

## Case 3

### Brief History

**Mr J S** was truly at his wits end. At 64, the ageing process had been far from beautiful and the years sat on him more like the proverbial Sword of Damocles rather than an achievement of life. Eight years earlier, his coronary artery system had become disease afflicted. This resulted in a heart attack that severely curtailed his normal lifestyle. In order to remain physically functional, he had to undergo a bypass surgery. This in turn necessitated a reliance on drugs and other medication to control his potentially dangerous health condition – a process that kept him stable but left him generally weak. Unfortunately, contrary to medical assurances, the bypass had far from solved Mr Singh's 'heart problem'. After the operation he found that, instead of achieving even the minimum level of fitness, he now had to make even more frequent visits to the doctors on some pretext or the other and, on many occasions had to either be hospitalised for various illnesses or be repeatedly subjected to extensive and exhausting clinical investigations.

Seven years after the bypass, the arteries got clogged again and this time around, to unblock and facilitate normal blood flow, not only was he subjected to a balloon angioplasty but also had to have a stent fitted. Both these procedures being heavily body-invasive, it was as good as having another surgery. Recuperation entailed, of course, further medication and more drugs which, rather than benefit, played havoc with his already weakened condition.

The truly crushing blow came just six months later when, despite taking the prescribed medication, his coronary arteries started calcifying thereby causing further blockages. In store for him was another invasive procedure, known as Angiogenesis, which entailed gene therapy. What next? You guessed it – a whole host of additional medication and drugs! The post-operative nine months of drug-dependent existence had literally reduced Mr Joginder Singh to a nervous wreck. He suffered from hypertension, was almost completely bedridden, could not walk without pain, the slightest exertion caused severe chest pangs and breathlessness, he consumed 10 sorbitrate tablets a day AND was totally dependent on other heavy medication for almost every breath that he gasped. The worst news of all was that his doctor had thrown in the towel by conceding that nothing more could be done and THIS was how he would probably have to spend

the rest of his life.

After all the heavy expenses, physical trauma, pain and discomfort that he had endured, would these dark clouds continue to blot out the sunshine from Mr J S's life ? Was he really doomed to spend the rest of his life in this almost-crippled manner ? Was this the END ? Certainly not ! Silver linings appeared on the day he discovered that alternative and effective forms of medication and treatment were not only a reality but also very much available. The very moment that the new therapy commenced at our clinic - the sun magically again ! The best news of all was that - no hospitalisation or surgery was involved - no heavy invasive procedures were being resorted to - the painless treatment was to be accomplished in relative comfort as an out-patient - heavy medication was to be mostly done away with - the therapy WAS comparatively cheaper and, most importantly, the treatments offered a positive cure as opposed to being a mere means of relief. Suffice it to say that after nine 'miracle' months of Plaquex therapy, Mr J S is on his feet once again and has resumed all normal activities without undue stress and strain. Due to his age, and the fact that he had previously undergone various surgical procedures, he has to continue certain essential heart medication and must consciously take it easy. All this notwithstanding, the feistiness is back in his step as is the smile on his face !

### **Brief History**

**1. Mr J S, aged 64 years, visited us on April 15, 2000 with the following complaints :-**

- (a) Unable to walk.
- (b) Unstable angina (breathlessness and chest pains on exertion. In addition to normal heart medication, used to consume almost 10 sorbitrates per day).
- (c) Essential hypertension.

**2. The patient is an old case of CAD/TVD since 1992. Till the date of his visit, he had undergone the following procedures at various hospitals :-**

- (a) **CABG x 2 (SVGs to LAD and RCA), as a result of Q wave inferior wall MI, in 1992 following which he remained asymptomatic though on medication.**
- (b) **CAG carried out on 21/01/99 revealed blocked SVG to RCA with native triple vessel disease.**
- (c) **On 23/01/99, balloon Angioplasty on Posterolateral and SVG plus Intracoronary Stenting on SVG were successfully carried out.**

(d) **Coronary Angiography Report of 16/04/99 was as follows :-**

Right Coronary Artery	:	Shows 100% Proximal stenosis fills retrogradly via LAD
Left Main	:	Shows 95% distal stenosis.
Left Anterior Descending	:	Shows 100% Proximal stenosis
Left Circumflex	:	Shows 100% Proximal stenosis
Graft	:	Saphenous vein graft to RCA-RV shows 100% Ostial stenosis. Patent Saphenous vein graft to LAD

### **Summary**

### **Triple Vessel Disease**

(e) **Results of Echo test carried out on 17/04/99 were as follows :-**

**PROCEDURES** : **M-MODE/2D/DOPPLER/CONTRAST**

**MEASUREMENTS** : **Normals**

Aortic Root Diameter	3.1 cm		2.0-3.7 cm < 2.2 cm/M2
Aortic Valve Opening	1.4 cm		1.5-2.6 cm
Right Ventricular Dimension			0.7-2.6 cm < 1.4 cm/M2
Right Ventricular Thickness			0.3-0.9 cm
Left Atrial Dimension	3.9 cm		1.9-4.0 cm < 2.2 cm/M2
Left Ventricular ED Dimension	5.9 cm		3.7-5.6 cm < 3.2 cm/M2
Left Ventricular ES Dimension	3.4 cm		2.3-4.0 cm
Interventricular Septal Thickness	ED 0.9	ES 1.2 cm	0.6-1.2 cm
Left Vent. PW Thickness	ED 0.8	ES 1.3 cm	0.5-1.0 cm

#### **INDICES OF LEFT VENT. FUNCTION**

Mitral E-Septal separation		< 0.9 cm
Minor Axis Shortening		24.42 %
LV Ejection Fraction	30 %	60+/- 6.2%

#### **IMAGING**

M-mode examination revealed normal movement of both mitral leaflets during diastole. No SAM or mitral valve

Prolapse is seen. Aortic cusps are not thickened and closure line is central. Tricuspid valve is normal. Pulmonary Valve is normal. Aortic root is normal in size. Dimensions of left atrium and left ventricle are normal.

2D imaging in PLAY, SAX and apical 4 'C' views revealed a normal sized left ventricle. Hypokinetic distal septum, apex and lateral wall. Global LVEF is 30%. Mitral valve opening is normal. No evidence of mitral valve prolapse is seen. Aortic valve has three cusps and its opening is not restricted. Tricuspid valve leaflets move normally. Pulmo-

nary valve is normal. Interatrial and interventricular septa are intact. No intracardiac mass or thrombus is seen. No pericardial pathology is observed.

### **DOPPLER**

MV	70	cm/sec	MR	Nil
AoV		cm/sec	AI	Nil
TV	40	cm/sec	TR	Nil
PV		cm/sec	PI	Nil

### **COLOUR FLOW**

Color flow mapping revealed presence of normal intracardiac flow characteristics. No valvular regurgitation or intracardiac shunt was observed.

### **FINAL DIAGNOSIS**

1. Hypokinetic distal septum, apex and lateral wall, LVEF 30%.
2. All cardiac valves are normal.
3. No clot, vegetation or pericardial effusion seen.

**(f) Echocardiogram Report of 13/07/99 was as follows :-**

---

DIMENSIONS		NORMAL	DIMENSIONS		NORMAL
AO (ed)	2.6 cm	2.1 – 3.7 cm	IVS (ed)	0.9 cm	
LA (es)	3.9 cm	2.1 – 3.7 cm	LVPW (ed)	0.8 cm	
RVID (ed)	2.2 cm	1.1 – 5.2 cm	EF	25 %	
LVID (ed)	5.6 cm	3.6 - 5.2 cm			
LVID (es)	4.6 cm	2.3 – 3.9 cm			

---

**MORPHOLOGICAL DATA**

<b>Mitral Valve</b>	AML	Normal	<b>Interatrial Septum</b>	Intact
:	PML	: Normal		
<b>Aortic Valve</b>		:Thickened	<b>Interventricular Septum</b>	Intact
<b>Tricuspid Valve</b>		Normal	<b>Pulmonary Artery</b>	Normal
<b>Pulmonary Valve</b>		Normal	<b>Aorta</b>	Normal
<b>Right Ventricle</b>		Normal	<b>Right Atrium</b>	Normal
<b>Left Ventricle</b>		Dilated	<b>Left Atrium</b>	Dilated

## **2-D ECHOCARDIOGRAPHY FINDINGS**

LV dilated with paradoxical motion of mid and anterior IVS (possibly due to post bypass effect) while other segments are markedly hypokinetic. RV normal in size with adequate contractions. LA dilated. RA normal. Aortic valve thickened, opens well. Mitral, tricuspid and pulmonary valves normal. No chamber hypertrophy. No intracardiac mass. Pericardium normal. Estimated LV ejection fraction by area-length method approximately 25%.

---

## **COLOR FLOW MAPPING**

No valvular regurgitation.

---

## **DOPPLER STUDIES**

MVIS A > E.

Peak systolic velocity across aortic valve = 0.9m/sec.

No AS/AR/MS/MR/TS/TR/PS/PR.

---

## **IMPRESSION**

1. Wall motion abnormality.
  2. Dilated LV with severe systolic dysfunction (LVEF 25%).
  3. LV diastolic dysfunction.
  4. RV normal in size with adequate systolic function.
  5. Dilated left atrium.
  6. Aortic sclerosis without any evidence of aortic stenosis.
- 

**(g) Following the echo results, a further angiography was carried out on 14/07/99 . The findings were :-**

LV Angiography Selective Coronary Angiography	Not done Calcified coronaries
Left Main	Is a medium sized vessel and shows 90% stenosis in its distal segment before bifurcation
LAD	Is totally (100%) occluded from its origin. There is no antegrade filling of LAD on LCA injection suggestive of patent venous graft to LAD. There is angiographic evidence of thrombus in proximal LAD.
LCX	Is a nondominant vessel and shows 95% stenosis in the proximal and distal AV groove. There is no filling of any major OM branch on LCA injection.
RCA	Is a dominant vessel and is totally (100%) occluded soon after origin.
AORTIC ROOT ANGIOGRAPHY IN 45 DEGREE RAO VIEW	Shows filling of only SVG to LAD. There is no filling of any other venous graft
SVG TO LAD	Is normal throughout its entire course. There is good antegrade filling of LAD which itself is of good size and normal. PDA branch of RCA fills retrogradely through collaterals on injection into SVG to LAD.
FINAL DIAGNOSIS	Coronary Artery (Left Main with Triple Vessel) Disease. Right dominant system. Patent SVG to LAD. Blocked SVG to RCA

## RECOMMENDATION

## Myocardial re-re-revascularisation

(h) On 28/07/99 the patient underwent an ANGIOGENESIS (with Vascular Endothelial Growth Factor) procedure successfully and was put on medication. However his symptoms were as before and no benefit had occurred to him

**4. Plaquex therapy was commenced on 15/04/2000. After 24 sessions, the last of which was on 24/01/2001, the level of success achieved is clearly indicated in the following results :-**

- (a) The patient is completely off sorbitrate.
- (b) He is able to walk normally for limited distances.
- (c) Breathlessness is not overtly obvious after exertion.
- (d) No angina on exertion.

**5. He is on regular heart medication.**