

High Tech, High Touch

Born with major heart blockages and blood clots in her limbs, Emma's life is saved by modern technology and the gentle hands of caregivers.

by ELLEN BARAGON



When James Cooke talks about the roller coaster of his newborn's first few days, the worry and tension return to his voice. Relating the hour-by-hour, day-by-day experiences in the Neonatal Intensive Care Unit, and the hubbub of the Radiology Department, he sounds as if he were still there, pacing the floor, peering at the images of his baby's heart and limbs, nosing around doctors' huddles, alert to every detail of his daughter's clinical course.

"At some point they told us they were going to have to amputate Emma's arm to save her life," recalls James. "Before then we didn't know the danger involved."

What had been a smooth delivery turned out to be a rocky beginning to his daughter Emma's life — a life that they know now was close to being lost. At birth her arms gave the first indication of something amiss, with a dark blotchy colour and open sores that could not be explained. The swelling and stiffness in her arms only intensified the urgency to reach a diagnosis.

"Everything hits you all at once, so you don't know what's going on," James says. "But when a nurse of 20 years says 'oh, I've never seen that before', you know it's not good."

Dr. Manraj Heran, an interventional radiologist at BC Children's Hospital, recalls Emma's story vividly.

"We first did an ultrasound to determine whether there was enough blood flow," he explains, "and we found a major blockage of both axillary arteries, but we needed to find out the source of the blockage." She was merely two days old, and at just 2.72 kilograms (6 lbs.), Emma was about to be the beneficiary of some of the world's most sophisticated medical technology. And it didn't come a minute too soon.



Dr. Michael Sargent says technology enables physicians to make decisions with greater precision and speed.

Dr. Heran says that the lack of blood flow caused the discolouration because her tissues were dying.

"We hadn't seen this pattern of arterial blockage before in a child so young," says Dr. Heran.

The team of doctors rushing to Emma's aid was fearful that they could not save her left hand, and that amputation of one, or both of her arms might be the only way to save her life.

Once Emma was admitted to the Neonatal Intensive Care Unit, all of the Radiology Department's combined new diagnostic technology of the age was brought to bear in the fight to keep her alive; from the ultrasound, the Magnetic Resonance Imaging (MRI), the CT scan, the angiography, and the latest sedation drugs.

Those investigations revealed that Emma indeed had clots blocking the circulation to both arms. Thankfully, she did not have any problems with other areas of her circulation or her brain to prevent emergency treatment.

"We needed to bust up those clots right away," says Dr. Heran, explaining that through the use of precise angiographic techniques similar to those used in modern stroke therapy, and sophisticated medications and equipment not available even a decade ago, radiology today not only discovers problems, it can often treat them as well.

The blood clots ultimately cost Emma her left thumb — but not her life. Her story highlights how much the technology of radiology today has so surpassed what it was 25 years ago; it is virtually a new universe.

"Two decades ago a scan that took a half hour, today may take only 10 seconds," says Dr. Michael Sargent, acting head of Radiology at Children's Hospital. Dr. Sargent says that the volume, detail and speed of information available in terms of equipment, software, and the way radiological images are produced and managed provide immeasurably greater information, and have increased the ability of physicians to make decisions with greater precision and speed.

"There is no question that Emma was born at the right time in history, because if she was born in an earlier time, there is no way she would have lived," says her relieved father.

Although James credits technology for his daughter's survival, he says the care team deserves the spotlight. Dr. Heran came in on a day off to tend to Emma, and neonatal physician Dr. Susan Albersheim stayed up all night with Emma long after her shift was over. They and others, including the gentle nurses who cuddled his ailing girl, provided the care Emma needed in order to make it through her ordeal. 🌞

Right: A combination of exceptional care and advanced technology saved Emma Cooke's life.



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