Heart Transplant:
Need of the Hour for End Stage Heart Failure

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Heart failure is quickly becoming the most pressing health problem in India. Millions of people in India live with heart failure disease. In addition there is numerous unreported cases. Once medical therapy deemed failing or patients who had already undergone cardiac procedure or exhausted of medical therapy and still symptomatic will get benefit from cardiac replacement therapy like heart transplant or ventricular assist device. "India has a long way to go before we can match the demand for heart transplants in the country. There is a dire need to aggressively spread awareness about the colossal gap that exists between the organ donors and those who need it in India.

A 51 year old female with C/o Breathlessness for the last 3 years and Orthopneic for the last 6 months (off & on) was presented to our hospital. She was first evaluated for acute heart failure. She underwent CRRT to improve symptoms which helped her for one year and again she became symptomatic because of worsening cardiomyopathy. Due to frequent admissions (INTERMACS 4) she was advised to go for heart transplant. She was evaluated whether she was a candidate for heart transplant. All investiga-
A 32km green corridor was set up from Max-Shalimar Bagh to Max-Saket on Thursday, 7th Jan’16 at 10.20 am to transport the heart of a 17-year-old road accident victim in 45 min 27 sec. The donor’s two kidneys successfully saved lives of two patients at Max-Shalimar Bagh, the two corneas were sent to AIIMS and the liver was transported to the Institute of Liver and Biliary Sciences (ILBS) for transplantation.

Non-TBI Conditioning with Intravenous Busulfan & Cyclophosphamide is Feasible in Bone Marrow Transplantation for Osteopetrosis

A 5 year female with osteopetrosis presented to us with optic atrophy (VEP showed perception of light). Hearing was preserved till now. Her X-Rays and CT show diffuse bony thickening suggestive of osteopetrosis. She was diagnosed with osteopetrosis and admitted for BMT. In view of her age we wished to avoid TBI and used IV Busulfan and cyclophosphamide conditioning. GVHD prophylaxis consisted of cyclosporine and short course methotrexate. She had a HLA identical 2 year old sister. A bone marrow harvest was done under GA, total volume infused was 220 ml, TNC= 11400, MNC-48%, CD 34-3.42 %/ul; 390/ul; CD 34 dose: 5.36 x 106/kg. Neutrophil engraftment was attained on day +19 and platelet engraftment was attained on day+29. Her transplant course was smooth without any fever or infection. There was no VOD and no GVHD. She did develop grade 1 mucositis during conditioning.
On day 53 she presented with anemia and thrombocytopenia (Hb 45g/L, platelet 35 x 10^9/l, TLC 3.4 x 10^9/l). Peripheral smear showed macrocytosis and reticulocyte count of 10% and 5 nRBCs/100 WBCs. Her LDH was high 353 U/l (<192U/l). Bone marrow aspirate showed cellular bone marrow with erythroid hyperplasia with adequate megakaryocytes. It also showed an osteoclast. A diagnosis of post transplant autoimmunity cytopenia was made which responded to addition of steroids within a week. Overall she continued to improve with normalisation of serum calcium and improvement in vision in form of perception of light despite having optic atrophy at diagnosis. There was no more watery discharge from mouth (due to malocclusion of teeth) which was present pre BMT, no more snoring and some regression of proptosis.

Article by Behfar ET AL and this case demonstrate that non-radiation based conditioning regime is feasible in osteopetrosis. This helps lot of centres in developing countries who may not have infrastructural facility or expertise for total body irradiation. Secondly, immune cytopenias seems not uncommon in children with osteopetrosis undergoing BMT as was the case in previous series also where one child developed hemolytic anemia. She did show some visual improvement in form of perception of light in initial phase post BMT. We did not have chimerism facilities at that time, however clinical improvement suggest that the BMT was successful in ameliorating the osteopetrosis phenotype.

REFERENCES

CASE REPORT
64 year old male patient with post-necrotic liver cirrhosis came with complaints of weakness for a few weeks. Triple Phase CECT revealed a large arterial hyper-enhancing lesion in segment VIII which showed washout in porto-venous phase (Fig 1 and 2) and tumour thrombus in anterior branch of right portal vein (Fig 3). Liver showed features of cirrhosis and there was mild ascites. Reformatted CT angiographic images revealed a replaced right hepatic artery from the superior mesenteric artery (Fig 4). AFP levels were 394 and USG guided percutaneous biopsy also revealed Hepatocellular carcinoma. Child-Pugh scoring classified the patient into category A.

Surgical resection was not done owing to the portal vein thrombosis and co-morbidities. Patient was unwilling for Liver transplantation. Trans-arterial chemo-embolisation (TACE) was not considered due to portal vein thrombosis.

Superselective Trans-arterial Yttrium 90 Therapy:
A New Hope in Hepatic Malignancies

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Fig 1: CECT Abdomen arterial phase image shows a solitary enhancing lesion in segment VIII of liver.
Trans-arterial radioembolisation (TARE) was thus planned. TARE was done as a two-step procedure. In the work-up phase, a detailed hepatic angiogram was done followed by Tc-99 labelled Macro-Aggregated Albumin (MAA) scan to calculate the hepatopulmonary shunt fraction. The superior mesenteric angiogram revealed a vessel supplying the right lobe of the liver. A superselective right hepatic artery (RHA) angiogram revealed tumour blush in segment VIII confirming the arterial supply to the tumour (Fig 5). Tc-99 labelled MAA was injected superselectively into the distal RHA and this was followed by a MAA scan for calculation of Hepatopulmonary Shunt fraction (Fig 6).

Subsequently, a celiac angiogram was done which revealed that the celiac axis divided into common hepatic, splenic and left gastric arteries. Common hepatic artery further divided into left hepatic artery and a gastroduodenal artery. No branch was seen from the common hepatic artery to the right lobe of liver (Fig 7).
Thus in conclusion, we were dealing with a type III (Michel’s) hepatic artery anatomy with a replaced RHA from the SMA.

The shunt fraction was 1.62% which was within acceptable limits. Dose calculations were done in and the second step of the procedure was done a week later, with deposition of SIR spheres (resin based) with Y-90 as active material, superselectively in the RHA. To verify the distribution of Y-90 resin microspheres to the targeted hepatic segments and the tumour, Bremsstrahlung scan was done and images were compared with hepatic angiography images taken just before Y-90 resin microsphere delivery. No radioactivity was detected outside the liver on the bremsstrahlung images (Fig 8).

No significant complication was recorded and the patient was discharged the next morning. Follow up triple phase CECT at 3 months and 6 months (Fig 9) revealed complete absence of arterial enhancement in the treated tumour and the AFP levels dropped to 44.

Patient is currently on follow up with the medical oncologist.

REFERENCES

**SCAR PREGNANCY**

Dr. Gurpreet Makkar, Dr. Bharat Aggarwal, Dr. Vivek Saxena (Department of Radiology, Max Super Speciality Hospital, Saket, New Delhi)
Dr. Pratibha Singhal, Dr. Jayashree Sundar (Department of Obstetrics and Gynaecology, Max Super Speciality Hospital, Saket, New Delhi)

**History**

Two pregnant patients presenting with amenorrhoea and bleeding with raised beta hcg with history of previous cesarean sections

Axial and sagittal images of MRI reveal gestational sac with surrounding decidual reaction lodged in cesarean scar with no discernible overlying myometrium between bladder and uterus

Systemic methotrexate and local USG guided transvaginal instillation of Methotrexate was performed

**Discussion**

Last decades has seen increase in cesarean sections and can occasionally lead to Cesarean scar pregnancy

The most common symptom is painless vaginal bleeding that may be massive.

The sonographic criteria for diagnosis are:

- Empty uterus and empty cervical canal
- Development of the sac in the anterior wall of the isthmic portion
- A discontinuity on the anterior wall of the uterus demonstrated on a sagittal plane of the uterus running through the amniotic sac
- (Absent or diminished healthy myometrium between the bladder and the sac
- High velocity with low impedance peri-trophoblastic vascular flow clearly surrounding the sac is proposed in Doppler examination
- MRI is highlighted as a problem-solving tool capable of more precisely identifying the relationship of a CSP to adjacent structures, thereby providing additional information critical to directing appropriate patient management and therapy.

Uterine rupture and hemorrhage with significant potential maternal morbidity can result due to delayed diagnosis and management.

**Complication**

**Differential Diagnosis**

- Miscarriages (Abortion and missed abortion)
- Cervicoisthmical pregnancies
Foetal Echocardiography: A Modality that Alloys Anxiety

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Foetal echocardiography is an important diagnostic tool whose application has made it possible for the precise diagnostic evaluation of various congenital heart diseases. By its ability to allow, to make conscious decision about the continuation of pregnancy and hence influence the outcome it has greatly modified the natural history of the disease. Sensitivity and specificity of the foetal echocardiographic examination appears maximal at 16-20 weeks of gestation. This timing also allows for repeat examination when first examination is incomplete before 22 weeks (maximum time limit of termination of pregnancy). Foetal echocardiography can be performed as early as 8-10 weeks transvaginally. In the present case the precise diagnosis not only allayed the anxiety in the family, it also helped to make a conscious decision about the planning of delivery in appropriate neonatal setting. TOF with adequate annulus and branch pulmonary arteries is a diagnosis with good long term outcome and it was this decision that helped family take a conscious decision about their precious pregnancy. Tetralogy of Fallot includes non-restrictive perimembranous ventricular septal defect with overriding aorta, and pulmonary stenosis. Best views to detect this anomaly are five-chamber view and long axis view of left ventricular outflow tract. These views show ventricular septal defect with overriding aorta, and dilated ascending aorta. Further sweep from five-chamber view shows narrowing of right ventricular outflow tract. We observed good antegrade flow in the present case. Although it needs to be counseled that the pulmonary stenosis in TOF can be progressive, hence I believe it is justifiable to repeat the echocardiography in each trimester in case family decides for the continuation of pregnancy as in the present case. Short axis view at the level of great vessels shows small pulmonary arteries and dilated aorta. Doppler interrogation of right ventricular outflow tract shows increased pulmonary outflow velocity. All these findings can be progressive with increasing right ventricle outflow tract obstruction, decreasing size of pulmonary artery. Common differential diagnosis is truncus arteriosus in which single great artery with large conotruncal ventricular septal defect is present. The present case highlights the importance of foetal echo. The diagnosis of good anatomy TOF not only allayed parental anxiety after adequate counseling it also enabled delivery proximity to the paediatric cardiac centre.

FIGURE 1 (PRE): Foetal echocardiography images done at 23 weeks showing Tetralogy of Fallot in various views. Fig 1a showing modified apical 5c view with flow acceleration in RVOT, Fig 1b showing VSD (marked by arrow) with aortic override, Fig 1c showing 4 chamber view with well formed 2 ventricles, Fig 1d showing parasternal short axis view with RVOT. RVOT: right ventricular outflow tract, PA: pulmonary artery, RA: right atrium, RV: right ventricle, LA: left atrium, LV: left ventricle, VSD: ventricular septal defect, AO: aorta.
FIGURE 2 (Post): Postnatal echocardiogram done after delivery showing the anatomy of TOF. Fig 2a showing subcostal coronal view with anterior tilt showing flow acceleration with good antegrade flow in RVOT, Fig 2b showing parasternal long axis view with VSD and aortic override, Fig 2c showing parasternal short axis view (modified) with confluent and adequate sized branch pulmonary arteries.
SIOP-PODC Nutrition Fellowship-2016

was conducted at Tata Memorial Centre, Mumbai

has been successfully completed

by Ms. Kalpana Gupta,

Senior Clinical Nutritionist, Max-Saket.

It was a two week programme which aimed at
Capacity building of the dieticians working in the
field of Paediatric Oncology, Pan India. The key focus
area of the workshop was to understand the
importance of Nutrition in Cancer Therapy and ways
to bridge the gap by nutritional interventions.
ABSTRACT

We present a case of diabetes and hypertension with history of diabetic retinopathy and nephropathy with chronic kidney disease stage V (D) who underwent live related renal transplantation. In post transplant period he had delayed graft function which gradually recovered and was being planned for discharge. At the time he developed right lower limb deep venous thrombosis which rapidly progressed to graft vein stenosis in matter of hours and was successfully managed with thrombolysis, PTA and pulverization of the thrombus. The patient recovered good renal function and is presently having a serum creatinine of 1.7 mg/dl.

CONCLUSION

Timely and aggressive management of acute complications like graft vein stenosis can have favorable graft outcomes.

Mr. A, a known case of diabetes since 1998 and hypertension since 2012, with diabetic nephropathy and retinopathy with chronic kidney disease stage V was on maintenance hemodialysis for past few months. He was being worked up for renal transplant with prospective donor being his wife. After a thorough pre-transplant work up and T and B cell CDC cross match negative his renal transplant surgery was performed. He was given ATG induction and kept on triple drug immunosupression tacrolimus, mycophenolate mofetil and steroids. Total ischemic time was 25 minutes and warm ischemic time was 5 minutes. Post-operative he had urine output of less than 100 ml over next 2 hours. Ultrasound Doppler done showed good flows at hilum with RI of 0.77 and 0.72. Local causes like catheter site obstruction were also ruled out. His urine output remained low and hemodialysis was done at night. A clinical diagnosis of ATN was made and tacrolimus was withheld and second dose of ATG was given. Tacrolimus levels sent were 29.7 ng/ml. Over a period of next 2 days his urine output improved. His urine output remained low and hemodialysis was done at night. A clinical diagnosis of ATN was made and tacrolimus was withheld and second dose of ATG was given. Tacrolimus levels sent were 29.7 ng/ml. Over a period of next 2 days his urine output improved. His urine output remained low and hemodialysis was done at night. A clinical diagnosis of ATN was made and tacrolimus was withheld and second dose of ATG was given. Tacrolimus levels sent were 29.7 ng/ml. Over a period of next 2 days his urine output improved. His urine output remained low and hemodialysis was done at night. A clinical diagnosis of ATN was made and tacrolimus was withheld and second dose of ATG was given. Tacrolimus levels sent were 29.7 ng/ml. Over a period of next 2 days his urine output improved. His urine output remained low and hemodialysis was done at night. A clinical diagnosis of ATN was made and tacrolimus was withhold
hours. However, thrombus formation may be delayed until after the first week. Thrombosis may initially involve the renal artery or more frequently the renal vein, but in some cases it is difficult to ascertain where the thrombosis originated. Predisposing factors for renal allograft thrombosis include:

- Hypovolaemia
- Atherosclerosis
- Technique error
- OKT3 (plus high-dose methylprednisolone)
- Antiphospholipid antibodies
- High dose steroids
- Long cold ischaemia time
- Delayed graft function recovery
- Elderly donors

Late allograft thrombosis has been defined as occurring later than 14 days postoperatively, but rarely renal artery thrombosis may develop a few months post transplantation. Renal allograft vein thrombosis may be induced by renal vein kinking or by renal vein compression caused by lymphocele or other fluid collection, and often results from extension of deep vein thrombosis to the renal allograft vein. A review of the USRDS data found that in renal transplant recipients deep vein thrombosis had an incidence of 2.9 episodes/1000 persons year; the risk was greater for patients with renal insufficiency and with nephrotic syndrome, increased haematocrit, rejection, infection or factor V Leiden mutation. The prognosis is poor because many patients lose their graft function, but some may be rescued depending on the timelines of the diagnosis. Pulmonary embolism is a complication of renal vein thrombosis especially with deep vein thrombosis. Treatment with streptokinase or urokinase may be useful particularly in case of acute or partial vein thrombosis. Percutaneous mechanical thrombectomy and localised catheter-directed thrombolysis may also allow the return of kidney function in some patients.

**DISCUSSION**

As clear from above review our patient had some predisposing factors in form of an infection and delayed graft recovery. The above factors may have pre-disposed our patient to a thrombotic state vis-a-vis all patients with these predisposing factors do not have thrombotic events. But early diagnosis and prompt and aggressive management led to resolution of the thrombosis and recovery of renal function.

**CONCLUSION**

Complications like renal graft vein thrombosis can present atypically and in late period as extensions of deep venous thrombosis but aggressive and timely intervention can have very satisfactory results and salvage renal graft.

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