

diagnostic tree

Gregory F. Grauer, DVM, MS, Diplomate ACVIM (Internal Medicine), Kansas State University

Evaluating Hematuria

 Investigation	 Diagnosis
 Treatment	 Result

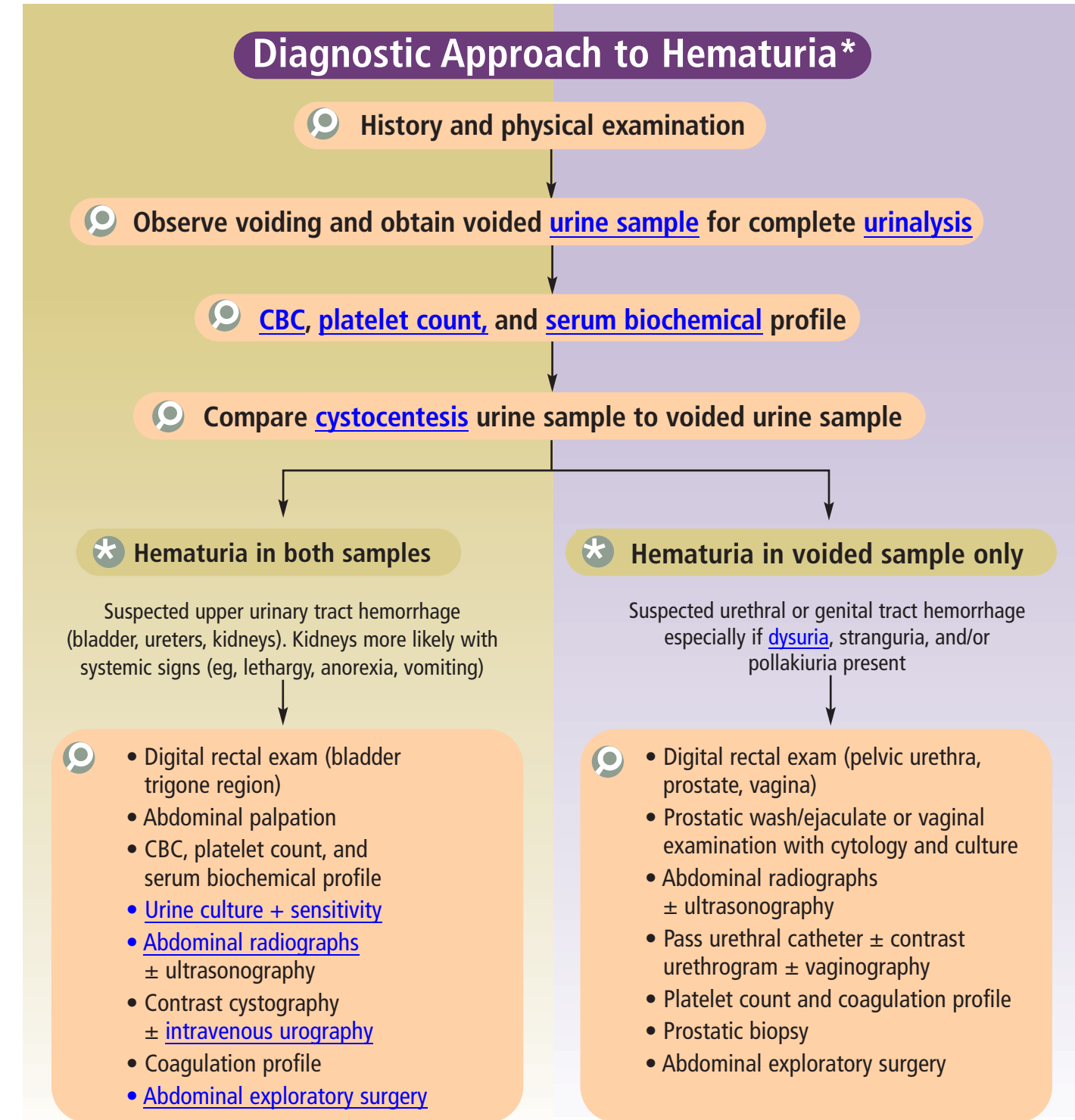
Potential Causes of <u>Hematuria</u> *	
URINARY CAUSES	EXTRAURINARY CAUSES
<p>Initial Hematuria*</p> <p>Urethra</p> <ul style="list-style-type: none"> • Trauma • Infection • Urolithiasis • Neoplasia • Granulomatous urethritis <p>Bladder trigone region</p> <ul style="list-style-type: none"> • Neoplasia 	<p>Spontaneous bleeding unassociated with voiding may also occur with:</p> <ul style="list-style-type: none"> • Prostatic infection, cyst, abscess, neoplasia • Uterine infection, neoplasia, subinvolution; proestrus • Vaginal/vulvar neoplasia, trauma • Preputial/penal neoplasia, trauma
<p>Total† or Terminal Hematuria‡</p> <p>Pseudohematuria§</p> <p>Kidney, ureter, bladder</p> <ul style="list-style-type: none"> • Trauma • Infection • Urolithiasis • Neoplasia • Parasitism • Drug-induced (cyclophosphamide) <p>Feline lower urinary tract inflammation syndrome</p> <p>Renal infarction</p> <p>Renal telangiectasia</p> <p>Idiopathic renal hematuria</p>	<p>Prostatic (see above)</p> <p>Bleeding disorders (coagulopathy, thrombocytopenia)</p> <p>Heat stroke</p> <p>Exercise-induced hematuria</p>

* Initial hematuria: Hematuria most pronounced at the beginning of voiding

† Total hematuria: Hematuria present throughout voiding

‡ Terminal hematuria: Hematuria most pronounced at the end of voiding

§ Pseudohematuria: Reddish-brown urine caused by hemoglobinuria or myoglobinuria (urine sample will not clear with centrifugation and few, if any, RBCs seen in sediment)



CBC = complete blood count; hpf = high power field; RBC = red blood cell

*Red blood cells in urine sample. Hematuria can be gross or macroscopic (≥ 150 RBC/hpf) or microscopic (≥ 5–8 RBC/hpf but < 150/hpf).