Abstracts

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**Modified Cantwell–Ransley epispadias repair in children: our experience**

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**Purpose:** We retrospectively evaluated our experience with modified Cantwell-Ransley epispadias repair at our center to determine the complications and long term results.

**Materials and Methods:** We retrospectively reviewed the case records of 43 male children with a mean age of 7.19 years who underwent primary epispadias repair at our center. The results of epispadias repair were assessed both by physical and endoscopic examination. All children who were old enough to opine as well as all parents/guardians were interviewed during the follow-up visits.

**Results:** Urethrocutaneous fistulae occurred in 17.85% (5/28) children of the classic bladder exstrophy group and in 13.33% (2/15) children with penopubic epispadias. Post-operative cystoscopy done 12 weeks after repair revealed a smooth urethral tube in 81.39% (35/43) of children. With the patient in a standing position, the penis was dangling downwards or in a horizontal position in 88.37% (38) of children, 85% of the patients 18 years of age were satisfied with both the functional and cosmetic outcome, as assessed by SF-36 and 93.02% (40/43) of the patients were continent during the daytime with voided volumes of <200 ml.

**Conclusions:** In our experience, Cantwell-Ransley repair creates a functionally and cosmetically acceptable penis and produces a reliably tubularized neourethra with acceptable complication rates.

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**Acute spontaneous scrotal ecchymosis and swelling in an infant: Manifestation of common acquired bleeding disorder in India**

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**Aim:** Acutely presenting spontaneous scrotal ecchymosis with scrotal swelling indicate testicular torsion (TT). Till date, Henoch-Schonlein-purpura is well described medical condition which mimickes to TT. This case describes another medical condition (very common in India) which can also lead to unnecessary scrotal exploration.

**Methods:** A 5-month-old, calm, healthy infant presented with swelling and discoloration of right inguino-scrotal region for 12 hours. The baby was exclusively breast feed and delivered at home (no vitamin K prophylaxis). The swelling was of normal temperature, non tender, transilluminant negative, but associated with devitalization of overlying skin. The right testis couldn't be palpated. Left testis and abdomen were within normal limits.

The Doppler ultrasonography was inconclusive, and facility of testicular scintigraphy was unavailable. As 12 hours had elapsed, scrotum was explored which suggested B/L Scrotal wall hematoma (right> left), and normal testis. Hematoma was evacuated and devitalized tissue debrided. Family history, personel history and general/systematic examination were not significant. Partial thromboplastin (PT) and activated partial thromboplastin time was (aPTT) raised, while full laboratory workup for cause of bleeding was normal. The history of exclusive breast feeding, raised aPTT and PT, no vitamin K prophylaxis with bleeding in an
otherwise normal healthy baby pointed towards late-onset Vitamin-K-deficient bleeding disorder (VKBD) (diagnosis of exclusion).

**Result:** Vitamin K and fresh frozen plasma were administered, but later baby expired due to development of ARDS.

**Conclusion:** Scrotal Wall hematoma is very rare but essential differential diagnosis of acute scrotum. This case raise the question, whether PT and aPTT should also be a part and parcel of preoperative work up of acute scrotum in infants, especially in developing countries where nutrient deficiency and absence of institutional delivery is still prevalent (cause of late-onset VKBD)?

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**Early results of Exstrophy Bladder repair; experience of 36 cases**

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**Purpose:** To share early results of Exstrophy bladder repair at a single institute over five years.

**Material & Methods:** The study includes patients operated for bladder exstrophy repair during the period 2009 – 2013 by local and foreign faculty. The primary operative procedures included Modern staged repair of exstrophy (MSRE), complete primary repair of exstrophy (CPRE) with or without anterior iliac osteotomy and primary ureterosigmoidostomy.

**Results:** 36 patients (25 boys &11 girls) with classic bladder exstrophy were operated upon. CPRE was performed in 22(61%) patients and MSRE in 11(30%) patients whereas 3 patients underwent primary ureterosigmoidostomy. Anterior iliac osteotomy was performed in 22 patients. Out of 25 patients who have completed all stages in MSRE and CPRE, 12 patients (48%) have grade I continence (dry period 3 hrs. with no stress incontinence), 8 patients (32 %) are socially continent (dry during day time but occasional wetting at night) and 4 patients (16 %) are incontinent (continuous wet). 10 of the 12 patients (83%) with grade I continence are from the CPRE group. 77 % of patients in whom CPRE was performed were below 3 years of age and have good continence. The bladder capacity of continent patients is 60 – 100 ml. Three patients underwent primary ureterosigmoidostomy due to late presentation and unfavorable bladder anatomy. Five patients who were previously operated underwent ureterosigmoidostomy due to poor bladder growth. Except for one death, we have not encountered any major complications.

**Conclusion:** Bladder Exstrophy is one of the most complex paediatric urological anomaly which needs to be managed at tertiary care center by dedicated and skilled expertise with optimal post operative care. Early results show that although both CPRE and MSRE have favorable results in skilled hands, younger patients do better with CPRE as far as urinary continence is concerned.

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**Experience with transpubic approach for bladder neck reconstruction and innervations preserving sphincteroplasty in female epispadias**

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**Purpose:** This paper reports the transpubic approach to bladder neck reconstruction with external urethral sphincter reconstruction in female epispadias, as the methods of reconstruction of female epispadias described in literature lack adequate exposure of bladder neck and are silent about the external urethral sphincter reconstruction.

**Method:** From 2005 to 2011, four patients of female epispadias presented to our centre aged 8 to 17 years. Only 1 patient aged 8 years presented with correct preoperative diagnosis, remaining 3 patients aged 15 to 17 years presented with incontinence, diagnosed on examination to be having incontinent epispadias. The bladder capacity was adequate in 3 but less than 80ml in 1 patient. Through circumclitoral incision, the root of corpora and the contracting external urethral sphincter cephalad to bulbospongious muscle was exposed. Through the transpubic approach, intersymphyseal band was released and the bladder cavity with trigone was exposed. Through the transpubic approach, intersymphyseal band was released and the bladder cavity with trigone was exposed. Anatomical bladder neck reconstruction, innervations preserving sphincteroplasty and transvaginal sling of anterior rectus sheath strip was performed. Corporoplasty, clitoroplasty, approximation of pubis and reconstruction of Mons pubis completed the repair. Aesthetic appearance on scale of 1 to 10 and the continence measured as 3 hours dry interval were the outcome measurement.
**Result:** On 2 years follow up, 3 patients with adequate bladder capacity had more than 3 hours dry interval without history of night wetting and no upper tract dilatation. One patient with less than 80ml bladder capacity is dry only for 90 minutes on oxybutynin with history of night wetting. Urodynamic study revealed hyperactive bladder in this case. Aesthetic appearance after repair scored 9 in all cases.

**Conclusion:** Transpubic approach provides excellent exposure for precise bladderneck reconstruction with innervations preserving sphincteroplasty and aesthetic reconstruction of external genitalia in female epispadias.

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**Intersymphseal band in Exstrophy Bladder: A histological study to ascertain its structure of origin**

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**Purpose:** The aim of the study is to analyze the histology of the intersymphseal band to ascertain its structure of origin and to identify the presence of any elements in the intersymphseal bands which could be assimilated into sphincteric structures during surgical correction.

**Methods:** The study was a prospective study conducted over a period of 6 months from April 2012 to September 2012 at our centre. Biopsies were taken from the intersymphseal bands from each side from each patient of classic bladder extrophy undergoing bladder closure. Biopsy specimens were analyzed in the Department of Pathology by H&E staining and immunohistochemistry with desmin and α-smooth muscle actin.

**Results:** Seven patients were included in the study and 13 specimens were analyzed, right sided biopsy in one patient could not be processed. H&E staining of 12 specimens showed the presence of abundant fibro-collagenous tissue with interspersed smooth muscle fibres. Immunostaining with desmin and α-smooth muscle actin was also consistent with the above findings. One specimen from left side of a 17 year old male patient showed presence of skeletal muscle fibres, which was an exception. Probably, the skeletal muscle fibres were from a well developed pubo-urethralis muscle in that patient.

**Conclusions:** The histology of the intersymphseal band shows the presence of abundant fibro-collagenous tissue with interspersed smooth muscle fibres. The intersymphseal band is not consistent with laid open bladder neck or striated urethral sphincter, but may be a condensation of the urogenital diaphragm. Wrapping of the intersymphseal band over the bladder neck region at the time of exstrophy repair may serve to support the repair but it definitely will not add to the continence mechanism.

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**Reviving the Mathieu’s repair with the symbiotic effect of the Snodgrass incision for distal hypospadias**

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**Purpose:** The two methods of single stage urethroplasty for distal hypospadias Mathieu-Mullen’s procedure and Snodgrass Belman Procedure have often been compared. Here the experience of combining both the techniques is described.

**Methods:** From February 2009 to March 2012, 56 prospective patients of distal hypospadias were repaired with a modified approach incorporating incisions of Mathieu (parameatal U shaped flap) and Snodgrass (Urethral plate incision) urethroplasty. A U shaped flap was planned. Native urethra was also lifted with the flap. Penile shaft was degloved after circumcoronal incision. Two limbs of U shaped flap were extended up to proposed site of neo meatus, parallel to urethral plate with a midline epithelial incision at site of shallow groove. Glanular wings were raised sufficient to cover neourethra without tension after a second layer dartos cover. Operative time, early and late postoperative complications were noted.

**Results:** The median age at repair was 5.4 years (1.5-11 years). The urethra was deficient for a length of 1.2 – 2.7 cm. Urethral plate width was 2-8 mm (mean 4.4). Minimal skin chordee in 9 cases was released by degloving. Operating time ranged from 30 to 70 mins. Darkening of skin was seen in 3 cases that resolved spontaneously. At follow up of 13 - 50 months, there was only one case of delayed infective dehiscence, repaired by same procedure, 11 months later. All cases healed well with good cosmetic outcome with no stenosis or urethral stricture. All patients passed urine in good thick stream.
Conclusions: This technique for urethroplasty provides a deeper navicular fossa, good caliber of urethral tube and places the urethra deep into the glans resulting in good cosmetic and functional outcome.

47 New urinary symptoms post-urethroplasty- complications or pre-existing pathology?
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Introduction: Hypospadias is one of the most common congenital anomalies of the urinary system. It is not usually thought to be associated with upper tract anomalies. However, in some cases there may be associated undiscovered upper tract anomalies which can complicate the post-operative period and cause anxiety to both the patient and surgeon unless a high index of suspicion is entertained.

Material and Methods: Case report of a child operated for hypospadias subsequently presenting with recurrent UTI necessitating multiple hospital admissions and investigations.

Results: A 3 year old boy presented with distal penile hypospadias with no other associated urinary complaints such as poor urinary stream, retention, dribbling or dysuria. He underwent an uncomplicated TIP urethroplasty. After 6m of asymptomatic post-op period, the child started suffering from repeated UTIs, episodes of retention and poor stream. Post-urethroplasty stricture was suspected but a retrograde urethrogram, cystoscopy and urethral calibration ruled out the possibility. Upper tract evaluation was then undertaken. Ultrasonography and micturating cystourethrogram were finally able to show a thick walled trabeculated bladder with bilateral dilated and tortuous ureters and bilateral grade 5 VUR. There was associated spina bifida confirming the pathology to be of neurogenic origin. The child underwent bilateral cross-trigonal ureteric reimplantation for the high grade reflux. Post reimplantation the patient remains well at 4 months follow-up with resolution of recurrent UTIs and obstructive uropathy.

Conclusion: Pre-existing undiscovered anomalies may complicate the course of a simple case of hypospadias. Thorough investigations, high index of suspicion and preparedness for dealing with unexpected complications are required. If facilities permit, a screening ultrasound before undertaking even a simple hypospadias surgery can detect associated upper tract anomalies and thus circumvent unnecessary anxiety and investigations post-urethroplasty.

48 A novel technique of posterior urethral lengthening
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Objective: To describe the technique of posterior urethral lengthening, double breast wrap around by detrusor muscle and cross tensor fascia lata sling to achieve continence in cases of incompetent bladder neck and urinary incontinence.

Materials and Method: We used the technique of posterior urethral lengthening, double breast wrap around by denuded detrusor muscle and cross tensor fascia lata sling to achieve continence in cases of urinary incontinence with incompetent bladder neck.

Results: Of the 10 patients operated 6 were males and 4 females with the age range from 4 -18 years [mean 7.8]. Of these 4 were of exstrophy epispadias, 2 epispadias, 1 neurogenic bladder and 3 bilateral ectopic ureters. Six patients underwent simultaneous augmentation cystoplasty, done when maximum bladder capacity was less than 60% for the age of the child. Mean follow up was 1.6 yrs [range 0.6 to 3 years]. Eight [80%] patients are continent. Of these 7 are continent day and night, while 1 has leakage of urine at night. Six are voiding voluntarily and 2 require self intermittent catheterization through Mitrofanoff. Two of the failed patients belonged to neurogenic group 1, and bilateral ectopic ureter 1.

Conclusions: Posterior urethral lengthening, detrusor double breast wrap and cross tensor fascia lata sling is a safe and effective method to achieve continence in cases of incontinence associated with incompetent bladder neck.

49 Congenital prepubic sinus
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Conclusion: Pre-existing undiscovered anomalies may complicate the course of a simple case of hypospadias. Thorough investigations, high index of suspicion and preparedness for dealing with unexpected complications are
Purpose: to present rare case of congenital prepubic sinus with review of literature

Text of Abstract: Congenital prepubic sinus (CPS) is an extremely rare congenital anomaly with only 30 cases reported so far. We herein add to literature one more such rare case and discuss our findings and review of literature. 8 month old boy presented with history of watery discharge from the prepubic region since birth. He was investigated. Sinogram revealed a tract from the skin till the pubic symphysis. After total resection of the sinus, histological examination revealed that the tract was lined with transitional epithelium proximally and squamous epithelium distally. These findings strengthen the theory that CPS is a variant form of dorsal urethral duplication.

Conclusion: congenital prepubic sinus though rare can be successfully managed by simple surgical excision

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Penile growth in response to hormone treatment in children with micropenis
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Purpose: Micropenis is defined as a stretched penile length 2.5 standard deviations less than the mean for age without the presence of any other penile anomalies, such as hypospadias. The term refers to a specific disorder that has a known set of causative factors and defined treatment modalities. The purpose of this study was to determine the effect of hormonal therapy on the gonadal response and penile growth in children who presented with micropenis.

Materials and Methods: Children (<18 years) who met the criteria for micropenis were included in this study. Children more than 11 years old were treated using a standard protocol of 1,500 to 2,000 IU human chorionic gonadotrophin administrated intramuscularly, once per week, for 6 weeks. Children less than 11 years old were treated with parenteral testosterone enanthate 25 mg once a month for 3 months. Response was evaluated in terms of change in testosterone levels and size of penis.

Results: Serum testosterone levels at baseline and after 8 weeks of hormonal treatment were <20 and 449.4 ng/mL, respectively (P < 0.0001) in all children more than 11 years old. Stretched penile length after hormonal treatment increased from 15.54 to 37.18 mm in children less than 11 years old and from 26.42 to 64.28 mm in children more than 11 years old (P < 0.001).

Conclusions: Management of isolated micropenis revolves around testosterone (direct administration or encouraging the patient's body to make its own), and results with respect to increase in penile length are promising.

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Study of anatomy of arrangement of fascial planes and course of superficial vessels in epispadiac penis
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Purpose: To study anatomic arrangement of the fascial planes and superficial vessels in epispadiac penis to enhance the precision in the surgical technique of epispadias repair.

Materials & Methods: Total six exstrophy-epispadias patients (4 classic exstrophy and 2 incontinent epispadias), who presented beyond adolescence without previous intervention, were selected for the study over the duration of 4-years. Magnetic resonance imaging (MRI) of the epispadiac penises were done with 1.5-T MRI scanner and compatible 3-inch surface coil, using fast spin echo and contrast-enhanced T1- and T2-weighted sequences. The imaging findings were also verified during the subsequent reconstructive surgery.

Results: A clear demarcation of the skin, dartos fascia, Buck's fascia, corpora cavernosa, corpus spongiosum, and the intraglanular planes were seen with the course of the blood vessels. The penile dartos received axial pattern vessels from the external pudendal vessels, with collateral branches from the dorsal penile artery as transverse branches at the shaft of the penis and preputial branches at the coronal sulcus. Buck's fascia sleeved the corpora cavernosa, enveloped the neurovascular bundle, and fused with the corpus spongiosum without crossing the dorsal midline. Intraglanular extension of Buck's fascia separated the intraglanular vascular arcade
from the tip of the corpora.

**Conclusion:** Parallel to the ventral midline, axial pattern vessels to the dartos course in the skin-dartos complex, with relative avascularity at the midline. The preputial dartos receives an additional blood supply from the terminal penile arteries. The fact can be used for designing the skin coverage during epispadias repair. The subfascial plane between the tip of the corpora and the intraglanular vascular arcade and the plane of cleavage between the cavernosa-spongiosum interface can be used for efficient corporo-urethral separation.

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**Cloacal malformation: our experience**

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**Purpose:** To analyse retrospectively the experience with cloacal malformations with focus on their presentations and approach to management.

**Materials and methods:** This study is a retrospective analysis of available medical and surgical records of children who underwent treatment for cloacal malformations during the period from 2004 to 2013 at our centre.

**Results:** 27 patients were analysed with age ranging from at birth to 18 years. 10 patients were presented primarily with cloaca while remaining 17 referred from elsewhere with diversion procedures and/or attempted repairs. While anomalies at ano-genito-urinary-sacral regions were common and are the main subject matter in this presentation, anomalies distant to the region were not common except for one case of esophageal atresia with tracheoesophageal fistula. Anomalies in the region of interest included pouch colon(8), hindgut duplication (1), unfused Mullieran system with without hematometra in one or both Mullieran system(6), solitary kidney(1), ectopic (1), Fused kidney(1), absent or redimentary bladder (2), sacral agenesis+/ caudal regression (4) and spinal dysraphism (1). Fecal diverting stoma had been performed in all but 5 patients. Bowel pull through had been performed either by us or elsewhere in all patients by variety of methods including anterior sagittal, posterior sagittal, abdominoperineal, laparoscopic assisted and total urogenital mobilization. Additional surgery related to the bowel management included Malone's procedure, resection of pouch colon, tapering of pouch colon and colocolic anastomosis for duplicated colon. 9 children presented with urinary tract problems of incontinence and/or retention with hydroureteronephrosis, they were managed by a variety of methods including CIC via mitrafanoff, bladder neck division and bladder augmentation/ substitution. 2 patients presented with symptomatic hematometra and underwent excision of atretic hemiuterus with abdominoperineal vaginal pull through (1) and colovaginoplasty (1). Another patient had undergone vaginostomy for urocolpos in infancy which continued to leak urine in pubertal life along with menstrual flow through the stoma, she underwent ileovaginoplasty. Prepubertal patients are awaiting vaginoplasty to be done at puberty (except 2 patients).

**Conclusion:** Management of cloaca needs complex reconstructions and we have adopted a need based approach to the alimentary, genital and urinary tracts in these patients rather than a one stage total correction.

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**Penile length in hypospadias**

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**Background:** Cosmesis is as important in hypospadias surgery as the functional outcomes. A prime cosmetic factor affecting long-term patient satisfaction after hypospadias repair is penile length. This study was aimed to compare the penile length in hypospadias with the penile length-for-age nomogram in prepubertal Indian boys.

**Patients and methods:** After approval of the institute ethics committee, 20 consecutive boys, with genitalia-unrelated surgical problems, in following ten age slots: 0-1yr, 1-2yrs, 2-3yrs, 3-4yrs, 4-5yrs, 5-6yrs, 6-7yrs, 7-8yrs, 8-9yrs, 9-10yrs, underwent penile length measurement to establish the penile length–for - age nomogram. 100 preop hypospadias patients upto 10 years age were categorized as distal, mid or proximal hypospadias. 30 hypospadias patients upto 10 years age, who were more than two years post-chordee-correction were included. 15 patients in the age group of 8-10 years, who were more than two years post-chordee-correction were categorized according to their age at chordee correction (< 2 years, 2-5 years and > 5 years). Their stretched penile lengths were recorded.
Results and Conclusions: Penile length in hypospadias is within the normal range for age. Until 2 years of age, the severity of hypospadias and presence of chordee do not seem to affect the SPL. Chordee in proximal hypospadias seems to affect the penile growth beyond 2 years of age. There exists a possibility of catch-up penile growth after chordee correction in proximal hypospadias. Age at chordee correction affects the potential for penile growth in proximal hypospadias. Thus, chordee correction should be done before 2 years of age.

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Laparoscopy in ARM
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Introduction: Laparoscopy has been used for treatment of anorectal malformations, as it is perceived to be a less invasive modality. Authors present their experience of 62 cases of male anorectal malformation managed laparoscopically and discuss various issues related with this approach.

Methods: 62 cases of male anorectal malformations who underwent laparoscopic anorectoplasty were reviewed retrospectively. Most of these patients had undergone lateral colostomy in neonatal period at our institute. Intraoperative findings, postoperative complications and outcome on follow up were reviewed.

Results: The diagnosis was rectoprostatic fistula in 49 cases, rectovesical fistula in 12 cases, and rectourethral fistula in one case. Average operative time was 50 min . There was no conversion to open. There was one rectal stenosis which needs redo surgery. There was no urethral diverticulum, prolapse or recurrent fistula in our series. The sole patient of recto-bulbar fistula had a residual stump. Mean follow-up period was 18 months, which shows good results in terms of continence.

Conclusion: Laparoscopic repair of anorectal malformation is a feasible and less invasive approach as compared to PSARP. The complication rate is low and continence is comparable to open pullthrough.

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A retrospective study on cases of ectopic ureters
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Objective: Ectopic ureter is one of the urological malformations which has varied presentation and management. We report our experience of ectopic ureter in children and describe management issues of this complex urological problem.

Materials and methods: It is a retrospective review of all patients of ectopic ureter managed at Paediatric Surgery unit of NSCB Medical College, Jabalpur between 2005 and 2012. Demographic data, mode of presentation, underlying diagnosis, operative parameters, complications and follow-up data were analyzed.

Results: There were 14 patients in the series. Eight were females and six were males. The patients were categorized on the basis of imaging into functioning and nonfunctioning system, single and duplex system for planning of management. Results were as follows: Category n Nephrectomy (Open/ Laparoscopic); Reimplantation (Open/Laparoscopic); Males, Nonfunctioning, Single system - 4 Laparoscopic nephrectomy; Males, Nonfunctioning, duplex system - 2 Open partial nephrectomy; Females, Functioning, Single system (6) – open (2), Laparoscopic (4); Females, Nonfunctioning, Single system - 2 Laparoscopic nephrectomy; None of the males had a functioning system, and none of the females had a duplex system. Two patients had solitary kidney and both were females. Among associated anomalies one patient had retro-iliac ureter. No major complications occurred postoperatively. Mean follow up was for 3 yrs and follow-up studies demonstrate decreased or resolved hydronephrosis in all cases of ureteric reimplantation, except one with a solitary kidney who developed renal failure and is on regular dialysis.

Conclusions: Ectopic ureter is a complex paediatric urological anomaly for which multimodality imaging is needed for diagnosis. Laparoscopic surgery plays a key role in its management in the present era.
Wilms' tumour with synchronous ipsilateral testicular metastasis

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Aim: To discuss possible causes of scrotal involvement, routes of testicular metastasis in Wilms' tumor and their management guidelines.

Methods: A 3.5-year-old boy was referred to us with abdominal lump, gross hematuria, left testicular mass and anemia. Radiological workup showed huge left renal tumor compressing adjacent structures, significant retroperitoneal lymphadenopathy, invasion of renal vessels, heterogenous left testicular mass, but no hepatic or pulmonary metastasis. Upfront biopsy of renal mass, hilar & para-aortic lymph node, and high inguinal left orchiectomy was done. Histopathological examination revealed metastatic Wilms' tumor to testis (blastemal type with diffuse anaplasia). Histology of testicular tumor showed spermatic vessels involvement, but epididymis and spermatic cord were spared. We planned to treat the patient as stage III with high risk histology. Preoperative chemotherapy (Vincristine, Adriamycin, Doxorubicin, Cyclophosphamide) and abdominal local external radiation therapy were administered. Five weeks after neoadjuvant chemo-radio therapy hematuria settled, but imaging studies didn't showed significant regression in size of tumor. Thus chemotherapy shifted to etoposide, carboplatin and cyclophosphamide. After 5 weeks of further chemoradiotherapy child planned for surgery, but child lost the follow up. In literature 7 cases of testicular metastasis of Wilms' (6 asynchronous and 1 synchronous) reported. All the cases follow the same approach with recommendation that if congenital hydrocele presents with Wilms' tumor, it should be operated first to prevent transcelomic testicular spread.

Conclusion: Besides vericocele, cryptorchidism, pseudohermaphroditism, hernia and hydrocele; testicular metastasis should also be rule out in all Wilms' tumor. If testicular metastasis is present orchiectomy/ partial enucleation should be done at first surgery to confirm the diagnosis, whatever the route of metastasis (hematogenous, retrograde venous, retrograde lymphatic, transcelomic through patent process vaginalis).

Effect of interrupted suture and continuous suture urethroplasty on complication rates in Snodgrass tubularised plate (TIP) urethroplasty

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Purpose: To study the effect of interrupted suture and continuous suture urethroplasty on complication rates in Snodgrass tubularised plate (TIP) hypospadias repair.

Material and Methods: This prospective study comprised of 50 boys (Age range 1-14 year) with primary subcoronal (n=), distal penile (n=) and midpenile hypospadias (n=) who had undergone hypospadias repair from Oct 2010 to Oct 2012. Patients with glanular, recurrent and proximal hypospadias were excluded from the study. All Patients were prospectively randomized into two groups- Group A (n=25) undergoing interrupted suture Snodgrass urethroplasty and Group B (n=25) undergoing continuous suture Snodgrass TIP urethroplasty. In all patients of both groups, urethroplasty was done with vicryl 6-0 suture over a catheter that was removed on postoperative day 7-10. Outcomes were assessed in terms of complication rates during followup at the time of catheter then removal, monthly for initial three months followed by every three month for two year. The outcome was also verified statistically.

Results: Complications occurred in 11 patients and found to be lower in Group A (n=6) in comparison to Group B (n=7). Urethrocutaneous fistula was the most common complication in both groups (three in Group A and midpenile TIP urethroplasty) and were small. Partial/complete wound dehiscence occurred in one patient of each group. One patient from each group also had meatal stenosis and urethral stricture respectively that were managed conservatively.

Conclusion: Type of Suture technique has no influence on the long-term outcome of hypospadias repair and depends on surgeon preference.

Disorders of sex development [pseudohermaphroditism]

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Introduction: The traditionally used term ‘Intersex’ has now been replaced by the newer term ‘disorders of sex development’ (DSD) to indicate congenital conditions with atypical development of chromosomal, gonadal or anatomical sex. We present two cases of pseudohermaphroditism.

Methods: Case 1: A four year old child reared as a female, presented to us with abnormal external genitalia since birth. Examination revealed a hypertrophied clitoris without a urethral orifice. Scrotum was bifid with poorly developed right half & voiding orifice was between the two halves. The left gonad was palpable in the left hemiscrotum whereas the right gonad was impalpable. The USG CT scan showed no mullerian structures. Laparotomy and right orchiopexy was done after parental counseling & hormonal studies. Testosterone ointment was applied locally for three months. The penile length increased in size & after a year perineal hypospadias repair was performed using an inner prepucial flap for neourethra formation. A blind ending vagina was found intraoperatively which was excised.

Case 2: Three year old child reared as a male, presented with a small phallus, fused labial folds giving the appearance of pseudoscrotum, both gonads were impalpable. Retrograde genitogram revealed a common tract draining both bladder & vagina. CECT showed absence of male internal genital organs with a thick rectovesical septum. Hysterosalpingogram suggested dye reaching in the peritoneal cavity. After parental counseling & hormonal studies clitoroplasty was done with formation of neovagina, labia minora & majora.

Results: There were no complications whatsoever in each of these five patients. The raw area healed in a week's time without any restriction of mouth movements.

Conclusions: Harvesting a large buccal mucosal graft as a single piece for vaginal/urethral reconstruction in complex intersex problems is possible and safe in experienced hands.

Purpose: Complex intersex problems such as urogenital sinus or congenital adrenal hypoplasia often mandate extensive genital reconstruction and necessitate mobilization of distant body tissues. Harvesting a large buccal mucosal graft for vaginal reconstruction is one such situation. This paper aims to demonstrate the technique of harvesting a large buccal mucosal graft for vaginal reconstruction and the technical nuances therein.

Material and Methods: The prospective study was conducted on five patients requiring buccal mucosal graft for vaginal reconstruction over the last five year. Harvesting of the graft was conducted under general anesthesia with the endotracheal tube fixed to one angle of the mouth. Stay sutures were taken with 3-0 silk to delineate the boundaries of the prospective graft. The oral mucosa was divided along the long edges of the graft while the medial and the lateral edges of the graft were left intact. The graft was undermined in the plane of lamina propria with sharp dissection keeping the stay-sutures under tension. Subsequently the medial and lateral edges were also divided. Local hemostasis was ensured but the graft-bed was not sutured. Defattening of the graft was performed.

Results: There were no complications whatsoever in each of these five patients. The raw area healed in a week's time without any restriction of mouth movements.

Conclusions: Harvesting a large buccal mucosal graft as a single piece for vaginal reconstruction in complex intersex problems is possible and safe in experienced hands.

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In-utero and postnatal management of a displaced Vesico-Amniotic shunt
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Introduction: This paper describes the management of a 30 week fetus with a vesico-amniotic shunt which slipped into the peritoneal cavity causing fetal ascites.

Materials and Methods: A 25 week male fetus was diagnosed to have Posterior Urethral Valve disease. At 28 weeks increasing renal echogenicity and raised β2 microglobulin level prompted insertion of a vesico-amniotic shunt. At 30 weeks fetal ascites showed that the shunt had slipped into the fetal peritoneal cavity causing ascites. A week
later 150 mls of urine was drained. In order to avoid repeated fetal taps, baby was delivered at 32 weeks after draining another 175 mls. Respiratory distress necessitated surfactant therapy and elective ventilation. The bladder was catheterized. 30 hours after birth under GA scopy was done with a 6/7.5 Fr cystoscope. The valve was incised at the 12 o'clock position and stent removed using a 3Fr basket. During scopy sudden desaturation and bradycardia occurred. After drainage of the peritoneum baby was successfully resuscitated. The peritoneal drain was removed after 72 hours. Three months later residual valves were fulgurated. On followup six months later there is mild pelvicalyceal separation on the right side, left kidney is small and dysplastic, urinary bladder is of normal thickness and empties completely and serum creatinine is normal.

**Conclusion:** This is the first reported case of cystoscopic removal of a Denver shunt with spontaneous closure of the bladder rent. Laparotomy, shunt retrieval and bladder closure has been published. In retrospect, elective peritoneal drainage before cystoscopy could have avoided the intraoperative event.

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**Penile anthropometry in Indian children**

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**Introduction & Objectives:** Till date there are no data on intoto penile anthropometry of children. The objective of this study is to provide estimate of normal variations in Indian children and establish reference value for clinical use.

**Methods:** A preliminary cross sectional study was carried out on 250 patients from birth to 10 years of age with 25 subjects in each group with 1 year interval. Target is to analyze 100 subjects in each group in the final study. Subjects with any disease of genitourinary system were excluded. Four penile measurements were taken with the help of a vernier caliper; stretched length of flaccid penis, diameter at corona, mid-shaft, & mid-glans. Diameters were multiplied with pi (3.14) to calculate the respective circumferences. Mean & standard deviation were calculated for each age group to establish reference values. Penile length was correlated with weight, height & BMI of the subjects. Analyzed data was compared with previous studies carried on populations of other countries.

**Results:** Average penile length in infancy was 3.34 cm with circumference at corona, mid-shaft & mid-glans being 3.29, 3.05 & 2.81 cm respectively. The values of these measurements in the highest age group (9-10) were 5.25, 5.05, 4.78 & 4.60 cm respectively. Maximum increment in all dimensions was found during 3-4 year agegroup & increment during 8-10 year was relatively less. Penile length was found to have strong positive correlation with weight, height & BMI.

**Conclusion:** Penile dimensions in Indian children were found to be smaller in comparison to previous studies conducted in other parts of the world. We hope that this study is going to be helpful in deriving the normal range and variations of in toto penile dimensions in Children & will be useful as a reference in future.

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**Laparoscopy in urolithiasis**

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**Objective:** To assess the feasibility of laparoscopy in the treatment of paediatric urolithiasis, we report our experience with the transperitoneal laparoscopic removal of stones.

**Method:** Renal pelvic stones of size >1 cm on ultrasound were included for laparoscopic pyelolithotomy while smaller stones were managed with shock-wave lithotripsy monotherapy. Intrarenal stones, calyceal stones, complete staghorn stones, multiple stones and kidneys with intrarenal pelvis were excluded. Ureteric stones included for laparoscopic ureterolithotomy were of size >1 cm in the upper, mid or lower ureter, and smaller stones not responding to non-operative treatment.

**Results:** A total of 22 procedures were performed: 12 pyelolithotomies, and 8 lower and 2 upper ureterolithotomies. Complete removal of calculi was accomplished in 21 (95.45%) procedures. Complications associated with laparoscopic lithotomy included urinoma (4.54%), failure (4.54%) and omental prolapse (4.54%).

**Conclusion:** Laparoscopic lithotomy is safe and feasible in paediatric urolithiasis with pyelic and ureteric stones, with minimal complications and failure rate.
Female epispadias – short case series
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Background: Female epispadias is a rare anomaly that poses difficulty in both diagnosis and management. Apart from the patients presenting with wide anatomical defects, in many the presentation may be varied and treatment difficult. We report a short series of three female patients with epispadias presenting to our unit within the last 6 months.

Methods: A retrospective study of patient case notes, operative register and notes was done. Three patients were identified with female epispadias who underwent repair of epispadias. Their follow-up data to date was noted.

Results: Case 1 – an 11 year old girl who had undergone previous 3 stage surgery for anorectal malformation presented after a gap of 10 years with history of complete urinary incontinence. On examination she had a narrow perineal body and an epispadiac urethra. Perineal body reconstruction with epispadias repair was done. 3 months later she was continent.

Case 2 – a 7 years old girl presented with continence with continuous incontinence. On examination she had a wide patulous urethra with bifid clitoris and absent vagina. An IVP and MCU showed bilateral ectopic ureters with grade 2 vesico-ureteric reflux. The bladder was of moderate capacity. The ureters were confirmed to open into the urethra on cystoscopy with left orifice proximal and right orifice distal to the external sphincter. An attempt to perform bilateral re-implantation failed due to very small bladder at surgery and hence an epispadias repair was performed as first stage. Four months after surgery the child was completely continent. She has been planned for bilateral re-implantation with augmentation if necessary at a later date.

Case 3 – an 11 months old female child presented with abnormal genitalia and constant dribbling of urine. On examination she was found to have epispadias and plain X-ray confirmed pubic diastasis. An epispadias repair was done and at 2 months the child was asymptomatic.

Conclusion: Isolated epispadias is a very rare condition with only 1 in 5-7 cases occurring in the female sex. Other than obvious genital abnormality detected in infancy, the presentation may be delayed until toilet training. In female children with incontinence, a high index of suspicion can lead to the diagnosis of this condition. Rarely associated problems such as ectopic ureters may need a complex management plan.

The "upsidedown" technique for prepuce in hypospadias repair
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Objective: We presents a different technique for prepuce utilization “the Upside-down” that use is better qualified for glandular, coronal and sub coronal hypospadias, in the mean time for GAP, MAGPI, Snodgrass techniques.

Methods: We present our study reported to 21 cases from ours centers involved in this work. The surgeons interested in this study are conflict interest free. All the Hospitals involved were found from their patients records the details about age, hypospadias classification, definition and surgery [using patient schedule appointment before surgery and dimission charts after surgery]. Only two patients needed preoperative hormonal stimulating therapy with Testovis enant i.m. 25 mg once a week - 3/52. We both use extended dissection of the skin and subcutaneous fibrous tissue, mobilization of the urethral plate, excision of fibrous tissue on the ventral aspect of corpus cavernosum, section of the urethral plate, when needed a Nesbitt dorsal plication [2/21 par cases], and total penile de-assembly [Perovic]. We both normally do a circumferential incision made 0,5 cm proximal to the corona and meatus. The penis is degloved. A deep, longitudinal midline incision is made from the inside of the dorsal edge of the meatus to the glans groove. A diamond shaped defect results and is then closed transversely in Heineke-Mikulicz fashion with 7-0. The glans is closed in two layers while PDS distal traction is placed on the distal edge of the corona and meatus. The redundant prepuce in a dorsal view is incised in a horizontal fashion and then passed upon the glans instead of being excised in a Byars flaps. One time in ventral view the prepuce is sutured in a midline [06:00
clockwise and 12:00 clockwise], and then all the prepuce is adjusted in a deep layer without any further excision, to be made a different skin-mucosal, ventral-dorsal adjustment in a tension free fashionable suite. No urethral catheter is left, and the dressing is the same for the circumcision [Tegaderm® dressing with Ptealf® ], introperative antibiotics and BID therapy for pain relief where given.

Results- All patients recorded in this multicenter study group were identified from medical record [patients schedule in office exam], viewed twice before surgery time in case of needed hormonal Rx preoperative, in only two cases between 21, we needed testosterone stimulation because two of them were found with corpora cavernosa < 2 DS. At six months none had complications for tissue tension, fistula or penile curvature.

Conclusions: we suggest our technique for GAP, MAGPI and Snodgrass procedure for hypospadias repair to preserve a maximum skin pedicle in case of redo repair, no bleeding after surgery, no edema, no hematomas or local infection due to the skin tension on the stitches point in the coronal and peno-scrotal angle.

65 Clinical manifestations of posterior urethral valves (PUV) and outcome of early diagnosis and management
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Objective: To determine the clinical manifestations of posterior urethral valves (PUV) and outcome of early Diagnosis and management.

Patients and study: All patients of paediatric age group having urinary complaints with suspicion of PUV were included in this study. Diagnosis was based on ultrasonography of urinary tract and voiding cystourethrography (VCUG).

Results: 80 male children with PUV on VCUG were enrolled into the study. Two patients were suspected on antenatal ultrasound of having bladder outlet obstruction. Most of the patients presented after 3 years (40%) and 15% presented at 9 years of age. Common clinical presentations were fever, anemia, failure to thrive and urinary symptoms. Around 53% had abnormal renal function, 40% had vesicoureteric reflux (VUR). Nearly all patients presenting after 6 years of age had abnormal renal functions and VUR. Early surgical intervention had better resolution effect.

Conclusions: PUV is a common cause of the lower urinary tract obstruction in male children. Delay in diagnosis and treatment leads to end stage renal disease.

66 Renal, ureteral and urethral ectopia
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Purpose: To present an unusual case situation where one renal unit, the contralateral ureter and the urethra are ectopic in location.

Material & methods: A male baby presented on the 4th postnatal day with complaints of not passing urine through tip of penis, instead passing urine through anus. Examination revealed a normal looking penis, scrotum and descended gonads. On the glans penis there was a small dimple at the site of external meatus which was blind and not allowing even a 3 Fr catheter. Anus looked normal, but with a sperate opening at its 12’ O clock position through which urine was dribbling. His renal functions were normal, ULTRASOUND: revealed normal left kidney, right kidney not visualised and one ureter was seen dilated at its lower end which was traced into urinary bladder.MCU: As it was not possible to catheterise bladder through the ectopic opening , MCU was done through suprapubic route, and it revealed an irregular bladder, left side ureter opening to posterior urethra with urethro-ureteral reflux. Distal urethra was not seen in the pictures. MR-UROGRAPHY: revealed right crossed fused ectopic kidney with dilated right ureter. The left ureter was also dilated and was ectopic in location as seen in MCU. CYSTOURETHEROSCOPY: not able to negotiate even a 7.5Fr scope retrograde or antegrade.

Surgery: Initially the patient underwent a defunctioning colostomy and at 2 yrs of age taken up for corrective surgery. First left ureter was identified extravesically and traced down to its ectopic location. Its distal end was narrow. Then bladder was opened and there was single ureteric orifice which was located more towards left side of midline, which when catherised went to the right ureter. Left ureter was also disconnected from the ectopic location and re-implanated to bladder. After some dilatation of the stricturous posterior urethra, a 8 Fr catheter passed antegrade to the urethra,
through internal urethral meatus now reached perineal opening. The opening of urethra in the anterior wall of anus was mobilised away from anus and rectum as high as possible and tranpositioned to a location at the root of scrotum with the idea of future distal urethroplasty. Colostomy was closed after 3 months

**Results:** The child is now voiding through the new hypospadiac meatus with good stream and there is no incontinence. He is awaiting distal urethroplasty.

**Conclusion:** Crossed fused ectopic kidney, ectopic ureters are not unusual. Ectopic urethra (due to duplication or Y - urethra) are extremely rare. The combinatin of all three is rarely met with in one's clinical practise. The main challenge is in identifying the exact nature of all these ectopic locatoins before corrective and reconstructive surgery. The situation is made more difficult if endoscopic assessment is not possible due to anatomical reasons. A good knowledge of embryopathogenesis is important to understand and identify these anomalies, that proper surgical correction can be planned.

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**Effects of acute segmental renal artery occlusion (an experimental study)**
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**Purpose:** Experimental occlusion ligation of renal artery is known to produce irreversible tissue damage. Segmental occlusion was undertaken to establish the stage of irreversible ischemia.

**Material & Methods:** 16 adult-mongrel dogs were divided into 6 groups with 3 dogs in each group. Nephrectomy was done 1/2, 1, 2, 4, 24 and 48 hours after occlusion. Pathological changes were studied using light and electron microscope.

**Results:** Right kidney was explored in 7 and left in 9 dogs. Posterior segmental artery was ligated in all animals. A single renal artery branching into five segmental vessels was seen in 12 out of 16 dogs (75%). Gross changes: Bluish dyscolouration with irregular intersegmental boundary at 30 minutes of occlusion. At 4 hours cortex appeared greyish blue and medulla deep blue colour at 24 hours and subcapsular region was grey with a red rim at 48 hours. Microscopic findings: Increased granularity of cells of proximal tubules at 30 minutes, diffuse eosinophilia, patchy areas of haemorrhages and oedema of interstitium at 2 hours, disrupted basement membrane at 4 hours were seen. At 24 hours extensive coagulative necrosis was seen. Electron Microscopic findings: At 30 minutes tubular cells were normal. The mitochondria were swollen with some showing loss of cristae but microvilli were preserved. At 1 and 2 hours only proximal tubular cells showed early degeneration of microvilli and intact mitochondria. Glomeruli showed loss of foot processes and slight increase in mesangium. At 4 hours - there was complete disorganisation of tubular cells. At 48 hours - there was complete necrosis of tubular cells with formation of vacuoles.

**Conclusion:** Segmental renal artery occlusion caused localised ischaemia. The ischaemic changes upto 2 hours of occlusion were of reversible nature as shown by electron microscopic examination.

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**Assessment of meatal length and glans closure in cases with TIP urethroplasty**
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**Aims:** The aims of this study are 1. To assess the meatal length and glans closure in hypospadias and compare with our earlier findings on normal boys published earlier 2. To assess whether marking the points help in improving the outcome by comparing with older repairs done without marking.

**Methods:** 1. All patients who underwent TIP repair for coronal, subcoronal and distal penile hypospadias between Jan 2011 and Dec 2012 (Group I: n=35; mean age 2.4 yr) had reference points marked with marking pen to identify distal tip of meatus (point A), proximal ends of meatus (points B), and point where glans ends at coronal sulcus (point C). Based on this the following data were derived: meatal length AB; ventral glans closure BC and their relationship BC/AB%. These values were compared with similar values obtained on normal boys without hypospadias (n=75; mean age 6.5 yrs) from our earlier published literature. 2. The outcomes of TIP repair done with markings were compared with a similar group performed earlier Jan 2008- Dec 2010 without skin markings (Group II: n=47; mean age 2.2 yrs).
**Results:** 1. There was significant difference between the age distribution of Group I and normal; This difference was reflected in the meatal length (AB): 4.9mm (1.7) in group I and 5.4mm (1) in normal; ventral glans closure (BC): 4.2mm (1.7) in Group I and 4.7 mm(1.2) in normal. However the ratio BC/AB% was 86% in Group I and 87% in normal showing no significant difference in BC/AB ratio between hypospadiac patients vs normal (p=0.9). 2. The fistula rate was 2/35 (5.7%) in Group I compared to 5/47 (10.5%) in Group II. The meatal stenosis was 2/35 (5.7%) in group I while 4/47 (8.5%) in Group II.

**Conclusion:** 1. The landmarks of normal anatomy are very similar in hypospadias: Ventral glans closure (BC) is 86% of vertical meatal length (AB) 2. Marking helps to reduce rate of fistula and meatal stenosis.


69 **Vesicoscopic ureteric reimplantation in children - a single centre**

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**Purpose:** To evaluate the surgical technique and outcome of vesicoscopic ureteric reimplantation in children.

**Material and methods:** There were 36 children (29 boys, 7 girls with age range of 8 months to 7 years) who underwent vesicoscopic ureteric reimplantation during the period April 2007 to June 2013. The various parameters analysed were operative time, intra and postoperative complications, hospital stay and postoperative outcome.

**Results:** Out of a total of 38 children, two cases in the beginning of the series had to be converted to open. All the 36 children (57 ureters) underwent vesicoscopic transtrigonal ureteric reimplantation. The lowest bladder volume with which this procedure was done was 80 ml. The mean operative time was 190 minutes and postoperative stay was 4.5 days. The two children who had to be converted, had extravesical spread of gas through the ureteral hiatus once ureter was mobilised. There was no gas leak once the pressure was reduced to 8 mm Hg. A 3 mm trocar got accidentally pulled out during the procedure but could be easily reintroduced since the bladder was sutured to the abdominal wall during port insertion. There was a resolution of reflux in 26, reduction in the grade of reflux in 6 and no failures. Postoperative MCU is awaited in 4 patients.

**Conclusion:** Vesicoscopic ureteric reimplantation is technically similar to the time tested open transtrigonal ureteric reimplantation with very good postoperative results and low morbidity. Our technique of port placement is simple and safe and doesn’t need cystoscopy

70 **Outcome of poorly functioning kidneys due to pelviureteric junction obstruction in children**

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**Purpose:** Variable outcomes have been reported for poorly functioning kidneys (PFK) with uretero-pelvic junction obstruction (UPJO) in children.

**Methods:** Hospital records of all children with UPJO and PFK (split renal function (SRF) <30% on Tc-99m DTPA renography) undergoing Anderson-Hynes's dismembeered open pyeloplasty (AHDP) in one of two Paediatric Surgery Units of a tertiary care public hospital in a developing country were analyzed. Secondary UPJO, UPJO of solitary kidney and pyeloplasty done elsewhere were excluded. Anteroposterior diameter of the renal pelvis (APPD) and renal parenchymal thickness (PT) were assessed on ultrasonography (USG) before and 3 months after surgery. SRF, time from maximum concentration of radioisotope to half its value (t-t/2) and glomerular filtration rate (GFR) of the affected kidneys on renography were studied before and 6 months after surgery. Initial postoperative evaluation was followed by yearly studies. Preoperative values of SRF, GFR, APPD and PT were compared to the final values achieved at last follow-ups using paired t-tests.

**Results:** 23 patients (19 boys, 4 girls) with mean age of 5.3years (range 1½months-12years) with unilateral UPJO having PFK underwent AHDP over a period of 7 years (2005-12). The age at presentation was <2 years (n=6), 2-5 years (n=4) and >5 years (n=13). Antenatal diagnosis was uncommon (n=4). Mean follow up was 30.7 months (range 9 months- 6.25 years) in 14 patients; the rest were lost to
follow-up. Postoperative renograms were available in only 13 patients (detailed here). Complications included failed
pyeloplasty (n=4), postoperative UTI (n=4), urinary
extravasation (n=2), hematuria (n=1) and mucormycosis
(n=1). Three patients had successful revision pyeloplasties
and 2 underwent nephrectomy (intraoperative problems -1,
mucormycosis -1). The mean SRF improved from 13.6% to
30.9% after surgery. SRF remained static (change <10%) in 4,
improved (increase >10%) in 8 and deteriorated (decrease
>10%) in 1. The t-t/2 decreased to <10 minutes in only 3
patients. Mean renal APPD decreased from 52.3mm to
19.1mm and mean renal PT improved from 5.35mm to
8.1mm. GFR improved from 9.34ml/min./1.73m2 to
34.9ml/min./1.73m2 (in 10 patients). Mean SRF, GFR, APPD
and PT for the entire group showed statistically significant
improvement.

Conclusions: Though majority of the children with PFK
eventually do well after pyeloplasty, the procedure has
significant morbidity and initial failure rates.

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Early experience of retroperitoneoscopic surgery
in paediatric population
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Objective: Objective of this study was to present our early
experience with retroperitoneoscopic surgery in paediatric
population suffering from various urologic conditions.

Material and methods: Patients undergone
retroperitoneoscopic urological procedures from January
2012 to May 2013 were included in the study. Retroperitoneoscopy was performed in lateral position with
cotton roll below the flank according to side of involvement
using standard three port technique (5mm, including camera
port). Parameters like intraoperative complications,
operating time, difficulty in surgery, conversion to open,
postoperative complications, analgesic requirement and final
outcome were analysed.

Results: From January 2012 to May 2013 total eight patients
underwent retroperitoneoscopic urological procedures in the
department. There were two females and six males; median
age at procedure was 5 years (3-12 years). The surgeries
performed were nephroureterectomy (NFU) in non
functioning kidney (four) and nephrectomy in multicystic
dysplastic kidney (four). Two patients were converted to open
because of pyonephrotic kidney with severe adhesions due to
previous PCN. Average duration of surgery was 80 minutes
for NFU and 63 minutes for nephrectomy. There was minimal
blood loss and no intraoperative complications. Postoperative analgesia was not required in any cases. The
two patients who were converted to open had superficial
wound infection managed by intravenous antibiotics and
dressing. Patients were started orally within 24 hrs. All
returned to normal daily activity within 2-4 days of surgery.
Six patients were discharged on day three after the drain
removal. All of the patients were asymptomatic in follow up.
Conclusion: The retroperitoneoscopic procedure is easy and
feasible in paediatric population. It can be performed safely,
with minimal postoperative pain, excellent cosmetic results
and early ambulation. Patient selection is of paramount
importance to avoid conversion to open.

Abstract No. 72
Mini flank incision pyeloplasty a versatile minimal
access technique sans technology-a three year
prospective study
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Introduction: Minimal access surgery has redefined
parameters of cosmesis, analgesic use and hospital stay in
major surgeries. However, the high costs of instrumentation,
the need to retrain oneself to gain adequate to carry out safe
endoscopic surgery i.e. the learning curve is steep. The
duration of surgery for most conditions is also much longer.
Hence the utilization of minimum access principles in open
surgery would then have the benefit of both worlds.

Materials and methods: All consecutive paediatric
pyeloplasties done at Paediatric Surgery, JIPMER,
Pondicherry over three years done by one surgeon(SKV) by
mini flank incision( incision<3cms) and the rest by standard
open techniques were recruited(n=57). We have compared
operative time, use of narcotic analgesics, complications and outcomes.

Results: Fifty seven consecutive pyeloplasties were analysed
prospectively over a period of three years. The size of the incision in minimal access group varied from 1.6 cm to 3 cms. Operative time varied from 90 to 200 minutes with a mean of 143.03 minutes. For standard open surgery, operative time varied from 120 to 300 minutes with a mean of 157.69 minutes. In the minimal access group there were no complications. Four stents in the standard group migrated proximally and were removed by (3)/nephroscopic(1) URS techniques. All patients showed a decrease in size of pelvis and improvement of symptoms. Success rate of the procedure was 95.45% and 94.28% in O- and standard groups respectively.

**Conclusions:** Even though the numbers are small, the trend of small incision with similar operative time and no increase in complication rates is quite evident. The use of narcotic analgesics was not required in any of the mini incision group. Success rates have been comparable between the two groups. Hence the routine use of OMAS is recommended which is safe and low tech and can be done in any standard OT.

**73 Surgical management of Bladder-Exstrophy-Epispiadias-Complex: Are we turning back full circle?**

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**Purpose:** Surgical Reconstruction of bladder-exstrophy-epispadias complex (BEEC) poses a major challenge in developing countries. Outcome analysis of our patients makes us rethink in favour of primary diversion.

**Methods:** Descriptive retrospective study. Initially, all patients underwent staged reconstruction of BEEC (SRE). In the last 2-years, parents were counseled regarding both reconstruction and diversion approaches.

**Results:** 41 children (28 boys, 13 girls) of BEEC (mean age at presentation 26½months) were managed over 14 years (1998-2012). Of 21 neonates, the approach was initial bladder closure (BC) (n=18, mean age 3.8 days) and Erlangen approach (EA) (n=3, intentional delayed primary BC at 4 months). 20 presenting after 28days [late presenters (LP)] underwent BC (n=16), primary diversion (uretero- or cysto-rectostomy) (UR/CR) (n=2), and primary bladder augmentation (BA) (n=2). 16 patients were lost to follow up. The outcome of remaining 25 patients was analyzed. Neonatal BC was successful in only 50% (9/18). Of 11 non-defaulters who completed all stages of SRE, only 4 have native bladders, others have undergone BA (n=6) or CR (n=1). Average number of surgical procedures was 6 (range 2-13). All 3 neonates where EA was used had successful BC; both non-defaulters recently underwent BA. Success rates of initial BC for 16LP were similar (62.5%); of the 10 non-defaulting LP, all except 1 eventually underwent BA (n=8)/CR (n=1). Average number of surgical procedures was 6.7 (range 3-18). Of 23 non-defaulters who had SRE (initial BC done at different ages), only those 18 patients who underwent BA/CR have socially acceptable dry intervals. Significant problems encountered in 16 BA were cystolithiasis (n=5); urosepsis leading to chronic renal failure (n=1). 4 patients who underwent UR/CR (2 primary and 2 following failed SRE) were followed up for a mean of 1-year-8 months post-procedure with no metabolic complications and excellent social acceptance.

**Conclusions:** Diversion in form of uretero- or cysto-rectostomy is more socially acceptable in our scenario; it avoids multiple surgeries and does not require clean intermittent catheterization (CIC). However, long-term follow-up is needed.

**74 A rare combination of ureteral and urethral problems**

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**Introduction of case:** An unusual combination of bilateral ectopic ureters, posterior urethral valve, dorsal penile diverticulum, wolffian duct remnant, coronal hypospadias with low anorectal malformation.

**Abstract:** 1.5yr old male child with low ARM operated elsewhere came to us for a distal penile hypospadias correction. Baseline USG abdomen showed left mild hydrouretero nephrosis. Child was investigated with MCU which showed dorsal urethral diverticulum, dilated posterior urethra with right vesicoureteric Reflux. There was also a finger like contrast filled structure seen at the veru. Cystoscopic evaluation showed the diverticulum at the roof of veru, posterior Urethral Valves, finger like process arising the distal end of veru, vestigial remnant of wolffian duct, dilated posterior urethra with right ectopic ureteric orifice at
the bladder neck. We could not locate the left ureteric orifice in the bladder and the trigone was found absent. We did fulguration of PUV, excised remnant of wolffian duct, and reimplanted the right ureter by Cohen’s technique. We revisited with scope after 6 months and ascertained the absence of ureteric orifice on the left. MR urogram showed left ectopic ureteric insertion in posterior urethra. Left ureter was approached extravesically and a catheter introduced into the distal ureter and it was seen coming out of the urethra. Scopy done showed ureteric catheter emerging out of the ejaculatory opening of the veru. Extravesical reimplantation was done on left. Both dorsal diverticulum and distal penile hypospadias repaired. Child is clinically doing well on 1 month followup.

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Anterior urethral valves as a cause of infravesical obstruction in children: is it more missed than uncommon?
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Purpose: Anterior urethral valve (AUV) is a known but rare cause of infravesical obstruction in children. We present our experience with 9 cases over a period of 4 years.

Material and Methods: Nine children with mean age of 4 years were diagnosed as anterior urethral valves/diverticula between January 2009 and December 2012. Five presented with dribbling of urine, three with poor stream and one with uretrocystaneous fistula. Voiding cystourethrogram (VCUG) was done in 8 patients, although 5 were first diagnosed on a retrourethrogram (RGU). One was diagnosed introperatively with a calculus in the diverticulum. Four patients were wrongly diagnosed as posterior urethral valves and fulgurated. Open repair was done in first 6 cases while cystoscopic fulguration was done in last three cases.

Results: All patients are voiding with normal stream with improving back pressure changes, with a mean follow up of 2.5 years. One patient, who had already developed chronic renal disease is being managed by the nephrology department.

Conclusion: In children with infravesical obstruction, a high index of suspicion is essential to diagnose AUV at an early stage, particularly when PUV is absent. Most of the cases can be diagnosed with retrograde cystourethrogram. Cystoscopic fulguration is an efficient and minimally invasive method of intervention. The condition looks more missed than uncommon.

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Evaluation of VUR in children by bladder volume graded direct radionuclide cystogram
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Aim: Evaluation of vesicoureteric reflux (VUR) in children by bladder volume graded direct radionuclide cystogram (BVG DRC). This technique allows detection of VUR at different bladder volume grades.

Methods: In this prospective study, 33 patients (66 renal units) with suspected vesicoureteric reflux were subjected to voiding cystourethrogram (VCUG) and BVG DRC. The patients were assessed further with radioisotope renal scans for renal cortical scars.

Results: Twenty two patients and 36 renal units were found to have VUR on either of the reflux study. VCUG was able to detect in 20 (55.50%) units and BVG DRC was able to detect 35 units (97.2%). VCUG had test accuracy of 77.8% and BVG DRC had test accuracy of 98.6%. There was positive correlation between bladder volume grades and scarring on DMSA scan.

Conclusions: Like conventional DRC, BVG DRC is a sensitive and an accurate test. It gives additional information on reflux phenomenon with respect to bladder filling. Bladder volume graded technique is a better than conventional DRC for grading of VUR.

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Laparoscopic management of transverse testicular ectopia
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Purpose: To share the management of this entity laparoscopically

Material & Methods: A child presented with impalpable undescended testes on right and inguinal hernia on hernia on
left side. Laparoscopy revealed that right testes also going to left side Laparoscopic mobilisation done and right testes placed in right scotum

**Result:** Child was well on follow up

**Conclusion:** Laparoscopic management of TTE is a good alternative to open surgery

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**A 6 years experience with hypospadias repair complications**

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**Aim:** To evaluate the outcome of different methods of hypospadias repairs.

**Material and method:** All children who had hypospadias repaired in our institute from Jan2006 to Dec2012 were reviewed. Those who already had undergone repairs elsewhere and came to our hospital for complications were excluded.

**Results:** Out of total 144 children who underwent hypospadias repair in this period 87 cases met the inclusion criteria of which 24 children(27%) had Distal Hypospadias which included glanular, coronal, distal penile, and 63(72%) had Proximal Hypospadias which included mid penile, proximal penile, penoscrotal and perineal hypospadias. Techniques used for Distal Hypospadias repair were Snodgrass in 16, Mathieu in 6, and MAGPI for 2 while for proximal hypospadias Duckett's in 23, proximal Duplay+distal Duckett's in 20, Snodgrass in 7, Staged repair in 9, proximal Snodgrass+distal Ducketts in 2, proximal Snodgraft+Distal Duckett's in 1 and Duplay repair in 1. Snodgrass repair had fistula in 2(8.6%). Duckett's repair had fistula in 6(28%), urethral stricture in 3(13%) and Meatal stenosis in 2(9.5%). Proximal Duplay+Distal Duckett's had fistula in 8(40%), diverticulum in 3(15%), distal Hypospadias in 5(15%), Meatal stenosis in 2(10%) and urethral stricture in 1(5%). Staged repair had fistula in 3(33%). Proximal Snodgrass+Distal Duckett's had almost all sort of complications. None of the complications were seen in cases with Mathieu repair. Implantation dermoid of penis was seen in 2(2.3%) one each in Snodgrass and MAGPI repair. 4 cases (4.5%) had wound infection. Complications rates were lesser when the stent was kept in situ for more than 10 days.

**Conclusion:** Complications rates are highest with Proximal Duplay+Distal Duckett's repair followed by Duckett's repair. Snodgrass has lesser complications. Single stage technique carries high fistula rate compared to staged repair. Urethral strictures was mainly in Duckett's repair while distal hypospadias & diverticulum were mainly in Proximal Duplay+Distal Duckett's repair & none in Snodgrass. Mathieu repair has the least complication.

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**The use of Tunica Vaginalis Flap in primary hypospadias repair- a giant step towards fistula free surgery**

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**Aim:** To determine whether the use of the Tunica Vaginalis Flap in primary hypospadias repairs reduces the incidence of post operative urethro-cutaneous fistulae.

**Methods:** A prospective study wherein 129 children aged between 16 months and 6yrs underwent primary hypospadias repair during a 7 year period. All patients were followed up post operatively and incidence of post operative complications including uretho-cutaneous fistulae was documented.

**Main Results:** 68 patients underwent a single stage Snodgrass repair. 61 children with more proximal hypospadias and chordee underwent a staged Braca repair. Two children developed post operative fistulae (1.6%). Both were successfully repaired. Other complications included post op chordee in two and skin necrosis in one.

**Conclusion:** The use of the Tunica- vaginalis flap in primary hypospadias repair dramatically reduces the incidence of post operative urethro-cutaneous fistulae.

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**Renal duplication- varied presentation, challenges in diagnosis and management: JIPMER experience**

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Introduction: Renal duplication is the one of the common congenital abnormality of the urinary tract. This is commonly reported to be as asymptomatic but may have varied presentations with challenges in diagnosis. Surgical intervention is often necessary to correct the malformations and to preserve the renal function. It is fair to state that surgical management is often controversial, diversified and highly individualized.

Aim: This survey was conducted to study the clinical profile of renal duplication, challenges faced in the course of their diagnosis and their management subsequently.

Materials and methods: Retrospective analysis of patients diagnosed to have renal duplication during 2009-2013. The diagnosis was confirmed using USG/IVP/MCU/DMSA scan and CT or MR urography as well as intraoperatively.

Results: The renal duplication was complete in 11 cases and incomplete in two cases (of that one was diagnosed intraoperatively during surgery for PUJ obst). Five cases presented with dribbling, four cases presented with UTI, one case presented with huge abdominal lump, one had a renal mass (Wilms' tumor) diagnosed intraoperatively and one had antenatally diagnosed HDN which on postnatal USG suspected to be duplication and was confirmed on CT urography.

Conclusion: Renal duplication is quite a common problem with varied presentation. Associated urological problems (VUR/PUJ Obst/Ectopic ureter/ureterocele) found in most cases and required appropriate surgical management form case to case.