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Incongruence between TURB and radical cystectomy findings in terms of histological variant identification: Analysis of all potential clinical risk factors

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Introduction

Patients harboring urothelial carcinoma (UC) at TURB do not always present pure UC at radical cystectomy (RC). Indeed, a non-negligible proportion of RC patients present a bladder cancer (BCa) histological variant (HV) component that was not detected at the time of TURB. In this study, we aimed to explore potential pre-surgical factors associated with the incongruence between TURB and RC histology, in terms of HV identification.

Materials & Methods

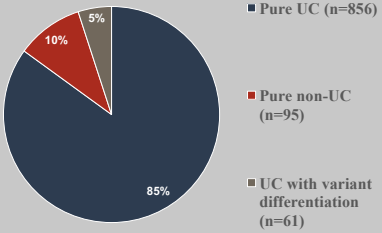
Between 1988 and 2018, we retrospectively collected 7950 patients treated with TURB for a first episode of bladder cancer (i.e. muscle [MIBC] & non-muscle invasive), at our tertiary care center. For this study, inclusion criteria consisted of patients with pure UC at TURB. Moreover, we only included patients that underwent to RC after TURB. Histologic specimens after RC were all examined by dedicated uro-pathologists. Multivariable logistic regression (MLR) analyses tested the effect of age at RC, gender, Charlson comorbidity index, tumor dimension at TURB, smoke history, presence of MIBC at TURB, multifocality at TURB and use of neoadjuvant chemotherapy before RC on the probability of incongruence between TURB and RC, in terms of HV identification.

Results

Descriptive characteristics of pure UC and HV after RC

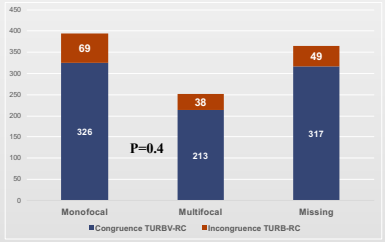
Variable	Overall	Pure UC at RC	HV at RC	p-value
Age: median (IQR)	68 (62-75)	68 (61-74)	71 (65-77)	<0.001
TURB dimension, cm: median (IQR)	2.5 (1-4)	2.5 (1-4)	4 (1-4.5)	0.6
Smoking status: n (%) - Unknown - Current/former smoker - Non-smoker	 125 (12) 694 (69) 193 (19)	 111 (13) 586 (68) 159 (19)	 14 (9) 108 (69) 34 (22)	0.3
Sex: n(%) - Male - Female	 849 (84) 163 (16)	 719 (84) 137 (16)	 130 (83) 26 (17)	0.9
Charlson Comorbidity Index: n (%) -CCI=0 -CCI≥1	 185 (18) 406 (40)	 158 (18) 336 (39)	 27 (17) 70 (45)	0.5
Ethnicity: n (%) -Not Hispanic/latino, white -Others	 931 (92) 81 (8)	 785 (92) 71 (8)	 146 (94) 10 (6)	0.5
cT stage: n (%) -NMIBC -MIBC	 294 (29) 714 (71)	 269 (32) 584 (68)	 25 (16) 130 (84)	0.6
Neoadj Chemotherapy: n (%) -No -Yes	 863 (85) 149 (15)	 730 (85) 126 (15)	 133 (85) 23 (15)	0.99
Focality: n (%) -Monofocal -Multifocal	 395 (39) 251 (25)	 326 (38) 213 (24)	 69 (44) 38 (24)	0.5
BCG : n (%) -no -yes	 73 (7.2) 28 (3)	 63 (7) 24 (3)	 10 (6) 4 (2.6)	0.99
Adjuvant-RT: n (%) -no -yes	 940 (93) 20 (2)	 794 (93) 16 (2)	 146 (94) 4 (3)	0.8

Histology at Radical Cystectomy

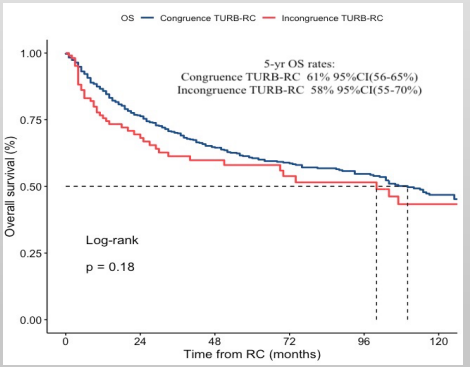


Histology	n	%
Pure UC	856	85%
Squamous-cell carcinoma	44	4,3%
Squamous.df	31	3%
Other	29	3%
Glandular df	11	1%
Neuroendocrine	10	1%
Other df	9	1%
Adenocarcinoma	8	0,8%
Micropapillary	6	0,6%
Sarcomatoid df	4	0,4%
Sarcoma	4	0,4%

Congruence between TURB and RC according to tumor focality



5-year Overall Survival Rate of congruent and incongruent TURB-RC



MVA assessing predictors of incongruences between TURB and RC histology

Variables	OR (CI 95%)	p-value
Age	1.07 (1 - 1.14)	0.03
Female gender	3.1 (1 - 10)	0.049
CCI ≥1	2.1 (0.65 - 7.8)	0.2
Dimension of TURBK	1.02 (0.94 - 1.08)	0.5
Cygarettes smoking - Current or former smoker - Non smoker	 0.12 (0.01 - 4.13) 0.12 (0.01 - 5.11)	 0.2 0.2
cT stage (MIBC)	3.4 (1.03 - 14.5)	0.06
Multifocal disease at TURBK	0.2 (0.05 - 0.7)	0.01
Neoadjuvant chemotherapy	11.1 (1.88 - 74.02)	0.01

Conclusions

Incongruence between TURB and RC histology is a frequent event, especially in old female patients with a single bulky lesion, in whom the presence of histological variants should be carefully investigated. Moreover, the use of neoadjuvant chemotherapy might cause a clonal selection of HV tumor cells, that may account for the higher rate of HV incongruences in this sub-group of patients