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## Wenlin principle in the treatment of pectus excavatum

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### Abstract

Pectus excavatum surgery has a history of many years, but there are some practical problems in its treatment. In most medical centers, the treatment of pectus excavatum is still limited to the application of a specific operation. The completion of the operation was regarded as the standard for the treatment of pectus excavatum. This concept does not guarantee the complete correction of pectus excavatum. Our principle is that pectus excavatum should be treated by more means and should not be limited to specific operation. Only when the deformity is completely eliminated can the operation be considered successful. Our principles are different from those of anyone else in the past. In order to make this principle more distinct, we named it Wenlin principle.

**Keywords:** Wenlin principle, pectus excavatum, surgery

### Introduction

Pectus excavatum is an abnormality of the shape of the bony structures of the chest wall. Strictly speaking, it is a depression of the bony structures <sup>[1]</sup>. Because each individual has different pathological characteristics, different methods should be used for the treatment of this deformity. Theoretically, personalized surgery for different individuals is the premise to obtain satisfactory results.

At present, there are two kinds of pectus excavatum surgeries used in clinic, one is Nuss procedure <sup>[2]</sup> and the other is Wang procedure <sup>[3, 4]</sup>. The two surgeries have completely different operating principles and different surgical indications. Only when appropriate cases are selected can these surgeries have good results.

However, for a long time, there are great problems in the treatment of pectus excavatum. These problems are mainly manifested in two aspects: (1) Most doctors only use one operation mechanically and never consider using other operations; (2) Most doctors are only satisfied with completing one kind of operation, and never consider using other additional operations to make the effect more perfect.

The first problem is very common. Many doctors only recognize one kind of operation, and even only perform one kind of operation for thousands of patients in a lifetime. Such a fact reflects a blind obsession with a certain type of operation, and does not mean that a certain type of operation can cure all kinds of diseases. Before the advent of Wang procedure, almost all doctors only used the single Nuss procedure for treatment <sup>[2]</sup>. After the appearance of Wang procedure, some doctors began to use this new operation, and they also hope to only use Wang procedure during the operation. Both kinds of operations can complete the treatment of pectus excavatum, but due to the limited indications, they cannot meet the needs of all patients with pectus excavatum. For example, Nuss procedure is not suitable for such operations as extremely severe depression, depression after the failure of the first operation, depression after cardiac surgery, and the depression under the age of 5 or 3 years. However, in an era when there were no other surgical methods to choose, Nuss procedure was used in all patients with pectus excavatum, which undoubtedly affected the effect of the operation. The use of Wang procedure is also limited, such as large-area depression deformity and elderly depression deformity, are not suitable for this operation. Under the background that there is no other better operation to choose, consistently using one kind of operation to treat pectus excavatum can be understood as a helpless choice. However, this approach obviously has great disadvantages and is not a reasonable strategy.

The second problem is also very common. Its essence is to confuse the treatment of pectus excavatum with the completion of a specific operation. It is considered that as long as the operation is completed safely and smoothly, the treatment of pectus excavatum is completed. This concept has a long history and has a bad effect on the treatment of pectus excavatum.

Take Nuss procedure as an example. The standard for doing this operation well is not to have complications first, and secondly to be able to support the depression in the middle of the anterior chest wall. This is the basic requirement of all doctors for this operation and is also regarded as the requirement for the treatment of pectus excavatum. However, since Nuss procedure itself has some disadvantages that are difficult to overcome, even if Nuss procedure itself is performed satisfactorily, the deformity may not be completely eliminated.

For example, the problem of secondary saddle chest is the inherent injury of Nuss procedure. No matter how perfect the Nuss procedure is, it may not be able to eliminate such an injury. Another example is the problem of rib arch flaring. Although it is not caused by this operation, it is a deformity that Nuss procedure itself cannot correct. The situation of Wang procedure is basically the same, and its effect is also limited. Many special cases cannot be eliminated by this operation.

It can be seen from the above analysis that there are great problems in the current treatment of pectus excavatum. These problems have technical problems, but more importantly, they are conceptual problems.

We have done a lot of work on pectus excavatum in the past years. In our early work, like other colleagues, we only performed Nuss procedure. After we gradually discovered the disadvantages of this operation, although we made great improvement and set up a new Wung procedure<sup>[5]</sup>, there were no more choices. We were not completely satisfied with the surgical results at this stage.

In the following work, we designed a brand-new Wang procedure, and finally we have a very effective option, which has significantly improved our work. However, the treatment in this period is still based on surgical techniques, and the main body of treatment is not completely placed on the pectus excavatum itself. Although the treatment effect in this period has been significantly improved, it has not reached the most ideal effect.

After the continuous maturity of surgical technology, especially when we have more means to treat different malformations, our treatment naturally reaches a new level. At this stage, we no longer emphasize specific surgical methods, but only focus on the characteristics of malformations. We will select the appropriate operation according to the deformity characteristics until the deformity is completely eliminated.

At this stage, we will not tolerate the existence of secondary saddle chest, nor will we allow overcorrection and costal arch flaring. We will use all kinds of effective means to completely eliminate the deformity, and treat all surgical options as our "tools". We will not pay attention to or emphasize how effective the "tools" are, and we only care about the final effect of deformity<sup>[6-8]</sup>.

Finally, our principle of pectus excavatum treatment came into being. Our philosophy is to use all available surgical methods to correct the deformity and obtain the most perfect effect.

Obviously, it is absolutely impossible for our pectus excavatum surgery to stick to a single surgical method, let alone to ignore the flaws or defects of certain operations. We operate for the complete treatment of deformities, not for the completion of a single operation. This is our idea about the treatment of pectus

excavatum. Our principle is different from that of all other doctors. In order to make this principle more distinct, we named it Wenlin principle. We believe that more and more people will accept our principle in treatment of pectus excavatum in the future, so that patients with pectus excavatum can receive the most perfect treatment.

## References

1. Wang W. Basic theories and concepts of chest wall surgery. *International Journal of Surgery Science*. 2022;6(3):12-14. doi.org/10.33545/surgery.2022.v6.i3a.909.
2. Nuss D, Obermeyer RJ, Kelly RE. Pectus excavatum from a pediatric surgeon's perspective. *Ann Cardiothorac Surg*. 2016;5(5):493-500.
3. Wang W, Chen C, Long W, Li X, Wang W. Wang procedure for treatment of pectus excavatum. *SL Clin Exp Cardiol*. 2018;2:113.
4. Wang W, Chen C, Long W, Li X, Wang W. Wang procedure: novel minimally invasive procedure for pectus excavatum children with low age. *Case Reports and Images in Surgery*. 2018;1:1-2. doi:10.15761/CRIS.1000104.
5. Wang W, Long W, Liu Y, Bin C, Juan L. Wung procedure: a minimally invasive operation for pectus excavatum. *International Journal of Case Reports in Surgery*. 2022;4(1):19-21.
6. Wang W, Long W, Liu Y, Bin C, Juan L. Minimally invasive surgery for flat chest: Wung procedure + Wenlin procedure. *International Journal of Case Reports in Surgery*. 2022;4:08-10.
7. Wang W, Long W, Liu Y, Bin C, Juan L. Wenlin procedure combined with Wung procedure for treatment of severe pectus carinatum. *International Journal of Case Reports in Surgery*. 2022;4:05-07.
8. Wang W, Long W, Liu Y, Bin C, Juan L. Surgical treatment of pectus excavatum after cardiac surgery: Wung procedure + Wang procedure + Wenlin procedure. *International Journal of Surgery Science*. 2022;6(3):15-18. doi.org/10.33545/surgery.2022.v6.i3a.910.