A CASE OF RENAL TRANSPLANTATION

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(M.S.) aged 44 years was admitted in Rawalpindi General Hospial on 5th November 1980. from surgical outpatient as a case of irreversible chronic renal failure with the understanding that he would recieve a kidney from one of his two brothers as part of his treatment by dialysis and renal transplantation.

Presenting Features were Intermittent right sided renal pain for 6 years, loss of appetite, vomiting and hiccough for 1 months.

Past History

The patient was a known hypertensive and had been on antihypertensive therapy for 4-5 years.

He was previously admitted at the Combined Military Hospital Rawalpindi where exeretory and retrograde urography was performed and he was told that his left kidney was congenitally absent and right kidney was obstructed.

Examination

This patient presented with a classical picture of chronic renal failure characterised by anaemia, acidosis and hypertension with grade III fundal changes, His blood pressure was 140/110 mm Hg. Right kidney was palpable non tender probably due to primary obstructive uropathy. The patient still managed to produce about one litre of poor quality urine in 24 hours.

Investigations

The following investigations were done. Hb. was 1.2 Gm%, White cell count 5,800/cmm. Bleeding time, Coagulation time, platelet count and prothrombin time were within normal limits; Blood urea was 285 mg% and Serum Creatinine 10.5 mg%, serum potassium 6.5 meq/L, serum sodium 132 meq/L. Plasma Proteins 5.4 Gm% with normal electrophoretic strip apart from low serum albumin. Serum calcium 8.5 mg% and serum uric Acid 5.9 mg%. Liver function tests were within normal limits. Midstream specimen of urine showed albuminuria and pus cells with growth of E. Coli on culture. Throat swab, nasal swab, rectal swab, swab of finger nail bed and skin swabs from axilla and groin cultured no pathogenic organism. X-ray chest showed a prominent aortic knuckle with slight left ventricular enlargement. ECG showed left ventricular hypertrophy, On exeretory urography there was no evidence of excretion of the dye. Nephrogram on the right side demonstrated enlarged right kidnay. Renogram showed no evidence of tracer uptake on either side. Haamagglutination test for detection of HBs Ag was negative.

Management (Conservative)

The patient was treated by protein restriction, correction of dehydration, repeated blood transfusions and peritoneal dialysis. Urinary infection responded to treatment with Gentamycin.

On 15th November, 1980 A.V. shunt was made under local anaesthesia between the right posterior tibial artery and long saphenous vein above the ankle. The shunt was subsequently used for haemodialysis and is still patent.

When the patient became fit for the operation with above treatment, he changed his mind and refused to accept a kidney from his brother, and ultimately agreed for a renal transplant with psychiatric help.

Investigations of Donor

The two brothers of the patient were willing to donate a kidney. The eldest brother was found to have hypertension and was therefore, disqualified as a donor. The other brother aged 51 years, who is a taxi driver in Rawalpindi had no apparent contraindications to donate a kidney and underwent the following investigations.

A midstream specimen of urine showed no pus cells and no organisms on culture.

Hb 12.6 Gm% platelet count 200,000/cmm. Prothrombin time was normal, Blood urea 26 mg'%, Serum creatinine 1.2 mg%, Serum proteins 6.5 G%, serum electrolytes normal, serum lipids 785 mg'%, serum cholesterol 290 mg%.
Liver function tests were normal. X-ray chest and excretory urography were normal. ECG normal.

Tissue Typing

Blood samples of all the three brothers were sent abroad and were found to be HLA identical and direct cross match was negative.
On 11th December, 1980 a left nephrectomy was performed under general anaesthesia, the Ureter was mobilised upto the pelvic brim preserving its blood supply. Renal vein was dissected upto its junction with inferior vena cava and renal artery was dissected upto its origin from the aorta. The ureter, the artery and the vein were ligated and didied in that order and donor kidney was removed and perfused with ice cold isotonic solution. The donor was transfused two pints of blood and 40 mg of frusemide given I/V during operation.

Recipient Transplant Operation

The night before the operation, the recipient was dialysed and received on pint of blood transfusion. General anaesthesia was given. Patient was induced with pethidine hydrochloride 100 mg I/V. Intubation was done with 16 mg of intravenous suxamethonium bromide with base. The patient was maintained with intermittent halothane, Oxygen and nitrous oxide.
Skin incision was given above and parallel to the right inguinal ligament. The Peritoneum was opened. The donor's kidney was placed in the right iliac fossa. Renal vein was anastomosed to external iliac vein. There was insufficient blood flow through the internal iliac artery, therefore the renal artery was anastomosed with the external iliac artery using 5-0 atraumatic meisilk. As the blood started flowing through the anastomosed renal artery, the colour of kidney changed from pale to pink. At this stage the anaesthetist injected 40 mg of frusemide, Methyl-predinisolone 500 and cyclophosphamide 250 mg. The ureter was joined to the bladder by Lead Better technique using 5-0 atraumatic catgut. The peritoneum was deliberately left open to allow any extravasation of urine and ocozing of blood from the site of operation to drain freely into the abdominal cavity rather risking possible pressure on the kidney or ureter by a hematoma or extravasted urine.
Also exudation of lymph was allowed to drain freely by leaving the peritoneum open. Otherwise there is a possible risk that collection of lymph in the form of lymph in the form of lymphocoele may press the ureter cuasing obstruction.
Indwelling urethral catheter was inserted and the wound was closed in layers after finally chekcing the integrity of vascular and uretro-vesical anastomosis.
However the patient became uncooprative and pulled the catheter out injuring the urethra. The Psychiatrist was called again to prevail on the patient to be cooperatione.
In view of oedema and congestion due to urethral injury, this time catheterization was done under general anaesthesia and catheter was left in situ for two weeks. When catheter was finally removed, the patient remained dry.

Post Operative Management

There is no routine post operative management in transplant patients. The regime depends upon the course of events in post operative period, for instance our patient suffered from acute tubular necrosis (A.T.N.) for 10-12 days in post operative period and was tided over by frequent haemodialysis.
Barrier nursing was provided as immuno suppressed patients having undergone major surgery, are susceptible to fatal infections by bacteria, viruses, fungi and protozoa including re-activation of old tubercular lesions. Repeated chest X-rays were taken to exclude lung infection as these patients can have fatal pneumonia with no rise of temprature or other signs and symptoms. Titres for antiviral antibodies were performed as base line and susequent observations did not show any significant rise in antibody titre. Acute tubular necrosis (A.T.N.) masks symptoms and sings of acute rejection. Steriods in high dosage are particularly useful for controlling acute rejection therefore this patient received

necrosis three courses of prednisolone nearly 1 G. daily for three days each to overcome acute rejection which may not be recognised in the presence of A.T.N.
Recovery from A.T.N. occured on the 10th to 12th day when the transplanted kidney "opened up" and at that time marked improvement was noticed in the patient's condition. The urine output increased, the blood pressure came down, serum creatinine and urea dropped to such a level that it was no longer necessary to dialyse the patient. At this time excretory urography and tomography showed normal renal outline and good excretion of dye through the ureter into the bladder. This was a moment of excitment for our team to have convincing proof of anatomical intergrity and physiological function of the transplanted kidney after having recovered from A.T.N.N.
The following drugs were used in the postoperative management.

1. Methyl prednisolone

1st week 100 mg daily
2nd week 30 mg daily
3rd week 10-15 mg daily
Except when short courses of high dosage sterids were given to combat acute rejection.

2. *Azathioprine

50-150 mg of azathioprine daily was given in the post operative period with an average of 100 mg daily.

3. Antibiotics

Antibiotic cover was provided by cyclosporin and carbenicillin. Metronidazole was used as prophylaxis against anaerobic infections.

4. Cimetidine

H_2 receptor antagonist was prescribed in pre and post-operative period as propnylaxis against gastro-intestinal halemorrhage which can be a fatal complication in ureamic patients and those having steroids.

5. Meyhyl-Dopa

During the period the patient had A.T.N., the blood pressure remained elevated and upto 750 mg of methyl-dopa was administrated in 24 hours. For next three weeks the patient needed no antihypertensive therapy. Subsequently the blood pressure started to rise steadily and antihypertensive treatment was resumed.

Re-Activation of Urinary Infection

Pre-operatively, urinary infection by E. Coli responded to antibiotic therapy and urine culture became sterile. In the post-operative period as the patient became immunosuppressed and more vulnerable to infections, E.Coli was again grown on culture and was treated by long term use of cyclosporine.

Urinary Fistula

The catheter was removed on 8th post operative day. The patient developed leakage of urine from the site of operation. Catheter was reinserted and the leak stopped.

Disscussion

Statistics show convincingly that whether the patient's new kidney starts functioning immediately or resumes function after recovery from A.T.N., the prognosis for long term survival of the graft remains unaltered.
The complication of urinary fistula can be explained as he is a case of obstrcutive uropathy with some degree of bladder dysfunction initially which later on became worse after immunosuppression with result that the patient developed a temporary urinary fistula.
The patient was a known hypertensive being a case of obstructive uropathy. At present there is no murmur of renal artery stenosis (absence of murmur in transplanted kidney excludes renal artery

stenosis). The transplanted patients have higher blood pressure than normal patients. The long term steroid therepy has problems of its own like hypertension and aseptic necrosis of the bone, Although the patient has elevated blood pressure and urinary infection, both these problems are under control by use of appropriate drugs. As this ia a case of sibling transplant low doses of immunosupressin are given. Infection and hypertension are expected to remain under control with treatment.

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