

Cytology better than histology: upper urinary tract

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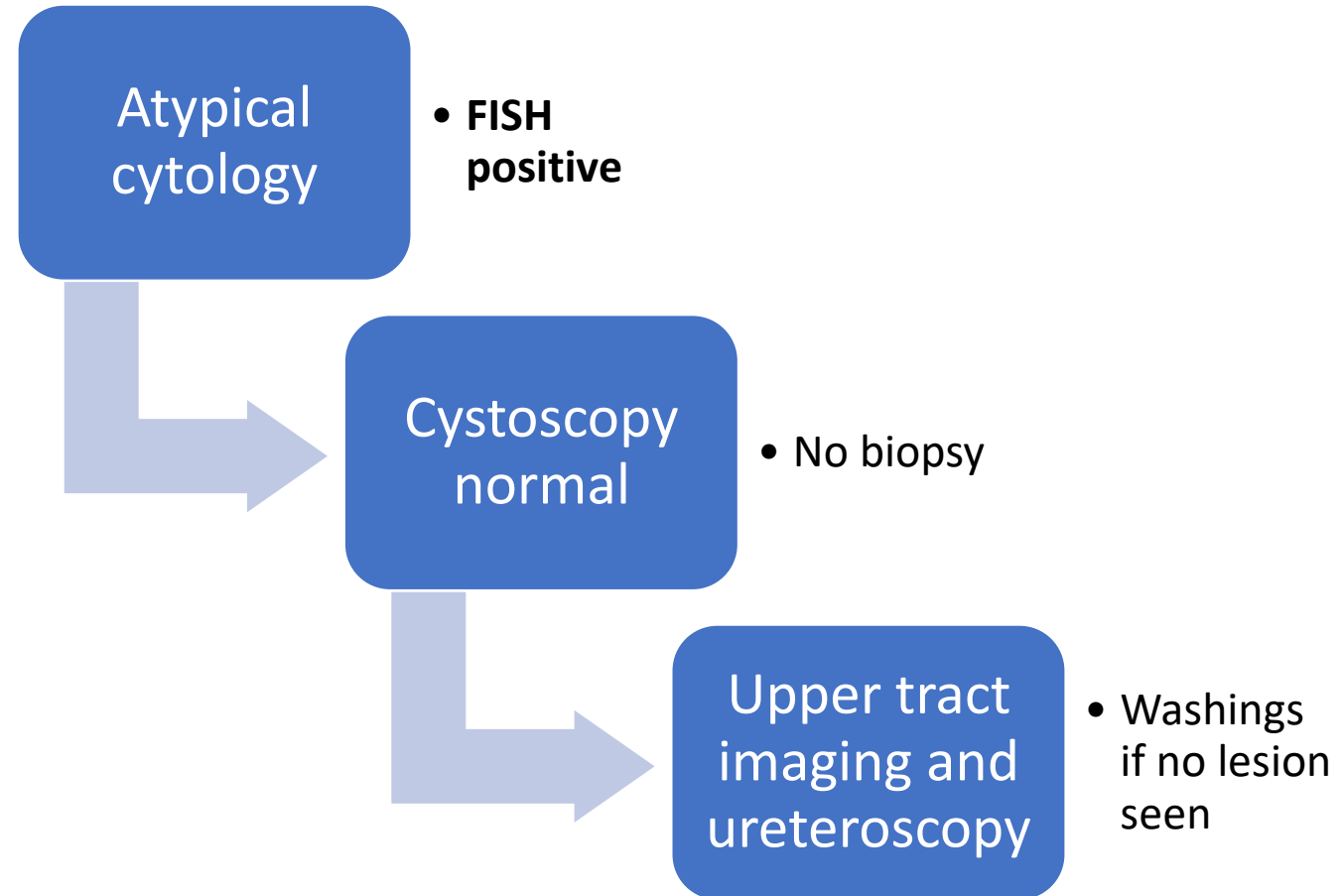
Urinary tract cytology

- Gold standard for diagnosis of urothelial carcinoma is a tissue diagnosis that provides grade and stage of the tumour
- Scenarios where histology is not performed because the lesion is occult (prostatic urethra, upper tract)
- Bladder washings and upper tract imaging and cytology provide the only tissue diagnosis

Patients with haematuria

- Cytology negative/positive: lesion seen at cystoscopy + biopsy = UC (grade and stage)
- Atypical or suspicious cytology on voided urine
- Atypia + UroVysion FISH negative + Normal cystoscopy = discharge patient
- Atypia + UroVysion FISH positive + Normal cystoscopy = follow up 3-6 mthly
- Suspicious cytology (no FISH) + Normal cystoscopy = upper tract imaging + ureteroscopy + washings

Haematuria



Bladder washings

- Cellular
- Dispersed urothelial cells and umbrella cells
- Sheets and clusters of urothelial cells
- Variable shapes of cells from polygonal to columnar to spindled
- Nucleus may also follow the shape of the cell
- No features of high grade urothelial carcinoma

Upper tract (renal pelvis and ureters) washings

- Cellular
- Dispersed cells and papillaroid clusters to true papillae mimicking low grade papillary urothelial neoplasia
- Key issue is identification of high grade urothelial carcinoma

The Paris System: criteria for HGUC, Suspicious & Atypia*

Category Criteria	HGUC	Suspicious for HGUC	Atypia
No. of atypical cells	>5 (voided) >10 (instrumented)	<5 (voided), 5-10 (instrumented)	<5
N:C ratio	>0.7	>0.7	0.5 – 0.7
Hyperchromasia	+	+	Any one of the three criteria
Clumped chromatin / Irregular nuclear borders	Either one of the two criteria	Either one of the two criteria	

***In conjunction with explanatory notes for each category**

Summary

- In instrumented samples, cytology provides a reliable alternative to histology
- May be supported by ancillary tests such as FISH or newer PCR based tests
- Correlation with clinical and radiological findings essential particularly for low grade tumours
- Urine cytology is all about high grade urothelial carcinoma
- Recommend Paris system for reporting urinary tract cytopathology