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Clinicopathological characteristics of upper tract urothelial cancer with loss of immunohistochemical expression of mismatch repair proteins in universal screening

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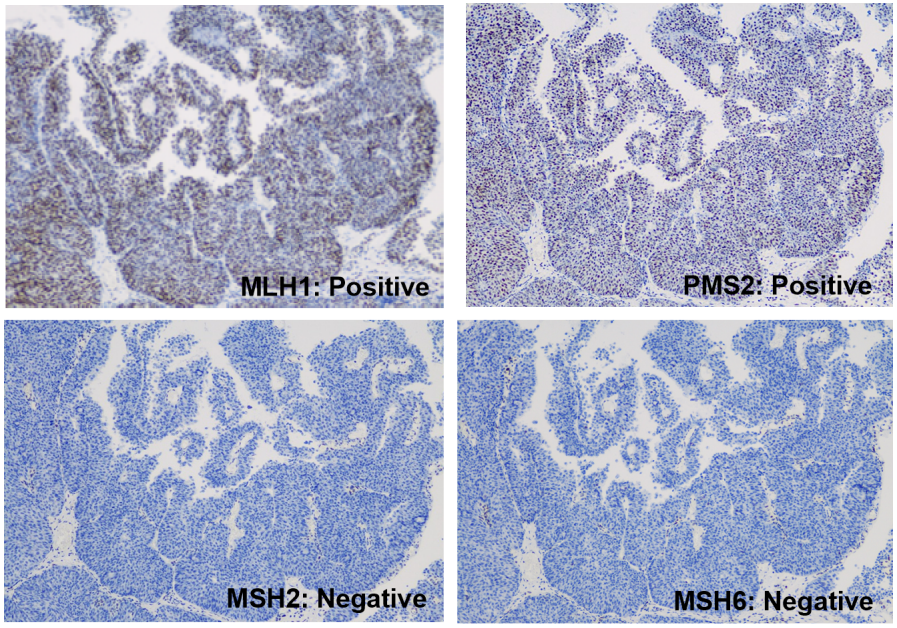
BACKGROUNDS and OBJECTIVES

- Upper tract urothelial cancer (UTUC) is the third most frequent cancer in Lynch syndrome (LS), but little is known about the prevalence and clinical features of LS-associated UTUC.
- We studied the expression of mismatch repair (MMR) proteins in immunohistochemistry and examined the pathological characteristics of MMR deficient UTUC.

RESULTS

MMR deficient tumor was detected in 15 / 118 (13%) of UTUC cases.



UC, G2, pT1: Loss of MSH2/MSH6

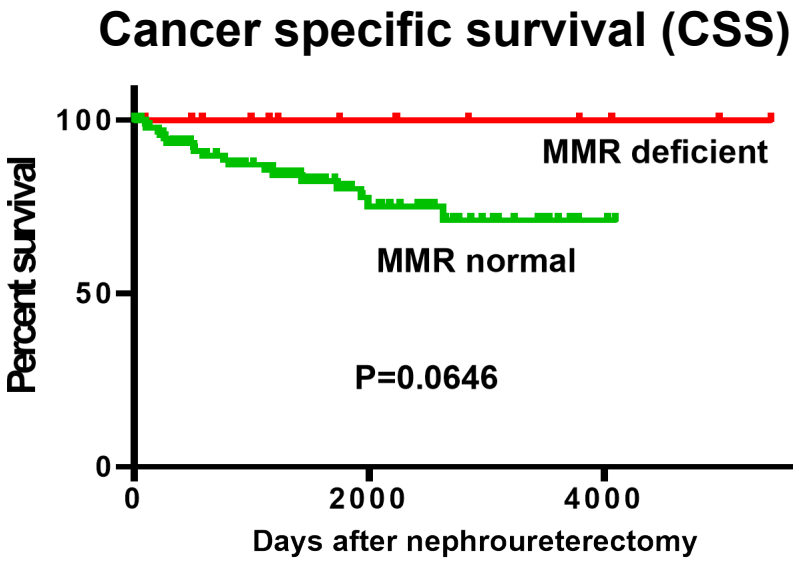
Factors	MMR deficient	MMR normal	P-value
Age	65.7 ± 9.6	71.8 ± 10.0	0.0256
History of cancer	9 (60%) 6	32 (34%) 62	0.0830
NLR	1.88 ± 0.62	2.55 ± 1.12	0.0377

Patients with deficient MMR UTUC were younger and showed lower NLR (Neutrophil to Lymphocyte ratio).

Clinico-pathological characteristics of MMR deficient UTUC

Factors		MMR deficient	MMR normal	P-value
Grade	G1/2	14 (93%)	63 (61%)	0.0180
	G3	1	40	
pT stage	pTis/a/1	12 (80%)	45 (44%)	0.0117
	pT2/3/4	3	58	
With CIS	Positive	3 (20%)	46 (45%)	0.0128
	Negative	12	57	
PD-L1 (Tumor)	Positive	1 (7%)	16 (16%)	0.6932
	Negative	14	87	
CD8+ T cell (Tumor)	Positive	9 (60%)	27 (26%)	0.0141
	Negative	6	76	

Tumors with deficient MMR showed lower grade/stage with less CIS and tumor infiltration of CD8+ T cell.



Patients with deficient MMR UTUC were better CSS.

CONCLUSIONS

We identified a prevalence of 13% of UTUC cases with potential Lynch syndrome. Patients with MMR deficient UTUC associated with younger age and lower NLR, and had better CSS. Tumors with deficient MMR were associated with less pathological aggressive features with infiltration of CD8 positive lymphocytes. These findings suggest that determining MMR status may be helpful for clinical-decision making among patients with UTUC.