

Clinical features

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May be asymptomatic. Haematuria. Dysuria. Frequency and urgency. Suprapubic pain. Hesitancy and intermittency.

Figure 83.27 Smooth uric acid bladder stones. Figure 83.28 Radiograph showing a vesical calculus (no contrast has been used).

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The classic symptoms of UTI include dysuria, suprapubic pain, urinary frequency and urgency. Patients may also present with haematuria, loin pain, fevers, nausea and vomiting. A physical examination should be performed to check for a palpable bladder, for renal angle tenderness and for evidence of pelvic organ prolapse, urethral diverticulum and atrophic vaginitis. Theodor Albrecht Edwin Klebs, 1834–1913, Professor of Bacteriology successively at Prague, Czechoslovakia, Zurich, Switzerland, and the Rush Medical College, Chicago, IL, USA. Igor Tamm, 1922–1995, American virologist. Frank Horsfall, 1906–1971, American microbiologist, together with Igor Tamm first purified the Tamm–Horsfall protein in 1952. β -

mechanisms. Bacterial virulence factors Host defence mechanisms Adherence mechanisms Commensal organisms (*Lactobacillus* and *Lactobacillus*) (lactobacilli) Immune evasion Mechanical integrity of (lipopolysaccharide O, mucous membranes capsule K) Antibacterial secretions (lysozyme, lactoferrin, IgA) Anti-IgA proteases, toxin production, -lactamase Antegrade flow of urine causing flushing effect Resistance to antimicrobial bactericidal activity (alteration Tamm–Horsfall protein of antimicrobial binding sites) (binds to bacterial adhesion molecules) Iron acquisition Composition of urine (low pH, high urea) Immune system integrity IgA, immunoglobulin A.

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If iatrogenic, the injury may be recognised at the time. If perforation during transurethral surgery is noted, the procedure should be stopped, haemostasis should be achieved and the patient should be catheterised. In cases of trauma, patients typically present with suprapubic pain, difficulty or inability to pass urine, haematuria and abdominal distension.

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