of Surgical Management

TURBt: (Ta/T1)

- Adequate resection with muscle if papillary high-grade lesion
- Reresection if incomplete initial resection, no muscle in specimen or large lesion

TURBt: Tis

- Multiple random biopsies
- Biopsy adjacent to tumor
- Prostate urethral biopsies

TURBt: invasive

Repeat resection:

- Any T1, any grade
- If no muscle in biopsy
- Small fragment of T2 insufficient to attribute risk
- Repeat TURBt should be considered if first TURBt does not allow adequate staging or attribution of risk factor for treatment selection or when using bladder preserving treatment by chemotherapy and/or RT

SEGMENTAL (PARTIAL) CYSTECTOMY

- Solitary lesion in location amenable to partial resection with adequate margin, no Tis
- Pelvic lymphadenectomy may be performed in conjunction with the partial cystectomy

RADICAL CYSTECTOMY

- Radical cystectomy should include bilateral node dissection at a minimum including common，internal and external iliac nodes and obturator nodes

三、腎盂癌及輸尿管癌

3-1 症狀、診斷和檢查

腎臟是兩個呈蠶豆狀的器官，位於人體中線的兩側，左右各一個，右腎受到肝臟的影響，位置較左腎低。腎臟主要功能為製造尿液、排泄廢物、維持水份、血液酸鹼值及電解質平衡、及內分泌正常功能。80-85%的腎臟腫瘤都是惡性，好發於 50-70 歲的中老年人，左腎及右腎發生的機會各半。腎臟惡性腫瘤包括尿路上皮癌、腎細胞癌、淋巴癌、轉移癌、惡性肉瘤等，其中的尿路上皮癌(urothelial carcinoma, UC)舊稱移行性細胞癌(transitional cell carcinoma, TCC)，是由泌尿系統內的尿路上皮細胞病變衍化而成的癌症，可能發生於腎臟的腎盂或腎盞，也可能發生於輸尿管、膀胱、尿道等部位，而稱為腎盂(尿路上皮)癌、輸尿管(尿路上皮)癌、膀胱(尿路上皮)癌、尿道(尿路上皮)癌等。腎臟的腎盂及輸尿管(尿路上皮)癌的發生原因及治療方式相近，因此常合併討論。

主要症狀是無痛性血尿(56-98%)。其次是腰痛(30%)，大部份為漸進性的悶痛；有些則發生急性腎絞痛，乃因血塊或腫瘤堵塞泌尿道造成腎水腫。其餘症狀包括解尿疼痛不順、體重減輕、疲倦、貧血、食慾不振、骨頭疼痛等。這些症狀出現愈多時，大部份為較後期疾病。還有 15% 的病人完全無症狀，是攝影檢查時意外發現的。

不同於膀胱癌的診斷可使用膀胱鏡來檢查、診斷及治療，上泌尿道系統(腎臟、腎盂、輸尿管)的診斷則必須透過影像學檢查來了解腫瘤的概況及侵犯程度，來決定後續的治療計畫。

3-2 組織病理分類與分化

Urothelial papilloma
Papillary urothelial neoplasm of low malignant potential (PUNLMP)
Low-grade papillary urothelial carcinoma
High-grade papillary urothelial carcinoma

3-3 分期

American Joint Committee on Cancer (AJCC)TNM Staging System for Renal Pelvis and Ureter Cancer (8th ed., 2017)

T	Primary Tumor
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Ta	Papillary noninvasive carcinoma
Tis	Carcinoma in situ
T1	Tumor invades subepithelial connective tissue
T2	Tumor invades the muscularis
T3	For renal pelvis only: Tumor invades beyond muscularis into peripelvic fat or the renal parenchyma. For ureter only: Tumor invades beyond muscularis into periureteric fat.
T4	Tumor invades adjacent organs, or through the kidney into the perinephric fat.

N	Regional Lymph Nodes
NX	Lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis ≤2 cm in greatest dimension, in a single lymph node
N2	Metastasis >2 cm in a single lymph node; or multiple lymph nodes
N3	Lymph node metastasis to the common iliac lymph nodes

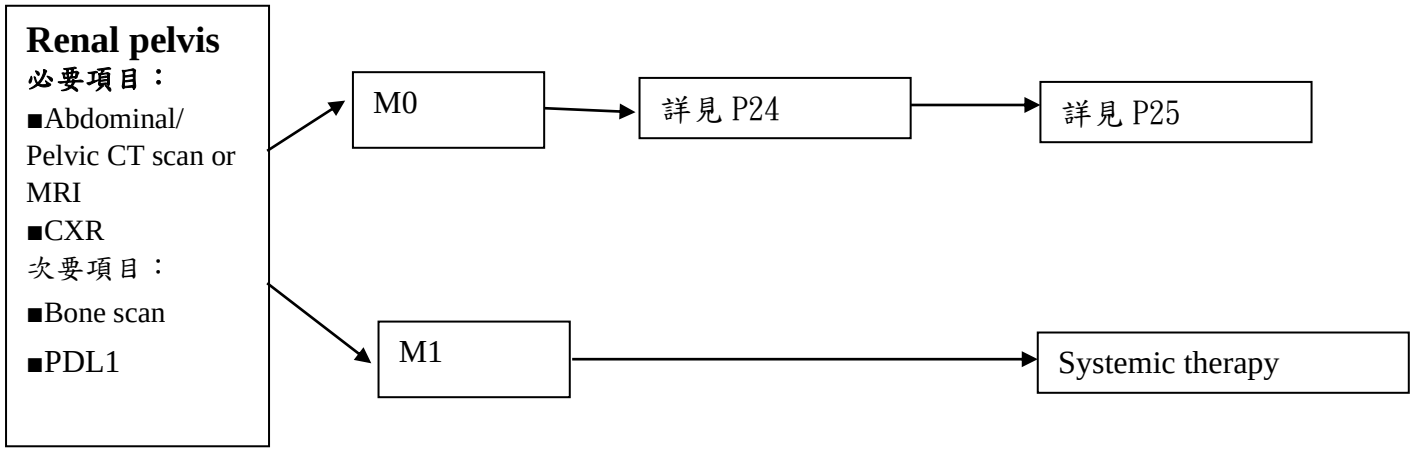
M	Distant Metastasis
M0	No distant metastasis
M1	Distant metastasis

Stage	T	N	M
Stage 0a	Ta	N0	M0
Stage 0is	Tis	N0	M0
Stage I	T1	N0	M0
Stage II	T2	N0	M0
Stage III	T3	N0	M0
Stage IV	T4	NX, N0	M0
	Any T	N1	M0
	Any T	N2	M0
	Any T	Any N	M1

3-4 治療指引

腎盂癌

WORK UP	PRIMARY TREATMENT



MANAGEMENT PER UTUC RISK GROUP

UTUC Risk	Grade	Focality & Size	Management	Imperative for nephron sparing
Low	Low	Unifocal & <1.5 cm	Endoscopic ablation[e] (thermal or laser) or chemo-ablation or Surveillance with periodic endoscopy and upper tract urography	Not applicable
Low Intermediate	Low	Multifocal or >1.5 cm	Endoscopic ablation[e] (thermal or laser) + intrapelvic (retrograde or antegrade) therapy[f]	Not applicable
High Intermediate	High	Unifocal & <1.5 cm	Radical nephroureterectomy with cuff of bladder +/- perioperative intravesical chemotherapy[f] and consideration of neoadjuvant chemotherapy in select patients[g]	Endoscopic ablation (thermal or laser) + intrapelvic (retrograde or antegrade) therapy[f]
High	High	Multifocal or >1.5 cm or high-grade renal obstruction or invasion on axial imaging	Radical nephroureterectomy with cuff of bladder +/- perioperative intravesical chemotherapy[f] and consideration of neoadjuvant chemotherapy in select patients[g]	Systemic therapy + radiation therapy (BL-G 6 of 8)

PATHOLOGIC STAGING	ADJUVANT TREATMENT	FOLLOW UP

Adjuvant treatment for renal pelvis and urothelial carcinoma of the ureter

pT0, pT1 → None →

- Cystoscopy and consider cytology for high grade every 3 months for 1 year,then at longer intervals
- If nephron-sparing surgery, imaging of upper tract collecting systema or ureteroscopy at 3- to 12-month intervals ± abdominal/pelvic CT or MRI with and without contrast

pT2, pT3, pT4, pN+ →

- If no platinum neoadjuvant treatment given and pT3, pT4, or pN+：
  >Adjuvant platinum-based chemotherapy should be discussed or
  >Consider adjuvant nivolumab(category2B) Or Pembrolizumab
- If platinum neoadjuvant chemotherapy given and ypT2-ypT4 or ypN+, consider adjuvant nivolumab or Pembrolizumab

→

- Cystoscopy and cytology every 3months for 1 year, then at longer intervals
- If nephron-sparing surgery, imaging of upper tract collecting systema or ureteroscopy at 3- to 12-month intervals + abdominal/pelvic CT or MRI with and without contrast + chest imaging

輸尿管癌

WORK UP	PRIMARY TREATMENT

Urothelial carcinoma of the ureter

必要項目：

■Abdominal/Pelvic CT scan or MRI

■CXR

次要項目：

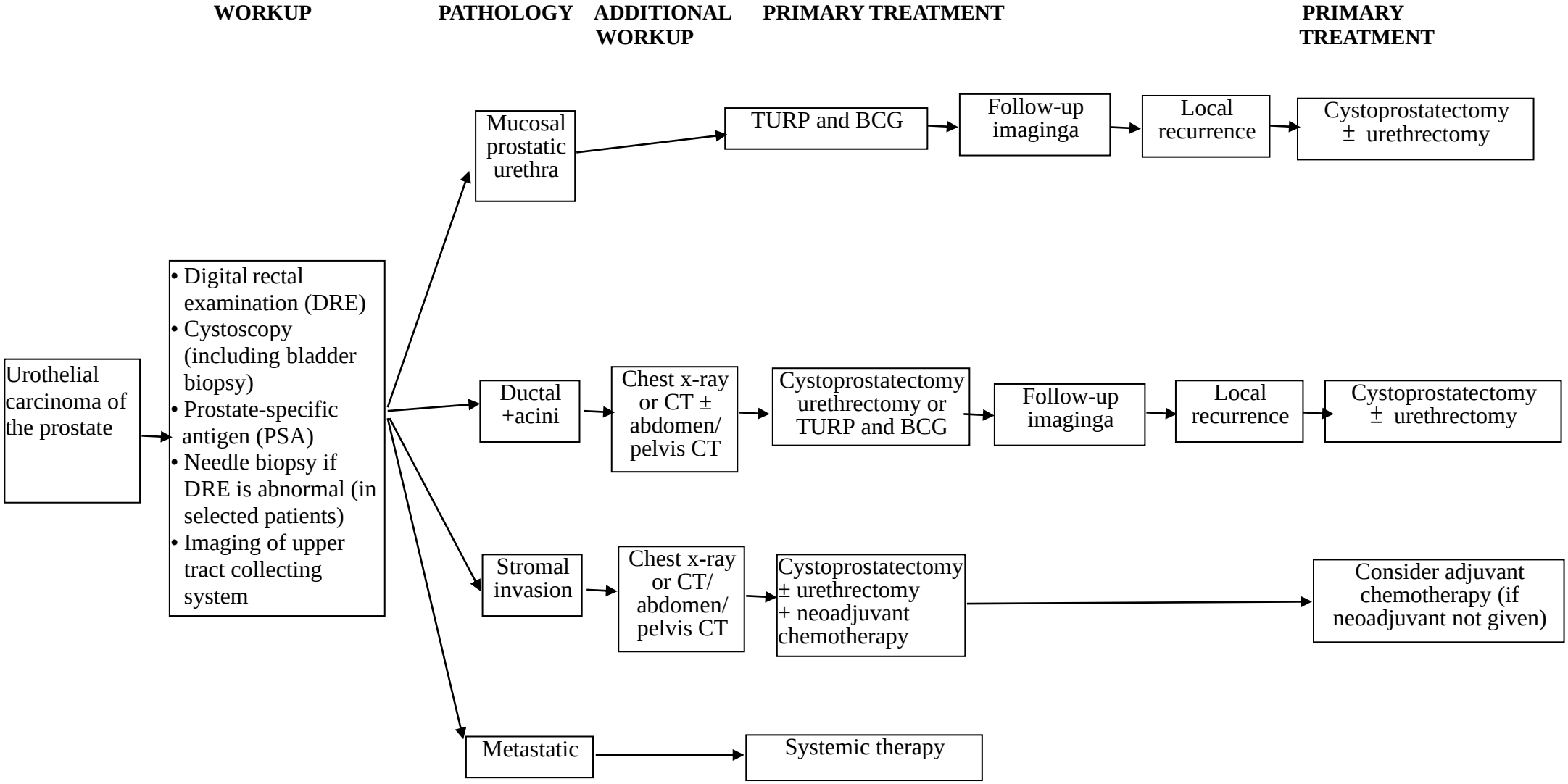
■Chest CT

■Bone scan

■PDL1

- Upper → Nephroureterectomy with cuff of bladder ± perioperative intravesical chemotherapy and regional lymphadenectomy if high grade and consider neoadjuvant chemotherapyg in selected patients
  or Endoscopic resection (low grade)
- Middle → Endoscopic resection (low grade)
  or Nephroureterectomy with cuff of bladder ± perioperative intravesical chemotherapy and regional lymphadenectomy and consider neoadjuvant chemotherapy in selected patients with high-grade disease or
  Excision and ureteroureterostomy/ileal ureter ± perioperative intravesical chemotherapy in highly selected patients mitomycin ureteral gel application
- Distal → Distal ureterectomy and regional lymphadenectomy if high grade and reimplantation of ureter (preferred if clinically feasible) ± perioperative intravesical chemotherapy and consider neoadjuvant chemotherapy in selected patients
  Or Endoscopic resectionf (low grade)
  Or Nephroureterectomy with cuff of bladder ±perioperative intravesical chemotherapy and regional lymphadenectomy if high grade and consider neoadjuvant chemotherapy in selected patients
- Metastatic → Systemic therapy

Urothelial Carcinoma of the Prostate



3-5外科治療處置

標準的手術方法是腎臟輸尿管及膀胱袖口切除術(Nephroureterectomy with cuff of bladder)，視患者情形加做區域淋巴結做清除術(±regional lymphadenectomy)。

針對不適合手術的患者(例如：腎功能不好、體能狀況差、年紀大、共病多等)及不願意手術的患者，可考慮腎保留手術，例如：內視鏡腫瘤消融術。

四、腎臟癌

4-1 症狀、診斷和檢查

早期腎臟癌都沒有任何症狀，隨著腫瘤慢慢變大，病人開始會出現血尿（59%）、腰痛（41%）及腹部腫塊（45%）等症狀。等到腫瘤更進一步擴散，病人會合併有疲倦、食慾不佳、體重減輕、貧血、發燒……等症狀。若轉移到其它器官，如肝臟、肺臟、骨骼、腦部……，則又會引發各個不同器官的功能失調，但這已經是腎臟癌的末期表現了。

腎臟癌多半在無意中被發現，病人因為上述的症狀就醫時才發現的腎臟癌，大多數已是中後期。近年來由於健康檢查逐漸普及，意外發現較小的腎臟腫瘤，所以，定期的健康檢查有助於早期發現初期的腎臟癌。

診斷腎臟癌最常用的是超音波檢查和電腦斷層掃描檢查，電腦斷層掃描不僅可以確定腎臟腫瘤的大小、也可以看到腫瘤擴散的情形，是腎臟癌分期的重要工具之一。除了少數不典型的例子，絕大多數的病人是不需要做腫瘤的切片檢查，減少擴散的風險。一般的血液檢查對腎臟癌的診斷較沒有幫助。小便檢查有可能出現血尿，但不一定。胸部 X 光是例行的檢查，看有沒有肺部的轉移。若有懷疑，骨骼的核子掃描可幫助判斷是否有骨骼轉移

4-2 組織病理分類與分化

腎細胞癌(Renal cell carcinoma)是最常見的腎臟癌，占總數 70~80%，腎細胞癌是由腎元的近端小管所長出，在病理上可分為亮細胞(Clear cell)、顆粒細胞、柱狀乳頭型及類肉瘤型。

4-3 分期

American Joint Committee on Cancer (AJCC)TNM Staging System for Kidney Cancer (8th ed., 2017)

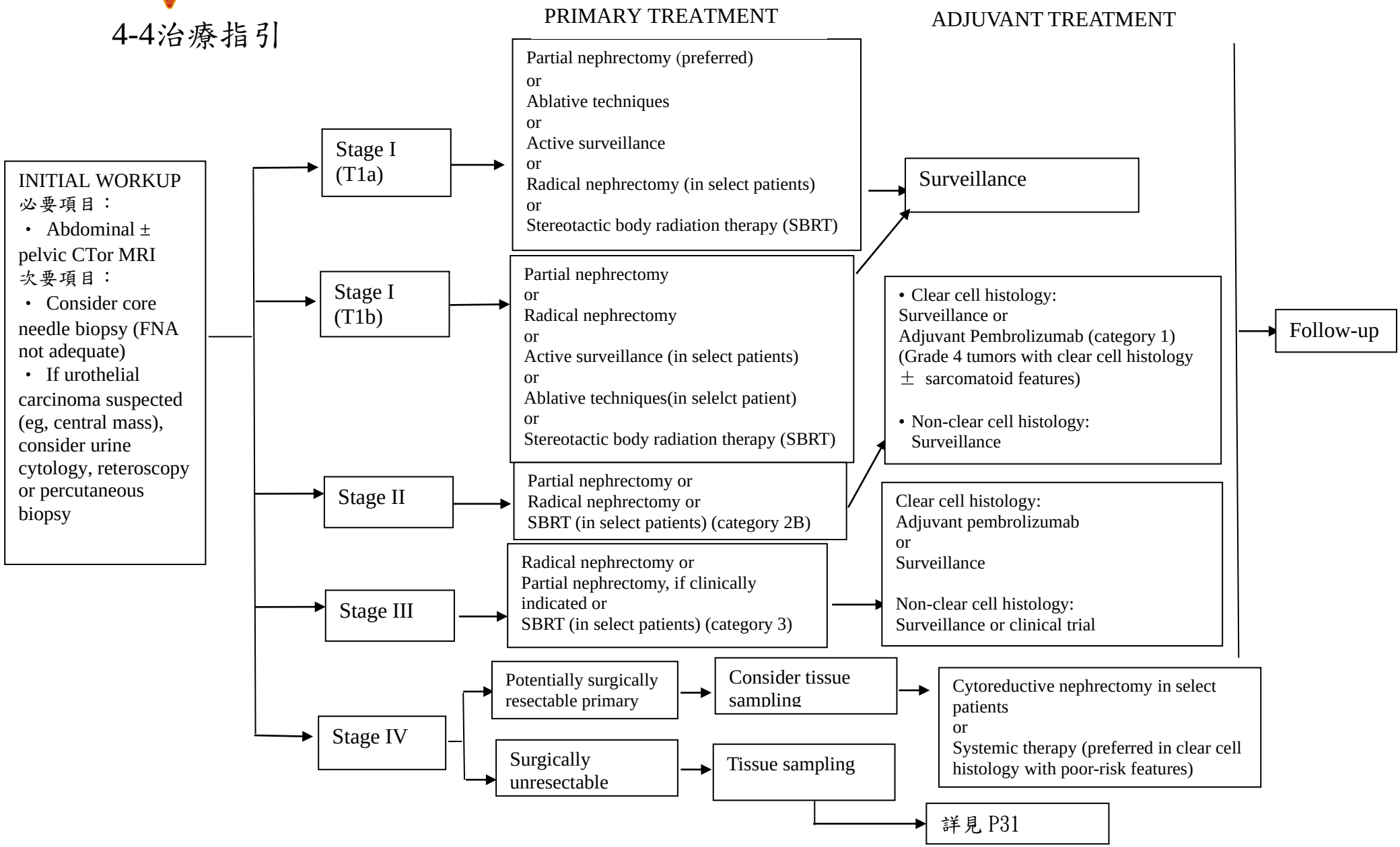
T		Primary Tumor
TX		Primary tumor cannot be assessed
T0		No evidence of primary tumor
T1		Tumor ≤7 cm in greatest dimension, limited to the kidney
	T1a	Tumor ≤4 cm in greatest dimension, limited to the kidney
	T1b	Tumor >4 cm but ≤7 cm in greatest dimension, limited to the kidney
T2		Tumor >7 cm in greatest dimension, limited to the kidney
	T2a	Tumor >7 cm but ≤10 cm in greatest dimension, limited to the kidney
	T2b	Tumor >10 cm, limited to the kidney
T3		Tumor extends into major veins or perinephric tissues, but not into the ipsilateral adrenal gland and not beyond Gerota's fascia
	T3a	Tumor extends into the renal vein or its segmental branches, or invades the pelvicalyceal system, or invades perirenal and/or renal sinus fat but not beyond Gerota's fascia
	T3b	Tumor extends into the vena cava below the diaphragm
	T3c	Tumor extends into the vena cava above the diaphragm or invades the wall of the vena cava
T4		Tumor invades beyond Gerota's fascia (including contiguous extension into the ipsilateral adrenal gland)

N	Regional Lymph Nodes
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in regional lymph node(s)

M	Distant Metastasis
M0	No distant metastasis
M1	Distant metastasis

Stage	T	N	M
Stage I	T1	N0	M0
Stage II	T2	N0	M0
Stage III	T1-T2	N1	M0
	T3	NX,N0-N1	M0
Stage IV	T4	Any N	M0
	Any T	Any N	M1

4-4治療指引


PRIMARY TREATMENT
ADJUVANT TREATMENT
INITIAL WORKUP
必要項目：
• Abdominal ± pelvic CTor MRI
次要項目：
• Consider core needle biopsy (FNA not adequate)
• If urothelial carcinoma suspected (eg, central mass), consider urine cytology, reteroscopy or percutaneous biopsy
Stage I (T1a)
Partial nephrectomy (preferred)
or
Ablative techniques
or
Active surveillance
or
Radical nephrectomy (in select patients)
or
Stereotactic body radiation therapy (SBRT)
Surveillance
Stage I (T1b)
Partial nephrectomy
or
Radical nephrectomy
or
Active surveillance (in select patients)
or
Ablative techniques(in selelct patient)
or
Stereotactic body radiation therapy (SBRT)
• Clear cell histology:
Surveillance or
Adjuvant Pembrolizumab (category 1)
(Grade 4 tumors with clear cell histology ± sarcomatoid features)
• Non-clear cell histology:
Surveillance
Follow-up
Stage II
Partial nephrectomy or
Radical nephrectomy or
SBRT (in select patients) (category 2B)
Clear cell histology:
Adjuvant pembrolizumab
or
Surveillance
Non-clear cell histology:
Surveillance or clinical trial
Stage III
Radical nephrectomy or
Partial nephrectomy, if clinically indicated or
SBRT (in select patients) (category 3)
Stage IV
Potentially surgically resectable primary
Consider tissue sampling
Surgically unresectable
Tissue sampling
Cytoreductive nephrectomy in select patients
or
Systemic therapy (preferred in clear cell histology with poor-risk features)
詳見 P31

RELAPSE OR STAGE IV

TREATMENT

DISEASE PROGRESSION

Clear cell histology → Clinical trial
or
Metastasectomy or SBRT or ablative techniques for oligometastatic disease
or
Metastasectomy with complete resection of disease, followed by adjuvant pembrolizumab within 1 year of nephrectomy
and
Best supportive care
→ Follow-up → Clinical trial
or
Best supportive care
or
Metastasectomy or SBRT or ablative techniques for oligometastatic disease

Non-clear cell histology → Clinical trial (preferred)
or
Metastasectomy or SBRT or ablative techniques for oligometastatic disease
and
Best supportive carei
→ Follow-up → Clinical trial
or
Best supportive care
or
Metastasectomy or SBRT or ablative techniques for oligometastatic disease

4-5 外科治療處置

標準的手術方法是將腎臟、腎上腺、及腎周圍筋膜、腎周圍脂肪、還有局部的淋巴結全部切除，稱為根治性腎臟切除術(radical nephretomy)。

若腫瘤小於4公分且位於腎臟週邊區，可考慮部份腎臟切除術(partial nephrectomy) 。

其他不適合手術的患者可選擇冷凍療法(Cryosurgery)、內視鏡消融術等。

五、化學及放射線治療

5-1 泌尿上皮癌(含腎盂癌、輸尿管癌、膀胱癌)

Principles of SYSTEMIC THERAPY

Intravesical chemotherapy for Tis ,Ta 及 T1 cancer

Gemcitabine 每次灌洗 2000mg，連續三周每周兩次

Mitomycin (Miomycin-C) 30mg qw x6 and /or qm x3

Phamarubicin 30mg qw x6 and/or qm x3

BCG 120mg qw x6 and/or qm x3

Neoadjuvant chemotherapy [preferred for bladder]	Perioperative/Sandwich Therapy
Preferred regimen • DDMVAC (dose-dense methotrexate, vinblastine, doxorubicin, and cisplatin) with growth factor support for 3-6 cycles Other recommended regimens • Gemcitabine and cisplatin for 4 cycles	Preferred regimen •Gemcitabine + cisplatin + durvalumab prior to cystectomy, then durvalumab after cystectomy (for bladder cancer only) (category 1) • Enfortumab vedotin-ejfv + Pembrolizumab for 3 cycles prior to cystectomy, then Enfortumab vedotin-ejfv (6 cycles) + Pembrolizumab (14 cycles) after cystectomy (for cisplatin-ineligible bladder cancer only)

Adjuvant therapy	
No previous platinum-based neoadjuvant therapy (pT3, pT4a, pN+) Preferred regimen •DDMVAC with growth factor support for 3–6 cycles1,2 Other recommended regimens •Gemcitabine and cisplatin for 4 cycles3,4 •Nivolumab6 •Pembrolizumab7	Preferred regimen Other recommended regimen •Nivolumab6 •Pembrolizumab

Radiosensitizing Chemotherapy Regimens
Preferred regimens • Cisplatinh alone • Low-dose gemcitabine • 5-FU and mitomycin
Other recommended regimen • Cisplatin and 5-FU • Cisplatin and paclitaxel
Useful in certain circumstances (not generally used for curative-intent chemoradiotherapy for organ preservation) • Taxane (docetaxel or paclitaxel) (category 2B) • 5-FU (category 2B) • Capecitabine (category 3)

Neoadjuvant regimens

MVAC

Methotrexate	30 mg/m2 iv	d1, 15 and 22
Vinblastine	3 mg/m2 iv	d2, 15 and 22
Doxorubicin	30 mg/m2 iv	d2
Cisplatin	70 mg/m2 iv	d1
or Carboplatin(if Cr<60)	AUC 4-6	d2
Q4w x 3 cycles		

Grossman HB et al. Neuadjuvant chemotherapy plus cystectomy compared with cystectomy alone for locally advanced bladder cancer. N Eng J Med 2003; 349:859

CMV

Cisplatin	70 mg/m^2 iv	d2
Vinblastine	4 mg/m^2 iv	d1, 8
Methotrexate	30 mg/m^2 iv	d1, 8
Q3w x 3 cycles		

Internationa Collaboration of Trialists. Neoadjuvant cisplatin, methotrexate, and vinblastine chemotherapy for muscle invasive bladder cancer: a randomized controlled trial. Lancet 1999; 354:533

Neoadjuvant Chemotherapy with Immunotherapy

Gemcitabine	1000-1250 mg/m 2 iv	d1, 8
Cisplatin	100 mg/m2 iv	d1
Durvalumab	1500 mg	d1
Q3w x 4 cycles		
Peri-operative use of Durvalumab		

Thomas Powles, M.D., James W.F. Catto, Ph.D., F.R.C.S.(Urol.), Toan Quang Vu, M.D., for the NIAGARA Investigators; Perioperative Durvalumab with Neoadjuvant Chemotherapy in Operable Bladder Cancer. N Engl J Med 2024;391:1773-1786 VOL. 391 NO. 19

Enfortumab Vendotin	1.25 mg/Kg	d1, 8
Pembrolizumab	200 mg	d1
Q3w x 3 cycles		
1. Cis-ineligible	2. Peri-operative use of EV+P	

Enfortumab Vendotin	1.25 mg/Kg	d1, 8
Pembrolizumab	200 mg	d1
Q3w x 4 cycles		
1. Cis-eligible	2. Peri-operative use of EV+P	

Adjuvant regimens

CheckMate 274

Nivolumab	240 mg	q2w
1 year		

Dean F. Bajorin, M.D., J. Alfred Witjes, M.D., Matthew D. Galsky, M.D.Published June 2, 2021. NEngl J Med 2021;384:2102-2114. DOI: 10.1056/NEJMoa2034442.VOL. 384 NO. 222

MVAC

Methotrexate	30 mg/m2 iv	d1, 15 and 22
Vinblastine	3 mg/m2 iv	d2, 15 and 22
Doxorubicin	30 mg/m2 iv	d2
Cisplatin	70 mg/m2 iv	d1
Carboplatin	AUC 4-6	d1
Avelumab	10mg/Kg	q2w
Q4w x 6 cycles		
Useful under certain circumstances		

Sternberg CN, de Mulder PH, Schornagel JH, et al. Randomized phase III trial of high-dose-intensity methotrexate, vinblastine, doxorubicin, and cisplatin (MVAC) chemotherapy and recombinant human granulocyte colony-stimulating factor versus classic MVAC in advanced urothelial tract tumors: European Organization for Research and Treatment of Cancer Protocol no. 30924. J Clin Oncol 2001;19:2638-2646.

EV 301 trial

Enfortumab vedotin-ejfv	1.25 mg/kg	d1, 8, 15
q4w		

Thomas Powles, M.D., Jonathan E. Rosenberg, M.D.,Daniel P. Petrylak, M.D.Author Info & Affiliations,Published February 12, 2021.N Engl J Med.2021;384:1125-1135.DOI: 10.1056/NEJMoa2035807.VOL. 384 NO. 12.

Gemcitabine+Carboplatin

Gemcitabine	800 - 1000 mg/m^2 iv	d1, 8 and 15
Carboplatin	AUC 4-6	d1
Q4w x 4 cycles		

Von der Maase H et al. Gemcitabine and cisplatin versus methotrexate, vinblastine, doxorubicin and cisplatin in advanced or metastatic bladder cancer: results of a large, randomized, multinational, multicenter, phase III study. J Clin Oncol 2000; 18:3068

Gemcitabine+ Cisplatin

Gemcitabine	800 - 1000 mg/m^2 iv	d1, 8 and 15
Cisplatin	70 mg/m 2 iv d2	d1
Q4w x 4 cycles		

Von der Maase H et al. Gemcitabine and cisplatin versus methotrexate, vinblastine, doxorubicin and cisplatin in advanced or metastatic bladder cancer: results of a large, randomized, multinational, multicenter, phase III study. J Clin Oncol 2000; 18:3068

Chemotherapy for metastatic cancer

Principles of systemic therapy

First-Line Systemic Therapy for Locally Advanced or Metastatic Disease (Stage IV)		
Preferred	**Other recommended**	**Useful in certain circumstances**
• Enfortumab vedotin-ejfv+ Pembrolizumab (category 1)	• Cisplatin/Gemcitabine(category 1) followed by Avelumab maintenance therapy (category 1) • Cisplatin/Gemcitabine + Nivolumab (category 1) followed by Nivolumab maintenance therapy (category 1) • DDMVAC with growth factor support (category 1) followed by Avelumab maintenance therapy (category 1)	• Carboplatin/Gemcitabine followed by Avelumab maintenance therapy (category 1) • Pembrolizumab (for the treatment of patients with locally advanced or metastatic urothelial carcinoma who are not eligible for any platinum-containing chemotherapy) • Atezolizumab (only for patients whose tumors express PD-L1 or who are not eligible for any platinum-containing chemotherapy regardless of PD-L1 expression) (category 2B)

Unresectable/metastatic regimens

MVAC

Methotrexate	30 mg/m2 iv	d1, 15 and 22
Vinblastine	3 mg/m2 iv	d2, 15 and 22
Doxorubicin	30 mg/m2 iv	d2
Cisplatin	70 mg/m2 iv	d1
Carboplatin	AUC 4	d2
Q4w x 3 cycles		

Grossman HB et al. Neuadjuvant chemotherapy plus cystectomy compared with cystectomy alone for locally advanced bladder cancer. N Eng J Med 2003; 349:859

Gemcitabine+ Cisplatin+ Nivolumab

Gemcitabine	800 - 1000 mg/m^2 iv	d1, 8 and 15
Cisplatin	70 mg/m2 iv	d1
Nivolumab	120-240mg	d1
Q4w x 3 cycles		

Von der Maase H et al. Gemcitabine and cisplatin versus methotrexate, vinblastine, doxorubicin and cisplatin in advanced or metastatic bladder cancer: results of a large, randomized, multinational, multicenter, phase III study. J Clin Oncol 2000; 18:3068

EV 302 trial

Enfortumab Vendotin	1.25 mg/Kg	d1, 8
Pembrolizumab	200 mg	d1
Q3w x 4 cycles		
35 cycles for Pembrolizumab		

Thomas Powles, M.D., Gopa Iyer, M.D., Published March 6, 2024. N Engl J Med 2024;390:875-888. DOI: 10.1056/NEJMoa2312117. VOL. 390 NO. 10

JAVELINE 100 trial

Avelumab	10mg/Kg	q2w
Gemcitabine	1000-1250 mg/m^2 iv	d1, 8 and 15
Cisplatin	70 mg/m2 iv	d1
Avelumab as 1st line maintenance		

Thomas Powles, M.D., Se Hoon Park, M.D., Ph.D., Petros Grivas, M.D., Ph.D.Author Info & Affiliations,Published September 18, 2020.N Engl J Med 2020;383:1218-1230.DOI: 10.1056/NEJMoa2002788.VOL. 383 NO. 13

JAVELINE 100 trial

Avelumab	10mg/Kg	q2w
Gemcitabine	1000-1250 mg/m^2 iv	d1, 8
Cisplatin	70 mg/m2 iv	d1
Avelumab as 1st line maintenance		

Thomas Powles, M.D., Se Hoon Park, M.D., Ph.D., Petros Grivas, M.D., Ph.D.Author Info & Affiliations,Published September 18, 2020.N Engl J Med 2020;383:1218-1230.DOI: 10.1056/NEJMoa2002788.VOL. 383 NO. 13

KeyNote 045 trial

Pembrolizumab	200 mg	q3w
2 years		

Joaquim Bellmunt, M.D., Lawrence Fong, M.D., Nicholas J. Vogelzang, M.D., Published March 16, 2017,N Engl J Med 2017;376:1015-1026.DOI: 10.1056/NEJMoa1613683.VOL. 376 NO. 11

CheckMate 901

Nivolumab	360mg/m2	d1
Gemcitabine	1000 mg/m^2 iv	d1, 8
Cisplatin	70 mg/m2 iv	d1
Q 3w x 6 cycles		

the 2023 European Society of Medical Oncology (ESMO) Annual Congress held in Madrid, Spain between October 20th and 24th, 2023

TKI

藥名(學名)	Erdafitinib 8 mg po daily initially; increase to 9 mg po daily
Ref.	*Yohann Loriot, M.D., Ph.D., Nobuaki Matsubara, M.D., Se Hoon Park, M.D., Ph.D., Robert A. Huddart, M.B., B.S., Ph.D., Earle F. Burgess, M.D., Banek, M.D., Published October 20, 2023* *N Engl J Med 2023;389:1961-1971.DOI: 10.1056/NEJMoa2308849.VOL. 389 NO. 21*

Principles of radiation (Bladder Cancer)

Indication	Target Volume	建議劑量與分割 Dose & Fractionation	備註 Comments
Conventional fractionation	Whole bladder ± pelvic nodes	1.8–2.0 Gy / fraction	每日照射
Hypofractionation (definitive)	Whole bladder	55 Gy / 20 fractions	Non-inferior to 64 Gy/32 fx
Definitive RT (initial)	Whole bladder	39.6–50.4 Gy	需後續 boost
Definitive RT (boost)	Whole or partial bladder	Total 60–66 Gy	依腫瘤位置調整
Positive margin / ENE	Tumor bed / involved nodes	54–60 Gy	高風險區域
Adjuvant RT	Pelvic nodes (post-RC)	45–50.4 Gy	pT3–4, pN0–2
Adjuvant RT (boost)	Positive margin / ENE	Boost to 54–60 Gy	術後高風險
Palliative RT	Symptomatic lesion	30 Gy / 10 fx 或 21 Gy / 3 fx	止血、止痛

5-2 腎臟癌

PRINCIPLES OF SYSTEMIC THERAPY FOR RELAPSE OR STAGE IV DISEASE

FIRST-LINE THERAPY FOR CLEAR CELL HISTOLOGY			
Risk	Preferred Regimens	Other Recommended Regimens	Useful in Certain Circumstances
Favorable	• Axitinib + pembrolizumab (category 1) • Cabozantinib + nivolumab (category 1) • Lenvatinib + pembrolizumab (category 1) •Ipilimumab + nivolumab	• Axitinib + avelumab • Cabozantinib (category 2B) • Pazopanib • Sunitinib	• Active surveillance • Axitinib (category 2B)
Poor/intermediate	Axitinib + pembrolizumab(category 1) • Cabozantinib + nivolumab (category 1) • Ipilimumab + nivolumab(category 1) • Lenvatinib + pembrolizumab(category 1) • Cabozantinib	• Axitinib + aveluma • Pazopanib • Sunitinib	• Axitinib (category 2B) •

unresectable/metastatic regimens

CheckMate 9ER

Cabozantinib	40mg	qd
Nivolumab	240mg	q2w
Q4w x 6 cycles		

Choueiri TK, et al. N Engl J Med. 2021;384(9):829-841.

CLEAR trial

Lenvatinib	20mg	qd
pembrolizumab	200 mg	q3w
Q4w x 6 cycles		

J Clin Oncol. 2024 Apr 10;42(11):1222-1228. doi: 10.1200/JCO.23.01569. Epub 2024 Jan 16.

CheckMate 214 trial

Ipilimumab	1 mg/Kg	q3w
Nivolumab	3 mg/Kg	q3w
4 cycles then NIVO 3mg/Kg q2w		

Robert J. Motzer, M.D., Nizar M. Tannir, Elizabeth R. Plimack, M.D., Published March 21, 2018. N Engl J Med 2018;378:1277-1290
DOI: 10.1056/NEJMoa1712126. VOL. 378 NO. 14

KeyNote 426

Pembrolizumab	200 mg	q3w
Axitinib	5mg	bid
35 cycles for Pembrolizumab		

Brian I. Rini, M.D., Elizabeth R. Plimack, M.D., Frédéric Pouliot, M.D., Ph.D., Published February 16, 2019. N Engl J Med 2019;380:1116-1127.DOI: 10.1056/NEJMoa1816714. VOL. 380 NO. 12

KeyNote 045 trial

Pembrolizumab	200 mg	q3w
2 years		

TKI

藥名(學名)	Cabozantinib 40-60 mg po qd
Ref.	*ToniK. Choueiri, M.D., Bernard Escudier, M.D., Thomas Powles, M.D., Hans Hammers, M.D., Published November 5, 2015,N Engl J Med 2015;373:1814-1823*

藥名(學名)	Pazopanib 800mg po qd
Ref.	*Sternberg CN, Davis ID, Mardiak J, et al. Pazopanib in locally advanced or metastatic renal cell carcinoma: results of a randomized phase III trial. J Clin Oncol 2010; 28: 1061-8*

藥名(學名)	Sunitinib 50 mg, po 4/2 or 2/1 week (on/off)
Ref.	*Robert J. Motzer, M.D., Thomas E. Hutson, D.O., Stéphane Oudard, M.D., Published January 11, 2007. N Engl J Med 2007;356:115-124. DOI: 10.1056/NEJMoa065044. VOL. 356 NO. 2*

藥名	Axitinib 5mg po bid
Ref.	*The Lancet. Volume 378, Issue 9807p1931-1939December 03, 2011. AXIS trial*

藥名	Everolimus 10mg po qd
Ref.	*Ann Oncol. 2016 Mar;27(3):441-8. doi: 10.1093/annonc/mdv612. Epub 2015 Dec 17.*

藥名	Tivozanib 1.34 mg po day1~21
Ref.	*Tivozanib plus nivolumab versus tivozanib monotherapy in patients with renal cell carcinoma following an immune checkpoint inhibitor: results of the phase 3 TiNivo-2 Study*

藥名	Belzutifan 120 mg po qd
Ref.	*Choueiri TK, Powles T, Peltola K, et al. Belzutifan versus Everolimus for Advanced Renal-Cell Carcinoma. N Engl J Med. 2024 Aug 22;391(8):710-721.*

藥名	Lenvatinib 10~20 mg po qd
Ref.	*Zachary Klaassen, MD, MSc – Urologic Oncologist, Assistant Professor of Urology, Georgia Cancer Center, Augusta University/Medical College of Georgia, @zklaassen_md on Twitter during the 2021 European Society for Medical Oncology (ESMO) Annual Congress 2021, Thursday, Sep 16, 2021 – Tuesday, Sep 21, 2021.*

Principle of radiotherapy (Renal cell carcinoma)

Indication	Target Volume	放射治療策略 RT Strategy	臨床備註 Comments
Localized RCC（可手術）	Primary kidney tumor	不建議常規 RT	手術仍為標準治療
Localized RCC（無法手術）	Primary kidney tumor	SBRT（局部根治性）	Medically inoperable / refusal of surgery
Stage I–III（非手術候選）	Primary tumor ± margin	High-dose hypofractionated RT / SBRT	高 BED 克服 radioresistance
Adjuvant setting	Renal bed / nodes	不建議 routine RT	未證實生存或局控改善
Local recurrence / residual	Recurrent lesion	SBRT / highly conformal RT	
Oligometastatic disease	Limited metastatic sites	Metastasis-directed RT (SBRT/SRS)	

六、安寧緩和照護原則

若預期疾病難以治癒時，病人存活期小於 6 個月便適合安寧療護(Pomeranz & Brustman, 2005；Waldrop & Rinfrette, 2009) 。若藉由症狀、檢驗數據、及確切的腫瘤診斷，證實臨床上該惡性腫瘤已經廣泛侵犯、或進展快速；功能分數（Palliative Performance Scale）低於 70%；拒絕進一步腫瘤治癒性治療，或者在治療之下仍持續惡化者，即可轉介緩和醫療團隊（彭等，2006）。

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八、泌尿系統癌各期治療完治定義

	期別	治療方式	完治定義	備註
膀胱癌	第0a期 第0期	TURBT ± 膀胱灌藥	完成TURBT ± 膀胱灌藥9次 (醫師視風險指標表建議後續追加膀胱灌藥)	
	第I期	TURBT + IVI	完成TURBT + 膀胱灌藥9次	
	第II期	1.Neo-adjuvnat C/T + OP 2.OP 3.CCRT 4.TURBT or/and Intravesical chemotherapy 5.C/T+IO	1.完成膀胱切除術 or 2.完成放射線治療 or 3.完成TURBT + 膀胱灌藥9次 4. C/T+IO持續治療半年	
	第IIIA期	1.Neo-adjuvnat C/T + OP 2.OP 3.CCRT 4. C/T+IO	1.完成膀胱切除術 or 2.完成放射線治療 or 3. C/T+IO持續治療半年	
	第IIIB期	1. Downstaging systemic therapy 2.CCRT	1.完成醫師規劃之療程並進入第一次影像追蹤 2.完成放射線治療	
	第IV期	Systemic therapy	1.STAGE IV 接受全身性治療一次 or 2.STAGE IV 接受放射治療一個療程or 3.STAGE IV 接受安寧照護	

	期別	治療方式	完治定義	備註
腎盂癌、輸尿管癌	第0a期 第0期	1. OP 2. 內視鏡腫瘤消融術	1.完成腎臟輸尿管合併膀胱袖口切除術 2.完成內視鏡腫瘤消融術	
	第I期	1.OP 2. 內視鏡腫瘤消融術(視醫師評估)	1.完成腎臟輸尿管合併膀胱袖口切除術 2.完成內視鏡腫瘤消融術	
	第Ⅱ期	1.Neo-adjuvant C/T+OP 2.OP	完成腎臟輸尿管合併膀胱袖口切除術	
	第Ⅲ期	1.Neo-adjuvant C/T+OP 2.OP	完成腎臟輸尿管合併膀胱袖口切除術	
	第Ⅳ期	Systemic therapy	1.STAGE IV 接受全身性治療一次 or 2.STAGE IV 接受放射治療一個療程or 3.STAGE IV 接受安寧照護	

註：任何期別無法遵循指引建議治療的病人，逐案經團隊討論決定治療方式及訂定完治定義。

	期別	治療方式	完治定義	備註
腎臟癌	第I期	1.OP(含部分腎臟切除術、根治性腎臟切除術) 2.腫瘤消融術	1.完成醫師規劃之手術(含部分腎臟切除術、根治性腎臟切除術) 2. 完成腫瘤消融術	
	第Ⅱ期	OP(含部分腎臟切除術、根治性腎臟切除術)	完成醫師規劃之手術(含部分腎臟切除術、根治性腎臟切除術)	
	第Ⅲ期	OP(根治性腎臟切除術)	完成根治性腎臟切除術	
	第Ⅳ期	Systemic therapy	1.STAGE IV 接受全身性治療一次 or 2.STAGE IV 接受放射治療一個療程or 3.STAGE IV 接受安寧照護	

註：任何期別無法遵循指引建議治療的病人，逐案經團隊討論決定治療方式及訂定完治定義。