PEDIATRIC KIDNEY TRANSPLANT AND EXTERNAL URINARY DIVERSION IN A PATIENT WITH IVC THROMBOSIS AND ABNORMAL URINARY BLADDER - A CASE REPORT

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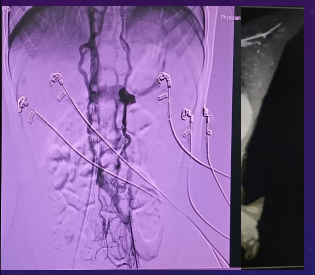
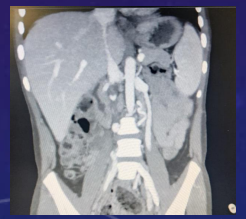
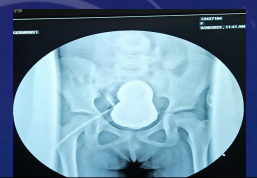
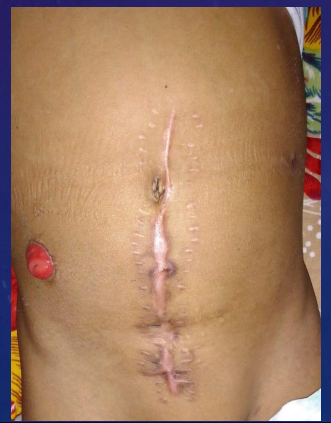
Background:

CAKUT (Congenital anomalies of kidney and urinary tract) constitutes 20-30% of pediatric ESKD (End stage kidney disease) patients. CAKUT incidence is 5 per 1000 live births. Moreover, providing an appropriate dialysis access in these patients is arduous since pre-operative evaluation usually delays the transplant. Nearly 40-50% these progress to ESKD requiring dialysis esp. in developing nations.Obstructive type is more commo(60%).. Surgical options are usually to give a Continent or a Non-Continent Urinary Diversion. Several studies report comparable outcomes in this spectrum









Case Description:

9 year old female child presented with ESKD on Maintainence heamodialysis with SPC in situ. She had a history of urinary dribblling and recurrent UTI since one and half year of age.CAKUT (UGS) was diagnosed at 3 years of age. She had an episode of seizure at 2 years of age.Underwent UGS repair and urethral and vaginal dilation followed by SPC closure.Had a blunt trauma abdomen leading to urine leak from SPC site for which SPC was refashioned.Progressed to ESKD requiring MHD at 7 years of age.Continued to have dialysis access issues with tunnedled catheters due to CLASBI. Permanent Access was never created. DSA was done due to flow issues in right femoral permacath which was s/o chronic IVC thrombosis extending from rightt external ilaic vein to the infrarenal IVC. left external iliac and common ilaic were patent and were draining via lumbar vein and gonadal vein into the renal vein and suprarenal IVC with multiple collaterals present in the retroperioneum draining into subhepatic IVC. There was an SPC in situ with 24 hour urine output of around one litres. Micturating Cystourethrogram) was s/o - Conical, elongated with irregular outline ? neurogenic.No Contrast Opacification of LUT. Cystocopy was done through SPC under short GA and showed Trabeculated thick walled bladdder with a capacity of 50-100ml. Cystomanometry was s/o high pressure with low compliance and low capacity bladder. Her immunological workup was negative for any Donor Specific Antibodies. She was planned for kidney transplant with mother as the donor.Urine culture were sterile before transplant.SPC catheter was changed before surgery. Standard triple immunosupression was started 48 hrs before surgery. she was induced with ATG at 3mg/kg on the day of surgery. Graft Kidney was implanted intraperitoneally onto the left common iliac vessels followed by bladder augmentation (illeocystoplasty) and a continent urinary diversion (mitraoffanhoff). Graft functioned immediately after implantation. Freshly fashioned SPC was created. Surgery went for 12 hours with blood loss of 500 ml. Total CIT of kidney was 90 minutes. She was kept on ventilator for 24 hours. She received TPN for 48 hours. Regular bladder flushing was done with normal saline to check mucus plugging and outflow obstruction of bladder. Her creatinine came to 0.4 mg/dl on day 4 and CIC was taught to the parents. She had an episode of cryptosporidium diarrhea at 2 months which was treated conservatively. At 3 months she had an episode of complex UTI treated with IV antibiotics. She had 3rd admission with diarrhea and acute graft dysfunction and metabolic acidosis and CNI toxicity at 6 months which was treated conservatively. She was diagnosed with G6PD hemolytic anemia in the same admission. Presently, her creatinine is 1.0 mg/dl on standard triple immunosuppression and on CIC through the continent channel. She received valganciclovir as prophylaxis for 100 days and cotrimoxazole prophylaxis for 6 months. No anticoagulation was given to this patient.

Discussion:

Drainage of transplanted kidneys into augmented bladder or urinary diversion is an apporopriate management strategy if native bladder is not useful. kidney tranplant in such cases achieve similar results when compared to those with normal lower urinary tracts and it can be safely done in background of IVC thrombosis if good outflow can be achieved as in this case. Pediatric patients appear to tolerate urinary diversion procedures well without bothersome UTIs in contrast to adult population. Renal transplantation in a small child with IVC thrombosis can be successful. However, it requires thorough recipient assessment, coupled with a careful and thoughtful examination of options, to determine the best possible approach to the transplantation.

Conclusion :

CAKUT patients need close follow up in view of high risk of ESKD. Prolonged use of dialysis catheter should be discouraged. Choice of urinary diversion should aim at improving the quality of life and minimizing morbidity in an immunosuppressed setting.

References :

1. **Salvatierra O Jr, Concepcion W, Sarwal MM. Renal transplantation in children with thrombosis of the inferior vena cava requires careful assessment and planning. Pediatr Nephrol. 2008 Dec;23(12):2107-9. doi: 10.1007/s00467-008-0951-6. Epub 2008 Aug 8. PMID: 18688652.**

2. **Shenoy M, Pararajasingam R, Wright NB, Lewis MA, Parrott N, Riad H, Webb NJ. Successful renal transplantation in children in the presence of thrombosis of the inferior vena cava. Pediatr Nephrol. 2008 Dec;23(12):2261-5. doi: 10.1007/s00467-007-0736-3. Epub 2008 Feb 6. PMID: 18253760.**

3. **Salman B, Hassan A, Sultan S, Tophill P, Halawa A. Renal Transplant in the Abnormal Bladder: Long-Term Follow-Up. Exp Clin Transplant. 2018 Feb;16(1):10-15. doi: 10.6002/ect.2016.0193. Epub 2017 Jul 31. PMID: 28760118.**

4. **Rigamonti W, Capizzi A, Zacchello G, Capizzi V, Zanon GF, Montini G, Murer L, Glazel GP.**