

A New Minimally Invasive Procedure Available at Baystate to Correct Pectus Excavatum—A Pediatric Deformity

By Karen P. Kolb

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Drs. Stanley Konefal, Jr., (left) and Kevin Moriarty, were the first pediatric surgeons to perform the Nuss procedure in Massachusetts.

Baystate pediatric surgeons are now performing a new minimally invasive technique, called the Nuss Procedure, for children with pectus excavatum.

A new procedure has been added to the repertoire of minimally invasive surgical services available at the Baystate Medical Center Children's Hospital Surgery Center for the treatment of pectus excavatum.

Pectus excavatum, often called a sunken or funnel chest, is a deformity occurring in about 1 in 600 children in which the sternum is significantly recessed into the chest. While often recognized at infancy, pectus excavatum usually becomes more apparent in early adolescence, seems to affect girls and boys equally, and is without a known cause. Children with severe deformity may experience cardiopulmonary symptoms.

Previously, a four- to five-hour open surgical chest procedure was required to correct the deformity. Now, a new one hour minimally invasive technique, called the Nuss Procedure, is being performed by Stanley H.

Konefal, Jr., M.D., and Kevin P. Moriarty, M.D., pediatric surgeons on staff at Baystate Medical Center.

The Nuss Procedure

Drs. Konefal and Moriarty were the first physicians to perform the Nuss Procedure in Massachusetts. They learned this specialized technique from Dr. Donald Nuss, a pediatric surgeon at Children's Hospital of the King's Daughters in Norfolk, VA. He developed the surgery using a Lorenz Pectus Bar for ten years before patenting his data. According to Dr. Moriarty, Dr. Nuss has been performing the surgery for over ten years, and has very good follow up. The new procedure offers significant advantages to the previous techniques.

In the past, a lengthy operation of about four hours was required, during which rib cartilage was resected, six or seven ribs were

David B. Earle, M.D., is the director of minimally invasive surgery at Baystate Medical Center, and an assistant professor of surgery at Tufts University School of Medicine.

Stanley H. Konefal, Jr., M.D., is a pediatric surgeon at Pediatric Surgical Services, Inc., on staff at Baystate Medical Center, and an associate clinical professor of surgery at Tufts University School of Medicine.

Kevin Moriarty, M.D., FAAP, is a pediatric surgeon at Pediatric Surgical Services, Inc., on staff at Baystate Medical Center, and an assistant clinical professor of surgery at Tufts University School of Medicine.

Diane Skorupski, R.N., M.S., C.N.O.R., is the manager of the Baystate Medical Children's Hospital Surgery Center and Children's Hospital Procedure Unit.

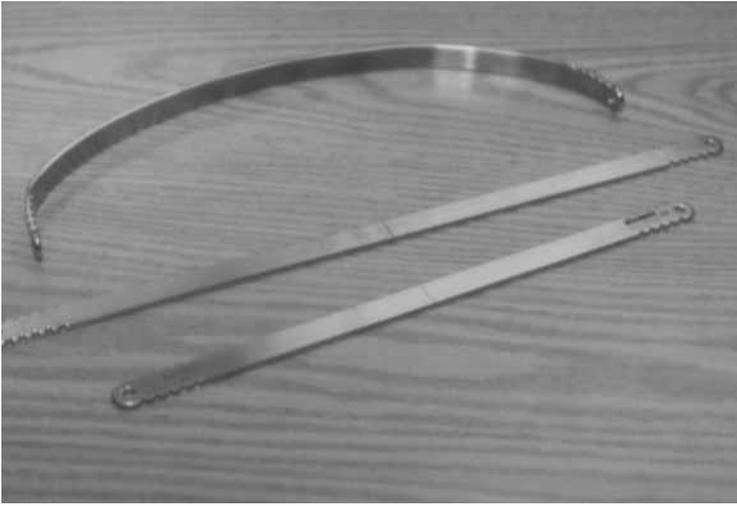
Richard Wait, M.D., Ph.D., is chairman of the Department of Surgery at Baystate, and a professor of surgery at Tufts University School of Medicine.



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After removal of the Lorenz Pectus Bar, the chest wall maintains the corrected shape.



◀ The Lorenz Bar is a stainless steel bar about 2mm thick. The standard size bar is between 7 and 15 inches long. The bar is the best with a special plate bender to meet the child's particular needs.

broken, the sternum was corrected, and a bar was placed underneath through a six to eight inch incision across the chest.

During the Nuss Procedure, the child is given general anesthesia and two small lateral incisions are made at either side of the chest. The Lorenz Pectus Bar is then inserted through one of the incisions and passed across the sternum to exit through the other incision after a careful transmidintestinal dissection aided by use of a thoroscope.

“The Lorenz Pectus Bar is a stainless steel bar that is about 2mm thick,” says Dr. Konefal. “The standard size bar supplied by the manufacturer is between 7 and 15 inches long. Before the procedure, we measure the child’s chest and then bend the bar with a special plate bender to customize the bar to the child’s individual size and physical deformity.”

“The concept of the surgery is that of remolding the chest wall rather than resecting the abnormal ribs,” says Dr. Moriarty. “Similar to non-surgical therapy of club feet with casting and braces for scoliosis, the bar under the sternum allows the chest wall to realign. After removal of the bar, the chest wall maintains the corrected shape.”

The new procedure is much less traumatic for the child and involves less blood loss and faster recuperation. Children remain in the hospital about four days following the procedure and strenuous activity is restricted for about two months.

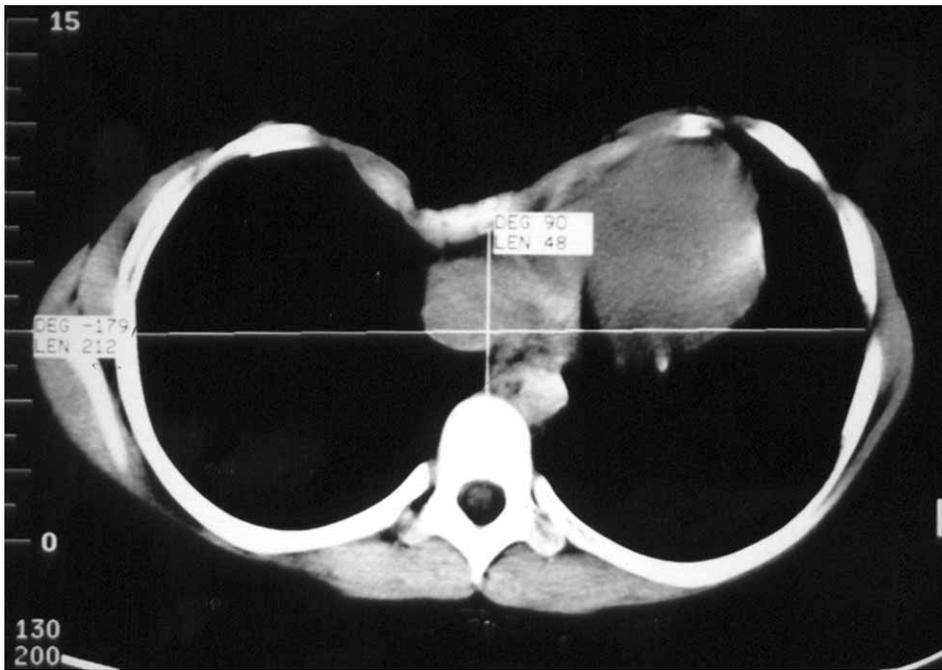
Says Dr. Konefal, “Pectus excavatum can be successfully corrected between the ages of 8 to 18. The ideal age for the procedure is between 8 and 12. The bar is left in place for two years. At that point, the chest should have remolded enough so that

the bar can be removed. Removal of the bar depends upon the age and growth of the child following the insertion of the bar.”

Minimally Invasive Surgery

“This minimally invasive technique for repair of pectus excavatum is an excellent and safe alternative and is just one of many minimally invasive surgical procedures that are now being performed at Baystate,” says Richard Wait, M.D., Ph.D., chairman of the Department of Surgery. “We are promoting the development and training for useful minimally invasive techniques in an ongoing fashion.”

According to David B. Earle, M.D., director of Minimally Invasive Surgery at Baystate, “The whole mentality of surgery is changing. Doctors are offering minimally invasive approaches for a variety of procedures. The goal of minimally invasive



◀ During the Nuss Procedure, two small lateral incisions are made at either side of the chest and the Lorenz Pectus Bar is inserted through the first incision and passed across the sternum to exit through the other incision.

surgery is to correct the problem with a shorter period of recovery and fewer complications than a traditional surgical operation. This technique for pectus excavatum is one such example. The outcome is at least as good if not better than the traditional approach. The cosmetic results are much better because of the significantly smaller scars which are very inconspicuously on the patients' sides."

Cosmetic Benefits

The cosmetic factor is often what causes parents to seek treatment for their children. Many children with pectus excavatum, especially girls, are embarrassed by their appearance. The children often feel overly self-conscious, avoid sports and limit their number of friends.

"Parents have said that they have seen a number of positive changes in their children following the insertion of the Lorenz bar," says Dr. Konefal. "The changes

are not merely physical, but also emotional and psychological. The children are more outgoing and they don't shield their chests as much any more."

Because it is often performed strictly for cosmetic reasons, repair of the pectus excavatum is not covered by most health insurance companies.

Family-Focused

Diane Skorupski, R.N., M.S., C.N.O.R., manager of the Children's Hospital Surgery Center and Children's Hospital Procedure Unit at Baystate, says, "We understand the family's concerns and anxieties related to any elective procedure. That's why we are so pleased with the family-focused approach to care that we provide in the Surgery Center."

She continues, "In surgery, we recognize pediatrics as a specialized area. The staff is specially trained and the instrumentation is set for that purpose. We offer

many customized approaches for the children including child life specialists and anesthesiologists who specialize in pediatrics. We also encourage the parents to walk with their children into the operating room and to be waiting in the recovery room when their child awakens. Because of these methods, some children don't even know that their parents were gone. It's very good for the child and very good for the parents. We're proud to be the only children's hospital in Western Massachusetts and to offer this type of specialized service."

For more information about the Nuss procedure for pectus excavatum, please call Dr. Konefal or Dr. Moriarty at (413) 734-3222. To learn more about minimally invasive surgical services at Baystate Medical Center, call The Professionals at (413) 794-2255. Outside the area, call 1-800-377-HEALTH.