

Pectus Excavatum

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Author Note

First paragraph: Explains what Pectus Excavatum is and includes the course objectives

Second paragraph: Symptoms of Pectus Excavatum

Third paragraph: Diagnosis and treatment options

Fourth paragraph: Who is affected & Conclusion

Pectus Excavatum

For my Steam Project, the objectives I chose to cover are "*Analyze the interaction of the cardio and respiratory system*" and "*Explain the structure and function of the heart*". A disorder that deals with both these functions is Pectus Excavatum also known as "funnel chest" as you can kind of tell from my drawing the sternum is sunken in toward the spine. Pectus excavatum is a congenital disorder where the breast bone is sunken into the chest, because of this there is not very much room for the organs located inside the chest cavity. The sternum can put so much pressure on the organs inside the chest cavity that it actually pushes the heart to one side and squishes it as you can see in my drawing the heart is squished to the left side of the chest cavity. This can affect the heart's ability to pump properly. The other organ that is significantly affected are the lungs, because of the condensed space the lungs are unable to form properly as children grow and this condition affects their lung capacity.

While the cause of pectus excavatum is unknown, there are many speculations that genetics play a role in this disorder. Another speculation is that this disorder is related to connective tissue disorders. Symptoms that are present in people diagnosed with Pectus Excavatum include shortness of breath, chest pain, irregular heartbeat, and heart palpitations. The amount of pressure the sunken sternum is putting on the heart causes the mitral valve to not work properly and instead of this valve keeping the blood from backflowing into the left atrium, the valve is open and allows blood to backflow into the left atrium causing a heart arrhythmia. The effect, Pectus Excavatum has on the respiratory system it lowers total lung capacities due to the fact that the lungs don't have the ability to grow as the rest of the body does.

Depending on the severity of a patient's diagnosis there are a few treatment options a patient can choose. If the sternum is not super sunken then the patient could continue to have a

normal life, while being sure to monitor organ growth as the child grows and monitoring heart and lung functions into adult life, but ultimately having minimal affect on their day to day life. A patient that presents with sever Pectus Excavatum or is having problems with organ function there are two procedues a surgeon could do to help the patient. The first is a less invasive procedue, the surgeon would make small holes in the chest area, putting a camera to help complete the procedure and then inserting a curved steele bar behind the sternum to push your sternum out and relive the pressure on your heart and lungs. The second procedure is much more invasive for the patient, a surgen would make an incision on the front of the chest, remove the connective tissue that is pushing the sternum backwards, pull the sternum forward and then insert a metal plate or steel bar to hold it in place. The bar would then be removed about 12 months later.

Pectus Excavatum occurs in about 8 people per 1,000, it is most common in males and it is found that about half of those with this condition have genetic links to other family members with the same condition. The severity of each patients condition will determine if more invasive means of correction are needed. Some prefer the corrections due to physical appearance and dislike for the “hole” in their chest, others have to get the procedures to support optimal heart and lung function.

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