Fine-tuning the YOUNG HEART

Every year 2 lakh children are born in India with congenital heart defects. Only some 5,000 get treatment because awareness is abysmally low and diagnosis is delayed

By K. SUNIL THOMAS/Delhi, QUAIED NAJMI/Mumbai, VIJAYA PUSHKARNA/Chandigarh, N. BHANUTEJ/Bangalore and FARWA IMAM ALI/Chennai

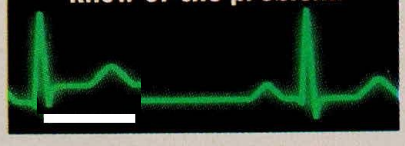
Their worry lines increased with every new whoosh of air from the little one's lungs. No antibiotic, Madhura and Kiran Chittar realised to their dismay, seemed capable of subduing the severe cough that racked t six-month-old son Mihir's tiny b. . And their hearts sank when the paediatrician referred the child to Mumbai paediatric cardiologist Bharat Dalvi.

A few days later, the Chittars sat numbed with pain as Dr Dalvi told them that Mihir's cough was the symptom of a congenital heart defect. The valves of their baby's aorta, the main vessel that carries oxygenated blood from the heart to the rest of the body, were in bad shape. What was heartening, though, was the doctor's assurance that the defect could be set right through a non-surgical process where a balloon is inserted into the tiny heart to dilate the valve to make it broad enough to enable normal blood flow. Today, six years after the treatment, Mihir is as active as any boy of his age—he swims, attends karate classes and is a topper in class.

YOURS WHOLEHEARTEDLY: Dr K.S. Iyer of Escorts Hospital, Delhi, with Vinayak, who was operated on for a heart defect

Pooja is not so lucky. Her condition—patent ductus arteriosus, where a passageway through which blood flows in the foetus, does not close after birth—went undiagnosed till recently when the eight-year-old was brought to the Postgraduate Institute of Medical Education and Research in Chandigarh. Though she had fever soon after birth in Kangra, Himachal Pradesh, and could not suckle, neither her doctors nor parents thought it could be because of a defect in her heart. "During a trip to Vaishno Devi with a three-month-old Pooja, we returned without having a *darshan* because she was gasping for breath," recalls her father Subhash Chand.

Congenital heart defects account for 20 per cent of infant mortality in the country. In half the cases parents never even get to know of the problem.



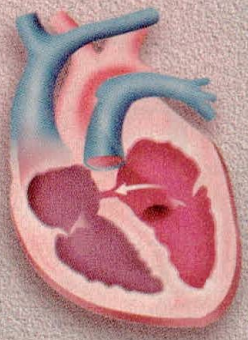
As Pooja lies in the advance paediatric centre of the Postgraduate Institute, awaiting surgery, the skinny girl's expression is deadpan when she is not in pain. "I have spent so much time and money and still she is ill," says Chand. "We would have been better off if she had been operated upon as a kid."

Early detection and treatment would be the ideal scenario for the 2 lakh children born every year in India with congenital heart defects, though the reality is just the opposite. Most Indian children cannot be a Noor Fatima, who came all the way from Pakistan to get the multiple holes in her heart corrected at Narayana Hrudayalaya in Bangalore this July, because over 50 per cent of the parents of children with heart defects never even get to know of the problem. Only some 5,000 of those affected get treatment. Congenital heart problems account for 20 per cent of infant mortality in India. Of the 633 patients given free treatment at Madras Medical Mission as part of Malayala

Common heart defects that appear at birth

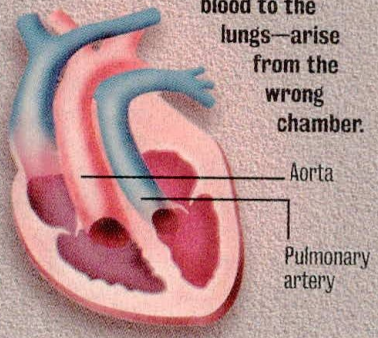
Atrial septal defect

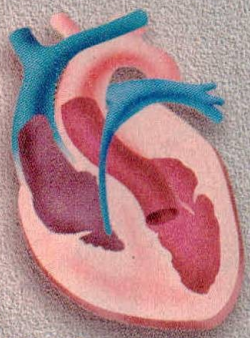
A hole in the wall between the upper chambers—the right and left atrium—causes blood to flow from the left chamber to the right. More blood in the right chamber means more blood will flow through the lungs than would normally.



Transposition of the great arteries

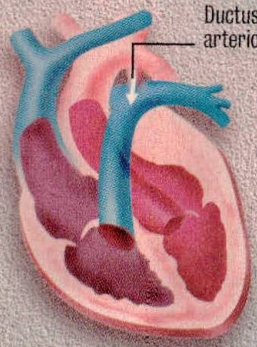
The two major arteries leaving the heart—aorta carrying oxygen-rich blood to the rest of the body and pulmonary artery carrying impure blood to the lungs—arise from the wrong chamber.





Single ventricle cardiac anomaly

A group of different cardiac defects where only one ventricle is of adequate functional size.



Patent ductus arteriosus

In the womb the foetal lungs are not yet in use. Blood, therefore, flows through a passageway called ductus arteriosus, which normally closes soon after birth. If it does not, usually in premature babies, blood does not flow correctly.

What causes congenital heart defects?

Though scientists have discovered more than 100 genetic mutations that cause heart defects, they have also identified factors in the environment that could affect the structure of the baby's heart. These are:
Rubella virus infection—German measles—during the first three months of pregnancy; certain medicines; use of alcohol during pregnancy; diabetes and phenylketonuria in the mother

Prevention

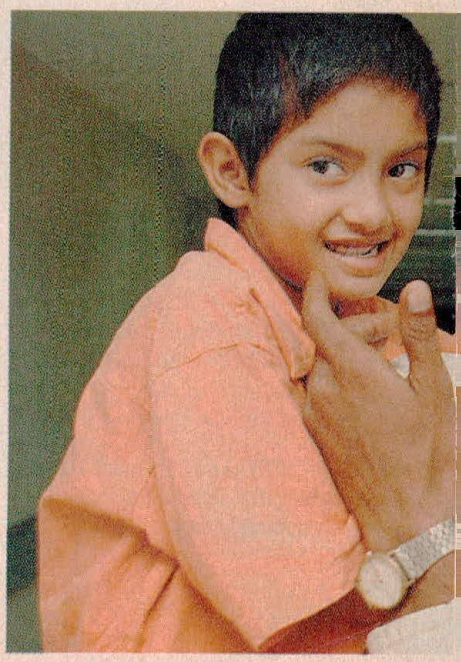
A woman should, during pregnancy, immunise against measles, shun alcohol and check with the doctor before taking any drug. Should consult a doctor before conceiving if she has chronic illnesses or is prone to seizures or, if either parent has a heart defect or the couple already has a child with a heart defect. Get a foetal echo cardiogram (an ultrasound scan of the baby's heart) done if the expectant mother has had miscarriages or stillbirths.

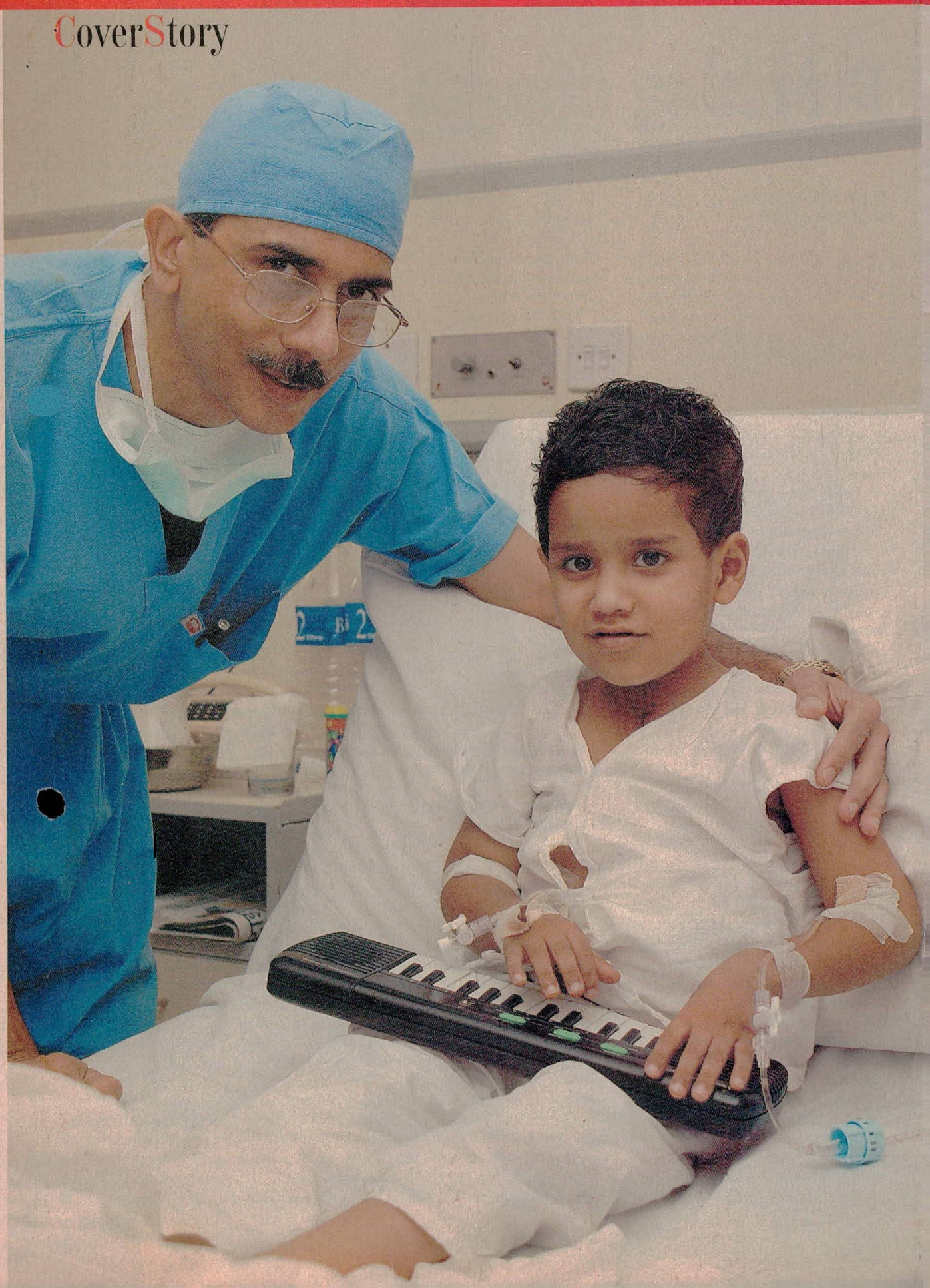
Manorama's Hridayapoorvam programme for heart patients, 30 per cent were children with congenital heart defects.

"At least one third of these 2 lakh children need some form of treatment in the first year," says Dr K.S. Iyer, paediatric cardiac surgeon at Delhi's Escorts Heart Institute and vice-president of the Paediatric Cardiac Society of India. The experience at the Postgraduate Institute has not been different. Dr Rohit Manojkumar, assistant professor of cardiology, says that six out of the 40 children visiting his paediatric cardiology clinic require cardiac catheterisation, generally called angiography. An equal number requires surgery, though not all kids undergoing angio will need surgery. Of six children undergoing angio, two will definitely require surgery.

The minuscule percentage of kids lucky enough to get help includes Manju, an eight-year-old from Jind in Haryana. Her heart defect, too, went undiagnosed for long though she had symptoms such as recurrent infections and breathlessness. When it became debilitating, her father Jai Narain, an Army man, took her to the Research & Referral Army Hospital in Delhi, which sent her to Escorts. Post-surgery, Manju is weak, but the worst is over for her.

Fourteen-month-old Vijay was





Damning charges

ONGC accused of neglecting safety norms

By P. SREEVALSAN MENON & DNYANESH JATHAR

When a Russian-made Mi-172 helicopter carrying 29 personnel of oil rigs Sagar Jyoti and Sagar Kiran crashed into the Arabian Sea, no one knew that the biggest casualty will be the reputation of India's largest oil company, Oil and Natural Gas Corporation. The ONGC is now immersed in controversies over its callous attitude towards the safety of its own staff and violation of many norms.

For the umpteenth time, the Mesco Airlines-ONGC relation has been questioned. Earlier this year, there were allegations that the ONGC had ignored the disapproval of the Union home ministry about hiring services of the company and the director-general of civil aviation's comments about the airworthiness of some of its aircraft. ONGC staff alleged that it had never been company's priority to hire properly maintained choppers.

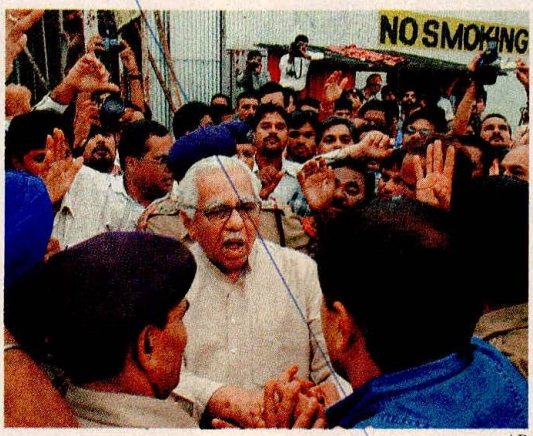
The ill-fated helicopter had been poorly maintained, say some ONGC engineers. During heavy monsoon, it used to leak. Choppers meant for offshore operations normally have fewer seats for safety reasons. In this case, the norm was flouted.

However Union Minister of Petroleum and Natural Gas Ram Naik said, "The helicopter had a certificate of air worthiness issued by the director-general of civil aviation and it was valid till March, 2004."

"A special team from the Russian manufacturer had inspected and certified the helicopter in March," said Subir Raha, chairman and managing director, ONGC.

Industry sources said that ONGC's lack of concern for security in offshore operations was evident last month when tenders for supplying helicopters were considered. Despite two bidders offering new Eurocopter helicopters, it chose an Indian company which could provide only four out of the six helicopters required. Even those four helicopters were old.

The ONGC has 15 helicopters for western offshore operations and the ill-fated one was a stand-by. "For marine logistics, the selection criteria for operators has been revised to ensure that only firms with required competence and capability bid for contracts," said Raha.



AP

A SEA OF PROBLEMS: Minister Ram Naik surrounded by agitated ONGC employees

Industry sources say Mesco's quality of maintenance was suspect. "Often spare parts available for Russian-made helicopters are not original," said a pilot in Mumbai. But a senior Air Force official said there was never a shortage of genuine spare parts for Mi-172 choppers. "Technologically, too, they are advanced," he said.

Helicopters have to be customised for offshore operations with emphasis on safety in times of accidents. "The helicopters are supposed to float safely for a while and send alarm signals," said an industry expert. "Customisation ensures that extra windows are created to enable the passengers to get out safely." It is anybody's guess whether Mesco's Mi-172 was customised.

If it was not, it would mean the ONGC had not been conducting a proper audit of hired equipment. Insiders cited a recent Canadian Helicopters Association report which apparently said that ONGC takes virtually no steps to ensure safety of passengers and the equipment. In today's competitive world, operators have to invest heavily to acquire modern aircraft and upgrade them. "You have to spend at least Rs 1.5 crore every three years on a helicopter for maintenance and upgradation," said a Mumbai-based commercial pilot.

If some of the past tenders are any indication, the ONGC only believes in cheaper helicopters and companies which hold the 'right contacts'. A Mi-172 costs ONGC Rs 1.5 lakh per flying hour whereas a highly efficient Eurocopter would have cost Rs 2 lakh per flying hour as per the bids offered recently. Last month's tender was one of the few it floated since 2000. Incidentally, during this period Mesco had lost its operator permit.

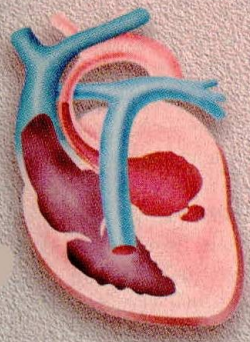
Industry experts also say that the operator had not maintained any facility for search and rescue operations. In this case, ONGC seems to have reacted slowly to initiate such operations. Deccan Aviation operates such a rescue mission at Surat, nearly 100 nautical miles from the disaster site, but it was not activated. Although ONGC says the Navy began operations 15 minutes after the disaster, one of the passengers who was rescued told the media that he was picked up after nearly 90 minutes.

For the ONGC management and Union Petroleum Minister Ram Naik, it is time for introspection. The unions now want Chairman and Managing Director Subir Raha's head for the lapses.

"We will not work in insecure conditions," said Mirchandani, Mumbai unit president of the Association of Scientific and Technical Officers. "Apart from DGCA clearance we are demanding that even the logistics department of ONGC should certify that the helicopters are safe." ■

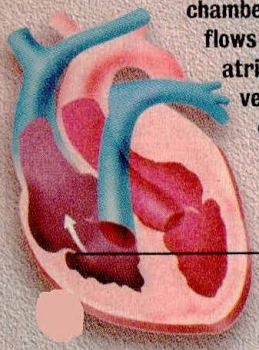
Hypoplastic left heart syndrome

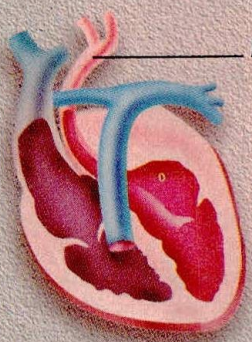
Malformation of the left side of the heart—the side which receives oxygen-rich blood from the lungs and pumps it to the body.



Ebstein's anomaly

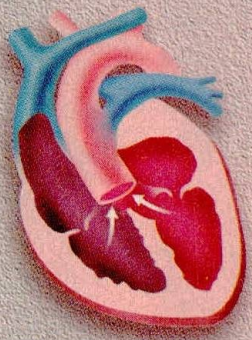
Two leaflets of the tricuspid valve between the right atrium and the right ventricle are displaced downward and the third is elongated and stuck to the chamber wall. Blood flows back into the atrium when the ventricle contracts.





Interrupted aortic arch

Absence of a portion of the aortic arch; in normal cases, the aorta, after it leaves the heart, branches off into blood vessels to the arms and head, and arches down towards the lower half of the body.

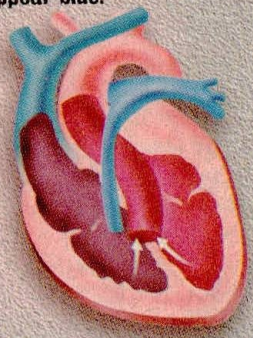


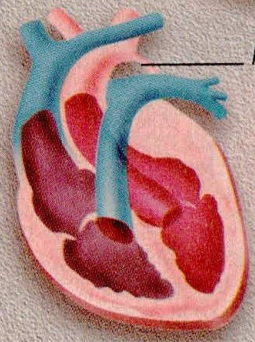
Truncus arteriosus

Instead of two, there is only one great blood vessel leaving the heart, which then branches into vessels that go to the lungs and the body.

Tetralogy of Fallot —Blue baby

A combination of four related defects: pulmonary stenosis; ventricular septal defect; enlarged aortic valve; thickening of the walls of the right ventricle. Impure blood flows to the body so that babies with the problem appear blue.

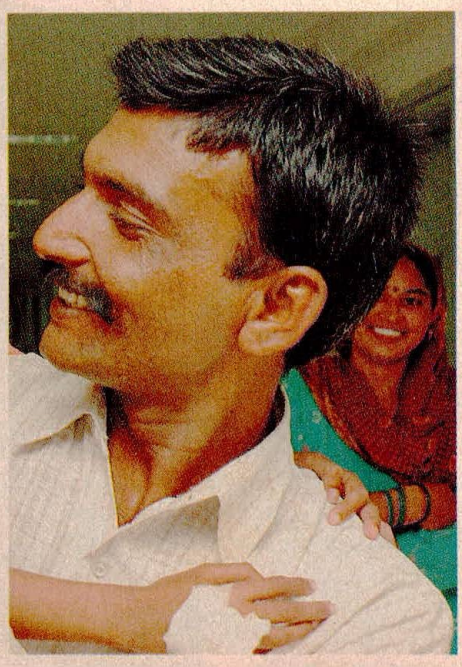




Coarctation of the aorta

Part of the aorta is too narrow. Affects blood flow.

Graphics/N.V. JOSE



ARVIND JAIN

THE SMILE IS BACK: Manju, with father Jai Narain, after heart surgery at Escorts in Delhi

luckier. His heart defect—a hole in the wall that separates the chambers of the heart—was detected when he was a few months old. "A hole in the heart can create a lot of problems for the child," says Dalvi, who has performed corrective surgery on more than 400 such children at his Glenmark Cardiac Centre in Mumbai. "More blood goes to the lungs which stiffen as a result, and this leads to breathlessness. It causes malnourishment because these kids cannot eat properly, which leads to high fever and cough, and stunted growth." Vijay, who was also found to have a genetic anomaly called Down's Syndrome which is usually associated with congenital heart defects, is breathing easy after Dr Rajesh Sharma of Narayana Hrudayalaya mended the hole in July.

While surgery, implants and medication can correct common defects like holes, defective heart valves and wrong positioning of the valves or the main blood vessels, "complex or multiple defects are still not treatable with surgery and at least 0.5 per cent of cases are fatal," says Dr B.K. Goyal of Mumbai.

Up to 30 per cent of the defects may have a genetic basis but even that

A MOTHER'S STORY

An alarming murmur

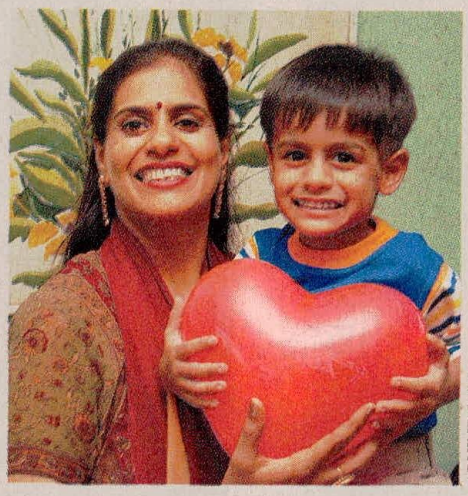
By ROHINI CHOUDHRY

Abhiraj came into this world through a caesarean section three years ago. The delivery was at Madhu Jindal private nursing home in my hometown Meerut and the ultrasound scan had shown a normal baby.

Trouble started two days after delivery when the paediatrician Dr Deepak Seth, after a routine check, said that Abhi's heartbeat was abnormal. "It could be a murmur in the heart," he said. "You should get it checked."

I was alarmed. My husband, Vivek, who is an advocate at the Allahabad High Court, consulted many people before taking Abhi to Dr Rajeev Aggarwal, a cardiac surgeon in Badauth, Uttar Pradesh.

The echo-cardiogram showed a 0.5 mm hole in his heart. "No need to operate, it will probably close with age," said Aggarwal. We were worried, but he reassured us, "There won't be any clinical problem if we leave it like that." Since Abhi was not a blue baby, the situation was better, he felt. "Only," he warned me, "do not let him play in water. And ensure there is no chest congestion and that he does not catch a cold."



ARVIND JAIN

THE ORDEAL IS OVER: Rohini with Abhiraj after the surgery to close a hole in his heart

Easier said than done. Abhi's first winter was a nightmare for us, as we tried to protect him from invisible germs. Quite often, he was put on nebulisers for instant relief from the spasm of coughs. One night, he woke up gasping for breath and we had to rush him to hospital. It was harrowing. Even his sister Kanika, who was then only five years old, would say, "Abhi *ko thand math lagne dena*" (Do not let Abhi catch a cold).

The next summer was okay. Meanwhile, he underwent several treatments and took a lot of medicines.

Early this year Dr Jaiwardhan Rai, paediatrician at Valsalya Hospital in Allahabad, told us that Abhi's hole was still open and surgery was the option. Rai referred him to Escorts Hospital in Delhi.

On Holi this year, Vivek and I finally made up our mind. If it was surgery Abhi needed, we had to go ahead with it. But we would get that done only by a specialist.

I was composed when he was wheeled into surgery on July 1. But I couldn't control myself when I saw him later, bandaged and connected to various contraptions in the ICCU. The ordeal was soon over. Abhi was discharged in five days. I am so happy we took the step, because Abhi can now lead a normal life.

(As told to K. SUNIL THOMAS)

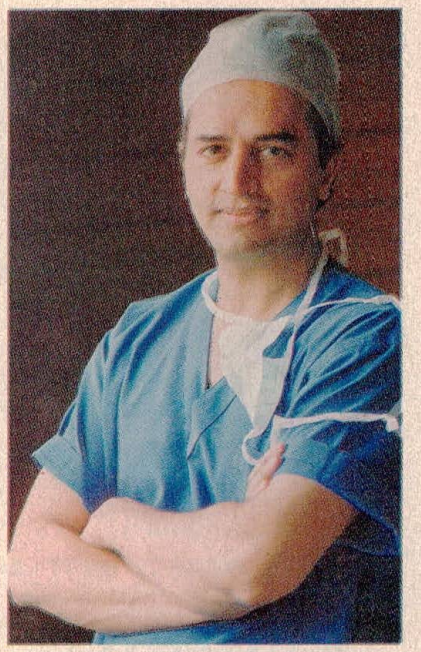
has not been precisely identified, says Dr R. Krishna Kumar, chief paediatric cardiologist at Amrita Institute of Medical Sciences and Research Centre in Kochi. "That does not mean that the next baby will also have a defect," he says. "There is only a 5 per cent chance." Though genes certainly play a part, certain drugs and alcohol if consumed by the pregnant woman in the first trimester, and certain diseases can tamper with the foetal heart. The other miscreant a pregnant woman should keep a watch out for is the rubella virus which causes German measles. There are probably other factors that we don't know enough about because the heart is a complex organ and its developmental process involves millions of steps.

But most of these defects go unnoticed because a child with breathlessness or fever is usually taken to a general physician or a paediatrician, who may not suspect a hole in the heart. Many children do not even have access to a paediatrician, let alone a cardiologist. The basic instrument to detect heart problems is the echo-cardiogram, which costs around Rs 20 lakh, and therefore, is available only in big towns.

Pooja's problem went undetected for long because doctors in Jammu, where her father was working, treated her for pneumonia. Even if doctors read the 'murmur' and detect the problem, say, a hole in the heart, they tell parents that the hole would close as the child grows. Says Devi Shetty, paediatric cardiologist and founder of Narayana Hrudayalaya in Bangalore: "That single advice of a compassionate doctor has killed more children than the bomb that hit Japan in World War II. The biggest problem we surgeons face is that children are brought to us very late."

Take the case of Ravi Kiran, a playful 14-year-old from Bangalore. "When he was three months old, a doctor said the hole will close with time," said his mother Rajeshwari. Doctors intervened only at six but an operation to close the hole did not succeed because the valve had become weak. Dr Sharma of Narayana Hrudayalaya corrected Ravi's valve recently. "I play cricket and cycle a lot,"

TIME FOR SOME ICE-CREAM: Ravi Kiran celebrating his recovery with mother Rajeshwari post surgery at Narayana Hrudayalaya



DON'T WAIT FOR THE HOLE TO CLOSE: Dr Devi Shetty of Bangalore

says Ravi. "But I used to get breathless. Sometimes, I couldn't walk a few feet."

The trend, however, seems to be changing in favour of early correction, if possible in the first year of life itself, says Iyer. But only a handful of centres in India perform paediatric cardiac surgery. There are not more than half a dozen institutions in India that offer dedicated paediatric cardiac intensive care facilities. Worse, there are only an equal number of surgeons who exclusively focus on paediatric cardiology. "Sickest of all are children with heart diseases, but majority of the doctors are cardiologists who are trained to look after adults," says Dr Vikas Kohli, paediatric cardiologist at Delhi's Sir Gangaram Hospital. "Ideally children should be looked after by an MD in paediatrics who has also done cardiology."

Very few specialists focus on paediatric cardiology because operating on children's hearts is not lucrative. In adults, most cases are of coronary artery bypass; the procedure is generally the same and the heart is about five times as big as that of a child. The chances of survival are much higher.

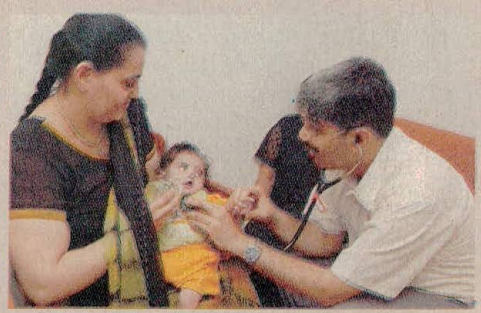
In small children, congenital heart defects are of many types,

To open or not to open?

By K. SUNIL THOMAS

Kanwaljit could not bear the thought of her 7-month-old baby's chest being cut open for heart surgery that his doctor at AIIMS in Delhi had advised.

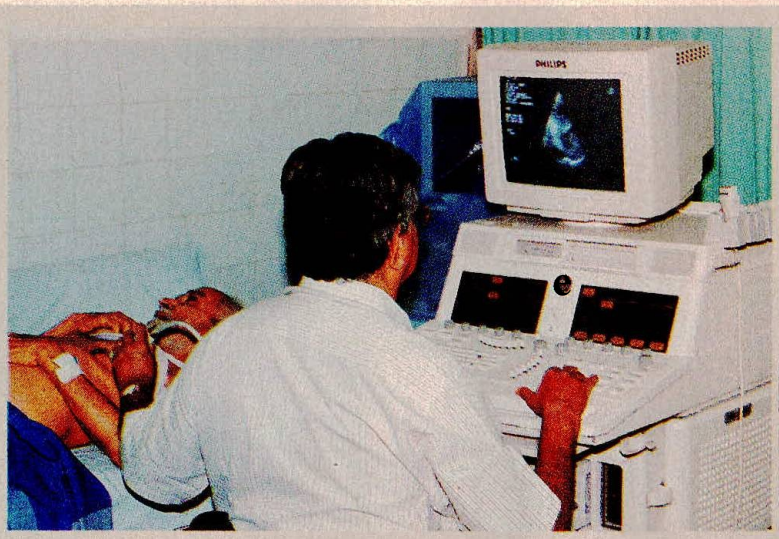
So she and husband Prithpal Singh gave the go-ahead when Dr Vikas Kohli of Delhi's Sir Gangaram Hospital suggested a non-surgical method to plug the hole in Gurinder's tiny heart. Non-surgical intervention includes processes like balloon angioplasty (inserting a balloon into the heart through a vein and inflating it at the affected part) and valvuloplasty, besides inserting stents. "About 30 per cent of children with heart defects can be saved this way," says Kohli, who advocates interventional treatment instead of open heart surgery for congenital heart defects. "The trauma, pain and the large scar can be avoided, while hospital stay is only for a couple of days." Since blood loss is minimal, there is no need for blood transfusion.



ARVIND JAIN

TINY BUT STURDY: Gurinder being examined by Dr Vikas Kohli of Delhi's Sir Gangaram Hospital

Though some doctors argue that the defects recur even after multiple angioplasty, Kohli is planning to take the message of non-surgical intervention to the villages of north India, where awareness on congenital heart defects is the lowest. He is also planning a tele echo-cardiography programme in the small towns of Uttar Pradesh.



BABU VAKKACHERI

CUT, SLICE AND CROP: The Live 3D echo at Indira Gandhi Hospital, Kochi

A surgical view

By P. SRIDEVI

It is almost like holding the heart in your hands. You can even cut it and slice it, on the screen, that is. The image you see is so palpable. Called Live 3D Echo, the ultrasound technology gives three-dimensional images of the pumping machine as it goes lub-dub in real time. The latest advancement in echocardiography, which turns 50 this year, Live 3D will arrive in India next month when the Indira Gandhi Cooperative Hospital in Kochi, Kerala, acquires the technology.

Developed by Philips Medical Systems, the Netherlands, the machine uses the same technology that submarines use to navigate. A handheld scanner sends high-frequency sound waves, which get reflected back as they strike different organs and tissues in the area being scanned. This soundwave is sent to a processor, which calculates the distance from the probe to the structures in the body, converts the data into 3D images and displays them on the screen. Though a little expensive at Rs 1.2 crore, the technology helps cardiologists see the heart in totality. "You can visualise all the structures of the heart in different angles," said Dr A.K. Abraham, chief cardiologist at the hospital. "Because it is direct visualisation it is also authentic. It gives feedback in real time during catheterisation or when implanting devices."

Live 3D scores over 2D imaging in pinpointing abnormalities of the heart and enlightening surgeons on what to expect when they open the heart. Unlike the flat 2D images, Live 3D provides a 'surgical view' of the heart. For instance, in operations involving the mitral valve (shaped like a mitre, it opens from the left atrium to the left ventricle), surgeons can assess the problem and decide whether they should replace the valve or repair it. In procedures such as balloon mitral valvuloplasty, where a balloon at the tip of a catheter is inflated to dilate the valve, the 3D image of the heart helps the doctor guide the therapy with accuracy and avoid complications. Abraham feels that 3D echo, which at Indira Gandhi hospital would cost Rs 1,500, can substantially cut down on the need for paediatric catheterisation.

Calculating the ability of the heart to pump blood is another task Live 3D can help simplify. Until now, doctors had to make certain geometric assumptions of the left ventricle while using 2D Echo to measure the capacity of the chamber.

requiring different types of surgery, maybe in multiple sittings. And the heart is really tiny. While it clearly requires a lot more expertise, surgeons who opt to operate the tender hearts are unlikely to find patients in as large numbers as, say, doctors doing surgery on adults. "Paediatric cardiology is forced to ride piggy back on adult cardiac surgery," says Dr K.M. Cherian, director, Madras Medical Mission. "It has clearly not progressed at desirable rates so as to reach out to the majority of the 2,00,000 children."

Another reason is the cost of treatment. "Good work is being d in several corporate hospitals, but h... many rural families can afford the kind of money involved?" asks Cherian, who pioneered paediatric cardiac surgery in 1975 when he operated on one-year-old Mariam at the Railway Hospital in Chennai.

Many parents are put off by the costs even at government-run institutes. Some give up, a few beg the doctors to make arrangements for funds, some others mobilise resources and return. "Many parents refuse to admit that their children have a problem," says Dr Vasant Khatav, paediatrician in Mumbai. Most find it less expensive to have another child, especially if the ailing child is a girl, than spend Rs 1.5 lakh on surgery.

Says Dr Manojkumar: "In the last six months I have done only two e each of arterial septal defect (a defect in the wall that separates the upper chambers of the heart) and patent ductus arteriosus device closers, and they were government beneficiaries. The remaining just could not afford it. Many are sent for surgery which is a lot cheaper than implants."

At the Postgraduate Institute, for instance, ballooning costs Rs 25,000. Manojkumar does it free for every second child—the needy and poor—by resterilising the balloon with ethylene oxide gas. A device-closer for atrial septal defect costs Rs 1.5 lakh, while surgery for the same condition costs only Rs 40,000. A device-closer for patent ductus arteriosus costs Rs 1 lakh, while surgery costs Rs 5,000. Though angiography is done for Rs 5,000, a poor patient need pay only Rs

News You Can Use

How parents can help

Look out for symptoms of congenital heart defects:

At birth

- Blueness at birth or immediately after birth
- Murmur of the heart
- Accelerated breathing
- High pressure in the lungs
- Low blood pressure

At two to six months

Difficulty in feeding—baby is unable to suck properly, sweats or starts breathing fast while feeding

- Blue nails and toes. Fainting spells
- Inadequate weight gain
- Recurrent chest infection

First three years

- Fainting spells (which may sometimes be fatal)
- Abnormal heartbeats

Avoid rigorous activity for the child. Ensure the child does not get dental infection; the heart could get infected, too. Maintain the salt balance in the child's body

Drugs to avoid during pregnancy

- A strict no to isoretinoin, thalidomide, estrogens, **oral** contraceptives, angiotensin-converting-enzyme inhibitors, chloramphenicol, chlorpropamide, erythromycin, tetracycline and haloperidol.
- Anti-cancer drugs and phenytoin are harmful but the benefits of these drugs outweigh the side-effects.
- Epinephrine, ephedrine, b-blockers and promethazine do not pose any significant risk, though research is inadequate.
- Research studies on the effects of penicillins, nitrofurantoin, insulin and cephalosporins have not shown significant risk to foetus.
- Multivitamins can be safely taken.

Source: Dr B.K. Goyal, cardiologist and director, interventional cardiology and hon. dean of Bombay Hospital & Medical Research Centre

PRASHANT NADKAR

HOME'S WHERE THE HEART IS: Mihir Chittar with parents

1,000; hospital admission is free, and resterilised material are used to bring down costs.

Centres like Narayana Hrudayalaya, though, have charity programmes. "Fortunately there are people and organisations like the Sarojini Damodaran Trust that give money for operations on kids," says Shetty. Amrita Institute has had some 60 children with heart defects from Mumbai because "we are inexpensive", says Dr Krishna Kumar. "Amma [Mata Amritanandamayi, the head of the mutt that runs the hospital] said she wants the best care to be available to the average Indian and not make it out of reach. For a simple condition like arterial septal defect it could be Rs 60,000 and an arterial switch may cost Rs 1 lakh."

Hospitals like Delhi's All-India Institute of Medical Sciences (AIIMS) charge only for the consumables and while this itself is a big sum, the long waiting list in such hospitals is a problem. When seven-month-old Gurinder was diagnosed with a 'murmur', the AIIMS doctor told his father Prithpal Singh to wait till he got older—there were many others before him. The wait extends as many of the specialists are lured by lucrative posts or fellowships abroad. Hemant Kumar Sahu of Raipur brought his son Ayush back from a hospital in Puttaparthi, in Andhra Pradesh, because of the long waiting list there. "Money was a problem," says Hemant. Ayush's surgery could be done at a Delhi hospital only because Rs 1 lakh was granted from the Chattisgarh chief minister's relief fund.

"There are more patients in India with congenital heart diseases than polio, but the government spends more money on polio," says Dr Kohli. Adds Iyer, "There is a lot more emphasis on diseases like leukaemia and thalassemia, which are not even fully curable, while a vast majority of heart defects are with one operation."

The absence of a national policy for congenital heart defects, as Dr Krishna Kumar says, perhaps reflects the prevailing attitudes that the defects are uncommon, mostly fatal and therefore not worth the effort.

While expenses for Manju's surgery will be borne by the Army, Pooja's father has taken salary advances, and tapped other resources for the Rs 1 lakh estimate her doctor has given him. For every child who recovers with support from family and doctors, there are a hundred others who perish for want of timely help.

The situation is alarming. Even big centres like the Postgraduate Institute do not perform open heart surgeries on neonates and babies under 10 kg because it needs excellent post-operative care, besides expertise. "We need more centres for children with heart diseases," says Dr Manojkumar. "The centres in Delhi, Chennai, Bangalore, Kochi and Mumbai are not capable of handling the huge load. Another problem is money. People should contribute in their own small way because the children of the poor, too, deserve to live." ■

Joy in the ruins

CAMBODIA: This once war-ravaged country is getting better every day

By ROSHIN VARGHESE

To most people Cambodia conjures up images of Angkor Wat and Hollywood star Angelina Jolie swinging on vines inside crumbling temples as Lara Croft in *Tomb Raider*. With her adopted Cambodian son, Maddox, a semi-permanent fixture in the crook of her arm, she has reopened the eyes of the world to another dimension of life in Cambodia, far removed from lofty Buddhist ideals, ruins overrun by the jungle, wats, and Mount Merus soaring skywards.

Most of the world has forgotten the horrendous rule of Pol Pot and his Khmer Rouge of the 1970s and the gory images of mountains of skulls and skeletons have been pushed into distant memory. But for the Cambodians, rebuilding their lives and war-shattered economy has been an uphill task.

Phnom Penh with its teeming masses, spacious boulevards and colonial French buildings is far removed from the visible destruction. Every day things change, mobile phones get better connectivity, domestic flights get fuller, roads get built and adoption rules get tighter.

While we were wandering through the stunning, Khmer-style, red sandstone Phnom Penh National Museum designed by a French architect in the 1920s my guide bolted out midway through her animated lecture on bronzes. Moments later she was back, explaining the reason for her panic: the last time she ignored the fire brigade's ring she found her flat had been burned to cinders in an accident. Composure back, she was once again tracing the Indian influences and later Buddhist touches in the exquisite bronze collection in the museum.

Behind the museum is a French colonial building which houses the Friends restaurant. To a casual

AFP

SPECTACULAR: The Angkor Wat temple near Siem Reap