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Vertical Expandable Prosthetic Titanium Rib
(VEPTR™)

VEPTR stands for Vertical Expandable Prosthetic Titanium Rib" or the 'titanium rib'. Normal Ribs run horizontally along the chest, where the Titanium Rib is used vertically. It is made out of a curved metal rod made to fit the back of the chest and spine. This device helps the spine to become straighter and allows the lungs to grow. The device can be made longer as your child grows. Placement of the device is required during an expansion thoracostomy operation.

VEPTR™ was developed by Drs. Robert Campbell, and Melvin Smith at the Christus Santa Rosa Children's Hospital in San Antonio, Texas. The device is used for treatment of Thoracic Insufficiency Syndrome in skeletally immature patients. In 1998 a Children's Hospital in Boston, was where the first extensive VEPTR™ was used outside San Antonio. The procedure is now done in San Antonio, Boston, Los Angeles, Pittsburg and Salt Lake City. These procedures are part of a multi-center investigational study under the auspices of the Food and Drug Administration



Thoracic insufficiency syndrome is the inability of the thorax to lung growth or normal respiration.

In rare conditions, fused ribs and congenital scoliosis may result in a three-dimensional thoracic deformity. This may cause adverse effects on thoracic growth and function with development of thoracic insufficiency syndrome.

The goal of this operation is to make one (or both) sides of the chest larger and longer or more normal in shape. A larger, longer or straighter chest can also help some abnormal spines stay as straight as possible while still allowing for spine growth.

During the expansion thoracostomy operation, one or more separations are made between the ribs and are spread apart to make the chest larger.

In some expansion thoracostomies, congenitally abnormal, or fused ribs are separated, while in others multiple cuts are made in the ribs or the naturally occurring space between ribs is opened. The final part is the insertion of the VEPTR™ device

The VEPTR device was shown to maintain or improve the assisted ventilator rating (AVR) scores in 92 percent of patients, and the patient survival rate in the VEPTR clinical trial was 95.1 percent. The FDA approved the VETPR device claiming the benefit outweighed the risk.

- U.S. Food and Drug Administration (FDA), Center for Devices and Radiological Health (CDRH). Vertical expandable prosthetic titanium rib (VEPTR). Summary of Safety and Probable Benefit Data. Humanitarian Device Exemption No. H030009. Rockville, MD: FDA; August 24, 2004.
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