



جامعة الإمام عبد الرحمن بن فيصل
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King Fahad Hospital The University

Pectus Carinatum

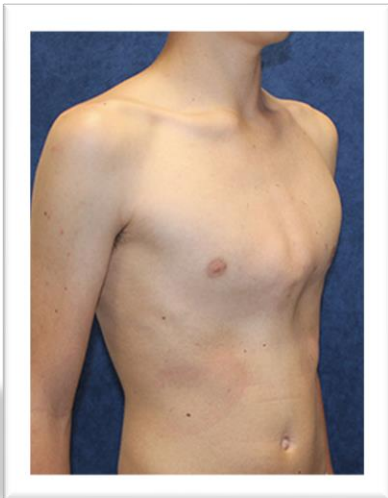


What is pectus carinatum?

Is a protrusion deformity of the chest wall, known as pigeon chest

Types:

- Unilateral (affecting one side).
- bilateral (affecting both sides).
- Mixed (include Two types).





This can be due to the overgrowth of costal cartilages, leading to the sternum (breastbone) projecting outward.



When is it diagnosed?

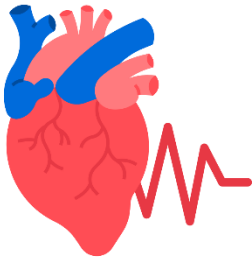
During childhood or adolescence.

About 80% of patients with Pectus Carinatum are male, and approximately 25% have a family history of a chest wall defect.



What are the symptoms of pectus carinatum?

symptoms not typically present in the vast majority of preadolescent patients:



Mitral valve prolapse



Pain and shortness of breath during exertion



Exercise limitations athletic injuries related to the sternal protrusion

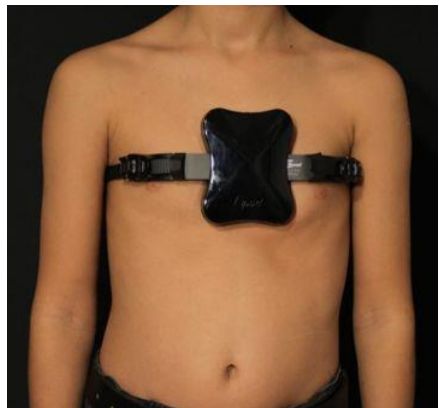


self-image issues are not typically present in the vast majority of preadolescent patients

What are the types of treatments?

1. Non-Operative Treatment

- **Bracing:** The most common non-operative treatment is the use of a custom-fitted chest wall brace. This brace applies pressure to the protruding sternum and costal cartilages, gradually flattening the chest wall. The effectiveness of bracing largely depends on patient compliance and the stage of skeletal growth.
- **Physical Therapy:** Exercises that strengthen the chest wall muscles and improve posture can also be part of the management plan.



What are the types of treatments?



2. Operative Treatment

- **Surgical Options:** For patients with severe deformities or those who do not respond to bracing, surgical correction may be considered. The type of surgery depends on the individual case and the surgeon's expertise.
- **Minimally Invasive Techniques:** Ravitch procedure or other less invasive methods may be used. These involve surgical correction of the cartilage and bone structure to flatten the chest wall.

3. Individualized Treatment Plan: The choice between operative and non-operative treatment is made based on the severity of the deformity, the age of the patient, the patient's preference, and the potential impact on quality of life.

Who should undergo surgery?

People who suffer from the following:

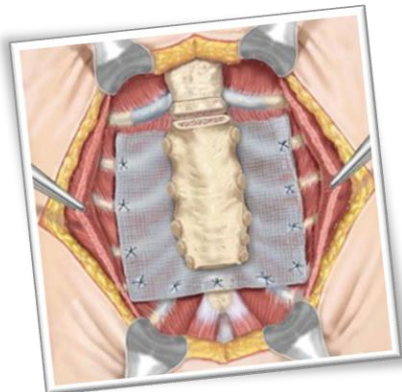
1. **Severity of the Deformity:** usually considered for severe cases.
2. **Failure of Non-Operative Treatments:** such as bracing or physical therapy.
3. **Symptomatic Relief:** such as pain, respiratory difficulties, or cardiac issues.
4. **Psychological Impact:** related to body image and self-esteem.
5. **Patient's Age and Growth:** Surgery is typically more effective when the bones are still growing and more malleable.
6. **Patient's Overall Health and Medical History**



What is the ravitch procedure?

The Ravitch procedure is a surgical technique primarily used to correct chest wall deformities, including Pectus Carinatum. Here are some key aspects of this procedure:

- **Support Structures:** In some cases, temporary internal support structures, such as metal bars or struts, may be placed to stabilize the chest wall during healing.
- **Advantages:** allows for precise correction of the deformity and is considered effective, especially in cases where non-operative treatments have failed or are not suitable.
- **Recovery:** involve a hospital stay and a period of limited activity.



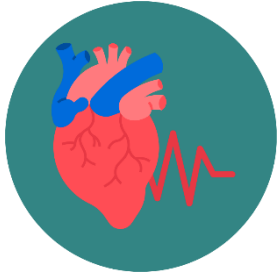
What are the risks of the surgery and the side effects?

- **Surgical Risks:** such as bleeding and infection
- **Pain and Discomfort:** is a common side effect. it can be managed
- **Scarring:** visible scarring on the chest.
- **Risk of Recurrence:** There's a possibility that the chest wall deformity may recur.
- **Pneumothorax:** In some cases, the procedure might lead to pneumothorax, where air leaks into the space between the lung and the chest wall.
- **Damage to Internal Organs or Structures:** such as lungs, blood vessels, or nerves during the surgery.
- **Postoperative Complications:** These may include issues with wound healing, chest wall stiffness, or changes in chest wall.

What are the risks of the surgery and the side effects?

- **Long-term Effects:** effects on respiratory function or chest wall mechanics
- **Psychological Impact:** The change in body image and the recovery process can have psychological effects, which should be addressed as part of postoperative care.

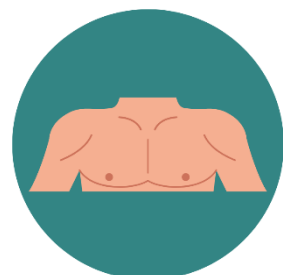
What are the benefits of the surgical management?



Improved Cardiac Function



Enhanced Respiratory Function



Improved Chest Wall Appearance



improving quality of life, social interactions.



Improving appearance, physical and psychological acceptance



Increased Physical Activity



Reduced Pain and Discomfort



Long-Term Health Outcomes



What is the recurrent rate?

The recurrence rate of Pectus Carinatum after surgical correction can vary based on several factors:

- **Surgical Technique:** surgical method used can influence the likelihood of recurrence.
- **Patient's Age and Growth:** Surgery done before the completion of chest wall growth might have a higher risk of recurrence due to ongoing growth.
- **Compliance with Postoperative Care:** wearing braces if recommended and avoiding certain physical activities during recovery
- **Severity of Original Deformity:** as they may be more challenging to correct completely.
- **Individual Variability:** differences in healing and response to surgery

How is the recovery after surgery?



Stay at Hospital for few days post-surgery for monitoring and pain management.



Advised to avoid hard activities and heavy lifting for a certain period.



Proper care of the surgical site is crucial to prevent infection and promote



Recommended physical therapy to help improve chest wall mobility and strength after surgery.



Regular follow-up by the doctor to monitor recovery.

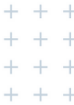


Patients can typically return to their normal daily activities gradually.



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Sources and references:

Some illustrations used are from Canva.com and others are provided by the Thoracic Surgery Unit at King Fahad Hospital of the University, Al Khobar.

Review and audit:

The content of this booklet has been reviewed by Thoracic surgery unit consultants in Surgery Department at King Fahd University Hospital.

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