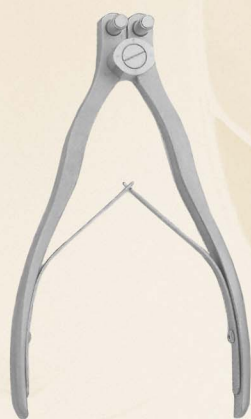


Instruments

11-3900	Pectus Flipper	
11-3905	Pectus Bender	
11-3909	Pectus Introducer size small	48,0 cm
11-3908	Pectus Introducer size medium	51,0 cm
11-3907	Pectus Introducer size large	53,0 cm

Templates

11-3808	Pectus Template	20,5 cm
11-3809	Pectus Template	23,0 cm
11-3810	Pectus Template	25,5 cm
11-3811	Pectus Template	28,0 cm
11-3812	Pectus Template	30,5 cm
11-3813	Pectus Template	33,0 cm
11-3814	Pectus Template	35,5 cm
11-3815	Pectus Template	38,0 cm
11-3816	Pectus Template	40,5 cm
11-3817	Pectus Template	43,0 cm
11-3818	Pectus Template	45,5 cm



Pectus Bender



Pectus Flipper



Pectus Introducer

Responsibility for proper selection of patients, for adequate education of the surgical team, for sufficient training and experience in the choice and application of implants as well as the time of implant removal rests with the surgeon attendance.

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Pectus Bar Correct System



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BIOTECH

"Movement is Life"

Biotech Pectus Bar Correct System

Pectus Excavatum is the most common deformity of the chest (1:1000). The mobility of the chest by breathing is often obstructed, just like the cardiac action, which can also be partially restricted sometimes. Additionally, by almost 25% of the patients the spine is deformed, the back and shoulder muscles are incorrectly developed resulting in most of the cases in not proper posture.

Initially the new

Minimally Invasive Repair of Pectus Excavatum - shortly "MIRPE"-

was only applicable for children from the age of 5, however during the past few years there were also some cases for patients until the age of 40. These were not really appreciated by the conservative methods. The significantly reduced OP time - from 5-7 hours to 1 hour - just like the small 2 cm incisions and the positive cosmetic solution resulted in a very fast break-through in Children-, Thorax- and Plastic-Surgery departments world-wide.

The excellent long-term results of hundreds of patients stand for themselves (supported by relevant studies since 1988). Minimal blood loss, just like the economic advantage of the significantly reduced hospital-stay - normally approximately 5-7 days - are also not neglectable.

Product description

Pectus bar manufactured of stainless steel for medical use in different sizes - from 20,5 cm to 45,5 centimetres - with rounded ends, blunt edges, 12 notches on each end and 1 perforation. Elongated Pectus Stabilizers manufactured of special implant-stainless steel for medical use.

Implants

11-3708	Pectus Implant	20,5 cm
11-3709	Pectus Implant	23,0 cm
11-3710	Pectus Implant	25,5 cm
11-3711	Pectus Implant	28,0 cm
11-3712	Pectus Implant	30,5 cm
11-3713	Pectus Implant	33,0 cm
11-3714	Pectus Implant	35,5 cm
11-3715	Pectus Implant	38,0 cm
11-3716	Pectus Implant	40,5 cm
11-3717	Pectus Implant	43,0 cm
11-3718	Pectus Implant	45,5 cm

11-3801 Pectus stabilizer

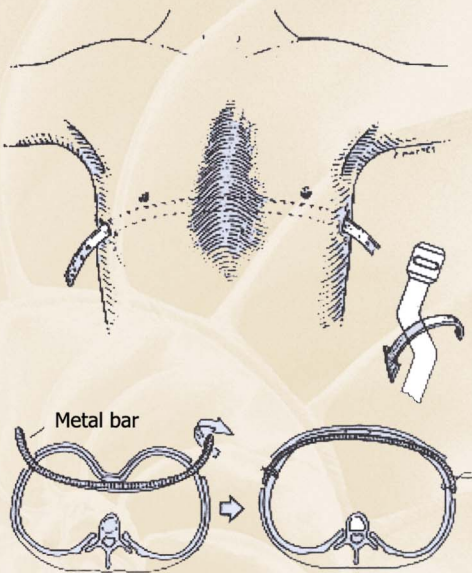


Operative steps

If possible meet the requirements for single lung ventilation. The first step is the measurement from the medioaxillary to the medioaxillary line at the level of the deepest part of the funnel for determination of the bar length (1-2 cm less of the measured distance). A pectus bar template can be used to visualize the shape necessary to correct the deformity. In patients with a rigid thorax or in older patients two bars may be necessary.

- Preoperative administration of antibiotics for infection prevention.
- Two short incisions (3 cm) in the medioaxillary line and subcutaneous mobilization (ultra scission, avoid squeezing the tissue) in that area. For safety reasons a third median incision below the processus xyphoideus that divides the linea alba is sometimes performed. From that incision a retrosternal mobilization and mediastionscopy is performed. Thoracoscopy (e.g.: 5 mm port) is performed mainly from the right lateral incision.
- For optimal bar placement the intercostal space should be perforated slightly medial to the top of the pectus ridge (within the edge of the funnel) using a special "sword like" instrument. Caution: lesion of the arteria thoracica interna; lesion of the lungs or the pericardial sack or the heart. Visualization using the thoracoscopy is necessary. Visualization of the left intercostal perforation may be difficult because of the heart. Via the additional median subxiphoidal incision and anterior mediastinal mobilization (pericardium, pleura, fibrous adhesions) the tip of the preparation instrument may be guided by the surgeons finger tip.
- A strong tape is fixed to the tip of the preparation instrument on one side and the end of the C – shaped bar on the other.
- The connection between the bar and the tape is covered with a thoracic tube to achieve atraumatic intercostal passage. The preparation instrument is pulled back and the bar is positioned behind the sternum with both ends looking to the front.
- Afterwards the bar is twisted (180°) and fixed with not resorbable sutures to the lateral thoracic muscles (musculus serratus) using the special stabilizer plates. The stabilizer plates should be fixed to the bar using wire sutures to prevent dislocation. Some surgeons prefer the fixation with sutures going around the rib.

- Lateral chest tubes are used for drainage. If an additional median incision was performed, a single chest tube may be placed in the anterior mediastinum draining both opened pleural spaces.



Postoperative steps

- Antibiotics for about 5 days.
- Analgetics are especially necessary in the first postoperative week (piritamid 0, 1mg/kg BW/h or the pain-pump). The patient should start with breathing exercises as soon as possible.
- The patient should have a pectus – pass port with him (including a small thoracic X-ray picture).
- The patient should maintain good posture and limit activity (especially with the arms) for the first postoperative month. Deep – breathing exercises should be performed twice a day. The patient should avoid heavy lifting for two months following surgery and no contact sports for the first three months following surgery.
- In situations of resuscitation: Cardiac defibrillation (if necessary) is performed with an anterior/posterior paddle placement.
- Surgical removal of the bar(s) under general anaesthesia is recommended after a period of 2 to 3 years.