Success Transplanted

Despite tremendous odds, a dedicated team at the Stanley Medical College Hospital in Madras has carried out a successful liver transplant

by USHA ARVIND

FOR years, government hospitals have evinced little emotion from the public, except scorn and an endless list of complaints—meagre funds, poor facilities, staff apathy, pathetic work conditions, and so on.

But 42-year-old Selvaraj bears testimony to a change in the conditions at government hospitals. Today, Selvaraj is better known as the sole survivor in the country of a successful liver transplant. What makes the success of his surgery even more incredible is the fact that it was performed at a poorly equipped, state government hospital, and two earlier operations—at the high-profile All India Institute of Medical Sciences and Apollo Hospital—had resulted in the death of the patients.

As Selvaraj works about the Intensive care unit ward more than a month after the 10-hour operation at the Stanley Medical College (SMC) Hospital, Madras, he has helped restore, to a large extent, people's faith in government hospitals.

Selvaraj's operation was conducted by Dr R P Shanmugam, chief of gastro-enterology at SMC Hospital, and his team, consisting of D Kannan, R Surendran, T G Balachandran, Darwin and Joseph Dravriaraj. "It is a reward of team spirit and meticulous adherence to technniques," says Shanmugam.

Selvaraj had been awaiting a liver that could be transplanted into his body when on January 18, the body of a brain-dead accident victim became available for a total cadaver transplant. Three medical teams got ready, and the necessary medicines and equipment were procured. Shanmugam then began the organ retrieval, while his colleagues began removing Selvaraj's diseased liver. The latter exercise was a tricky one, says Shanmugam, because of possible setbacks that could result from excessive bleeding, fluid collection and low protein levels. But no such problems occurred, and the new liver was stitched on to Selvaraj.

Selvaraj, though initially susceptible to infection because he was given immuno-suppressants as part of the surgical procedure, has fulfilled most of the parameters of normalcy, including renal function and stable level of serum bilirubin and liver enzymes. Shanmugam says he will be able to resume normal life in a year, provided he adheres to dietary and hygiene controls.

Shanmugam's biggest feat, however, was in modifying the existing gadgetry in the hospital to suit the delicate surgery. The SMC Hospital had practically none of the important machines without which most other hospitals would not even have considered the transplant—a cell saver to retransfuse lost blood, a veno-venous bypass pump, rapid infusion system, thrombo elastograph, intra-arterial pressure monitor, blood gas analyser or argon beam coagulator, good ventilator for pre- and post-operative care, platelet agitator, cryoprecipitate machine, upgraded biochemistry lab, immuno kits and a master computer.

Even more amazingly, Shanmugam used ringer lactate to prepare and preserve the liver for transplant, instead of Eurocollin, or the University of Wisconsin solution, which is normally used.

So how did the SMC team manage its feat? Says Shanmugam, "It happened, perhaps, because we were determined. Ultimately, what really matters is surgical techniques, your confidence in your ability and the support you get from the paramedical staff."

Shanmugam has also worked at King's College London, where the largest number of liver transplants in the world have been done. "Coupled with my intensive training, I have also done extensive research on the subject, reading up journals, identifying abnormalities in cadavers and calculating modifications," he states.

According to Shanmugam, the liver—which is the largest organ in the body and has a two-way blood flow, both from the aorta as also the entire digestive system—is a factory with over 150 functions, principal of which are digestion and secretion. Thus, he explains, in case of functional problems, excessive bleeding cannot be avoided because of the absence of artificial supports. Even more disastrous could be the circulation of wastes in the blood for this could affect the brain.

"Consequently, the transplant process for the liver," explains the doctor, "is more complicated than that of the heart. The liver has to be carefully retrieved, avoiding ruptures and all its tributaries have to be carefully prepared under cold preservatives. The transplant is usually done within 24 hours to prevent infections." The anaesthetic procedure is equally crucial because the patient has no metabolic system during the surgical process, which means that any drugs injected cannot be digested.

Not that the surgery was without its complications. Pressure dropped, poor lab facilities necessitated outside help, and so on. Moreover, the team had to be roped in to handle an emergency. However, as against the over 100 units of blood required for earlier attempts at such an operation, at the SMC Hospital procedures only 30 units of blood, 10 units of platelets and 11.5 units of plasma, supplied by private banks, were consumed.

Shanmugam is confident that the success rate for liver transplants can touch 50 per cent as against 80 per cent in the West. The pressing need, at the moment, was for government grants that would help in upgrading available technology. Shanmugam estimates that he would require about Rs 75 lakh in order to acquire the complete transplant infrastructure, which, he is confident, would go a long way in guaranteeing success rates in the future.

With the backing of the government, Shanmugam says he would be able to devote the rest of his tenure to training other doctors in perfecting the transplant technique. There are several issues, he points out, that need attention—for example, he envisages a broader organising role for the government in such transplant operations. He points out that in Europe, the cadaver transplant programme is entirely computerised, with a unified body called the United Kingdom Transplant Service coordinating the process.

The government here, too, he says, should set up a central regulatory authority, with a master computer and data bank for priority listing, tissue matching and donor maintenance. This would enable total utilisation of available donor organs. With a current accident rate of 76,000 per year, Shanmugam hopes for a 50 per cent donor facility.

Financially, too, says Shanmugam, India compares favourably with the West. According to his estimates, a liver transplant operation should cost a total of Rs 2.5 lakh in a government hospital in India, as against £75,000 in the UK. The sum of Rs 2.5 lakh would include surgical and intensive care, and medicines and maintenance for a year. In the final analysis the successful transplant at the SMC Hospital shows that it is more than just a milestone in the Indian medical history. Selvaraj died due to cardiac complications this week. He was the longest surviving liver transplant patient.

(Left) R P Shanmugam and (above) with Selvaraj, the patient

"THE LIVER HAS OVER 150 FUNCTIONS AND ITS TRANSPLANT IS MORE COMPLICATED THAN THAT OF THE HEART."

R P SHANMUGAM

The Department of Surgical Gastroenterology was the first in India to perform a successful liver transplant, under the leadership of Dr. R.P. Shanmugam, Surgical Gastroenterologist and the first among Hospitals/ Hospital Departments in India to obtain the ISO 9001 certification.

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