

Table S1. Risk of Bias of the studies included in the meta-analysis, according to the Quality Assessment of Diagnostic Accuracy Studies 2 (QUADAS-2).

First Author/ Reference	Patient Selection	Index Test	Reference Standard	Flow and Timing
Abro [1]	H	L	U	H
McIntire [2]	H	L	U	H
Danakas [3]	L	L	U	L
Nguyen [4]	L	L	U	L
Koh [5]	L	L	U	L
Anbardar [6]	H	L	U	L
Kuan [7]	H	L	U	L
de Paula [8]	L	L	U	L
Moulavasilis [9]	H	L	U	L
Vallamredy [10]	L	L	U	L
Stanzione [11]	L	L	U	L
Rai [12]	L	L	U	L
Mikou [13]	L	L	U	L
Chan [14]	L	L	U	L
Meilleroux [15]	U	L	U	L

Zare [16]	L	L	U	L
Rohilla [17]	L	L	U	L
Xing [18]	H	L	U	L
Roy [19]	L	L	U	L
Zheng [20]	H	L	U	L
Malviya [21]	L	L	U	L
Suh [22]	H	L	U	L
Wang [23]	L	L	U	L
Toyonaga [24]	L	U	U	L
Granados [25]	L	L	U	L
Hassan [26]	L	L	U	L
Miki [27]	H	L	U	L
Joudi [28]	H	L	U	H

Abbreviations: L, low; U, unclear; H, high

Table S2. Pooled risk of high-grade malignancy (ROHM) associated with each of the Paris System categories. Subgroup analysis of the studies using solely liquid-based cytology (LBC).

Paris System Categories	No of Studies Pooled	ROHM (%)	95% CI	tau ²	Q	I ² (%)
Nondiagnostic	5	6.41	[0.0181; 0.2035]	0.7028	8.06	53.6
NHGUC	12	12.82	[0.0739; 0.2133]	0.9657	328.09	93.9

AUC	11	40.48	[0.2849; 0.5373]	0.5994	58.06	76.3
LGUN	4	11.43	[0.0436; 0.2677]	0	0.17	0.0
SHGUC	13	77.49	[0.6728; 0.8521]	0.5153	35.91	75.9
HGUC and other malignancies	12	90.26	[0.8513; 0.9375]	0.2471	15.92	50.1

Abbreviations: CI, confidence interval; NHGUC, negative for high-grade urothelial carcinoma; AUC, atypical urothelial cells; LGUC, low-grade urothelial neoplasm; SHGUC, suspicious for high-grade urothelial carcinoma; HGUC, high-grade urothelial carcinoma

Table S3. Pooled risk of high-grade malignancy (ROHM) associated with each of the Paris System categories. Subgroup analysis of the studies using solely conventional cytology.

Paris System Categories	No of Studies Pooled	ROHM (%)	95% CI	tau²	Q	I² (%)
Nondiagnostic	6	50.00	[0.3228; 0.6772]	0	0.35	0.0
NHGUC	9	13.41	[0.0955; 0.1851]	0.0517	6.52	16.6
AUC	9	30.67	[0.1790; 0.4729]	0.6567	23.01	70.6
LGUN	6	14.77	[0.0320; 0.4759]	1.6611	3.00	62.9
SHGUC	10	74.06	[0.6938; 0.7825]	0	11.28	0.0
HGUC and other malignancies	10	91.82	[0.8145; 0.9663]	1.3831	54.25	88.3

Abbreviations: CI, confidence interval; NHGUC, negative for high-grade urothelial carcinoma; AUC, atypical urothelial cells; LGUC, low-grade urothelial neoplasm; SHGUC, suspicious for high-grade urothelial carcinoma; HGUC, high-grade urothelial carcinoma

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