

unit consists of noncommunicating cysts with intervening solid tissue composed of fibrosis, primitive tubules, and foci of cartilage. Usually, ureteral atresia is also present. Uncommonly, the kidney develops tumors or infection, and hypertension may develop.

Renal dysplasia: In renal dysplasia - a histologic diagnosis, the renal vasculature, tubules, collecting ducts, or drainage apparatus develops abnormally.

Renal ectopia: Renal ectopia, abnormal renal location, usually results when a kidney fails to ascend from its origin in the true pelvis; a rare exception occurs with a superiorly ascended (thoracic) kidney. **Pelvic ectopia** increases the incidence of ureteropelvic junction obstruction, vesicoureteral reflux, and multicystic renal dysplasia.

Renal hypoplasia: Hypoplasia usually occurs because inadequate ureteral bud branching causes an underdeveloped, small kidney with histologically normal nephrons^{20,21,22}.

CONGENITAL URETERE ANOMALIES

The ureter drains urine from the kidney into the bladder. Not simply a tube, the ureter is an active organ that propels urine forward by muscular action. It has a valve at its lower end that prevents urine from flowing backward into the kidney. Normally there is one ureter on each side of the body for each kidney. Ureters may also be malformed in a variety of ways—which can cause have severe manifestations, and some go unnoticed in life.

Double ureter: However, among the many abnormalities of ureteral development, duplication is quite common

Retrocaval ureter: A ureter can be perfectly normal but have an abnormal position, such as behind the vena cava (retrocaval ureter), the large vein in the middle of the abdomen. In this case the ureter may be pinched by the vena cava so that flow is hindered. Other abnormal locations may also lead to compression and impaired flow, leading to hydronephrosis. Urethral anomalies which can be associated with obstructive uropathies, can be enumerated as phimosis, paraphimosis, hypospadias, malformation of penis, ureteral reflux..

Hence one can conclude though the etiology of urolithiasis is multifactorial and is strongly related to dietary lifestyle habits and practices a defective

anatomy could be a major contributing factor. Insight into the etiology would help in proper management of the condition.

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LITERATURE REVIEW

Factors other than glomerular filtration rate affect serum cystatin C levels Lesley A Stevens, Christopher H Schmid, Tom Greene, et al. Kidney Int. 2009, 25, 652-660

Cystatin C is an endogenous glomerular filtration marker hence its serum level is affected by the glomerular filtration rate (GFR). To study what other factors might affect it blood level we performed a cross-sectional analysis of 3418 patients which included a pooled dataset of clinical trial participants and a clinical population with chronic kidney disease. The serum cystatin C and creatinine levels were related to clinical and biochemical parameters and errors-in-variables models were used to account for errors in GFR measurements. The GFR was measured as the urinary clearance of ¹²⁵I-iothalamate and ⁵¹Cr-EDTA. Cystatin C was determined at a single laboratory while creatinine was standardized to reference methods and these were 2.1+/-1.1 mg/dL and 1.8+/-0.8 mg/L, respectively. After adjustment for GFR, cystatin C was 4.3% lower for every 20 years of age, 9.2% lower for female gender but only 1.9% lower in blacks. Diabetes was associated with 8.5% higher levels of cystatin C and 3.9% lower levels of creatinine. Higher C-reactive protein and white blood cell count and lower serum albumin were associated with higher levels of cystatin C and lower levels of creatinine. Adjustment for age, gender and race had a greater effect on the association of factors with creatinine than cystatin C. Hence, we found that cystatin C is affected by factors other than GFR which should be considered when the GFR is estimated using serum levels of cystatin C.

NOBEL PRIZE IN CHEMISTRY

Dr. Venkataraman Ramakrishnan – a scientist of Indian origin, working at MRC laboratory of Molecular Biology at Cambridge, England has been awarded this Noble Prize in Chemistry for year 2009, for his work on **ribosomes** which began way back in 1978. A ribosome is a collection of several DNA molecules and some protein molecules. Dr.Venkataraman's work has wide ranging applications from designing more effective antibodies to complex biotechnological processes.

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invasiveness. The advantage of URS is immediate stone removal.

Endoscopes

Semirigid URS: The semirigid ureterorenoscope consists of a stainless steel shaft and fibre optic bundles as well as working channel for irrigation and insertion of working instruments²¹.

Flexible URS: Flexible ureterorenoscopes with shaft diameters of 6.5-9 Fr also allow easy access to the upper urinary tract in most cases without previous dilation. Flexible ureterorenoscopes should not be used in the distal ureter, where semirigid instruments are a lot easier to handle²².

SWL: should be the first line therapy for patients with stones < 1 cm in proximal ureter. Stone push-back for upper ureteric calculi is not mandatory in the absence of infection, and noted benefits may be outweighed by the morbidity and cost associated with stent insertion. Lower ureteric calculi may be treated equally successfully by either SWL or ureteroscopic stone extraction based on the experience of the operator and facilities available. Results of SWL are institution dependant and as such clinicians should be guided by their institution's experience and choice of equipment as to whether mid and lower ureteric calculi are subjected to SWL as a first line treatment.

Open Surgery (Ureterolithotomy)

The clinical use of incisional surgery for ureteral stones has, however, been reduced dramatically due to its high degree of invasiveness in comparison with newly developed methods. The complication, the process of wound healing and the scarring are obvious drawbacks of open surgery. Today this method is an uncommon tool for removal of ureteral stones because of the successful results obtained with SWL and URS. The major indication for incisional surgery is when the stone removal has to be combined with reconstructive surgery for correction of anatomical abnormalities or when all other therapeutic possibilities have failed.

Laparoscopic Surgery

When compared with open surgery treatment results are similar, but laparoscopic approach resulted in a shorter hospital stay less need of analgesics and superior cosmesis. Major disadvantage of laparoscopy is long duration of procedure. Major indication are impacted stone in proximal ureter.

Percutaneous approach with or without antegrade URS

Impacted or hard stones in proximal ureter; ureteral stones in patients with urinary diversion should be considered for percutaneous

approach before open or laparoscopic approach.

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NOBLE PRIZE IN MEDICINE

Australian- American Researchers Elizabeth Blackburn, Carol Greider and Jack Szostak jointly won the 2009 Nobel Prize in Medicine for their discovery of a key molecular switch in cellular aging. The trio was honoured for their discoveries about how chromosomes are protected by telomeres and the role of an enzyme called 'telomerase' in maintaining or strapping away this vital shield. This award recognises the discovery of a fundamental mechanism of the cell, which has led to the development of new therapeutic strategies. Telomeres are like minute, protective caps, fitting at the end of the DNA strands which are packed into chromosomes. These scientists identified the 'Telomerase' enzyme that made telomerase in DNA. This concept has broad medical implications for patients of cancer, certain inherited diseases like aplastic anemia, genetic, skin and lung ailments and also aging process. The enzyme allows cells to divide continuously without dying and could play a role in uncontrolled spread of cancer.

(Source TOI October 6th 2009)