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Qualitative Analysis of Minimally-invasive Pectus Excavatum Repair

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Introduction

- Pectus excavatum is the most common congenital chest wall anomaly affecting 1 in 400-1000 live births. [1,2]
- Minimal invasive repair of Pectus Excavatum (MIRPE), also known as the Nuss procedure, involves placing a substernal metal bar, leaving it in place for several years in order to remodel the shape of the chest.
- Limited Qualitative studies exist to assess the clinical outcomes and patient experience of minimally invasive repair of Pectus Excavatum

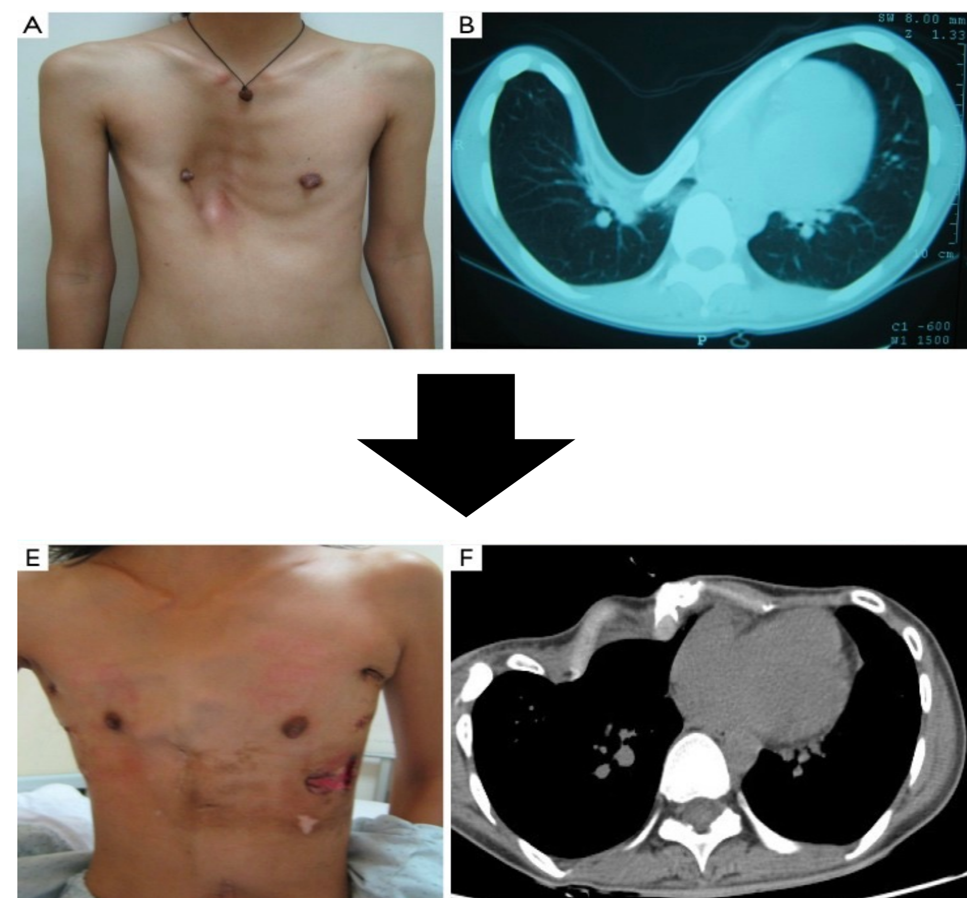

Figure 1: "Nuss Repair," adapted from *Surgical correction of 639 pectus excavatum cases via Nuss Repair et al 2015* [3]

(A) Severe pectus excavatum patient before Nuss procedure, (B) with axial chest CT image; (E) appearance of a pectus excavatum before bar removal, (F) with axial chest CT
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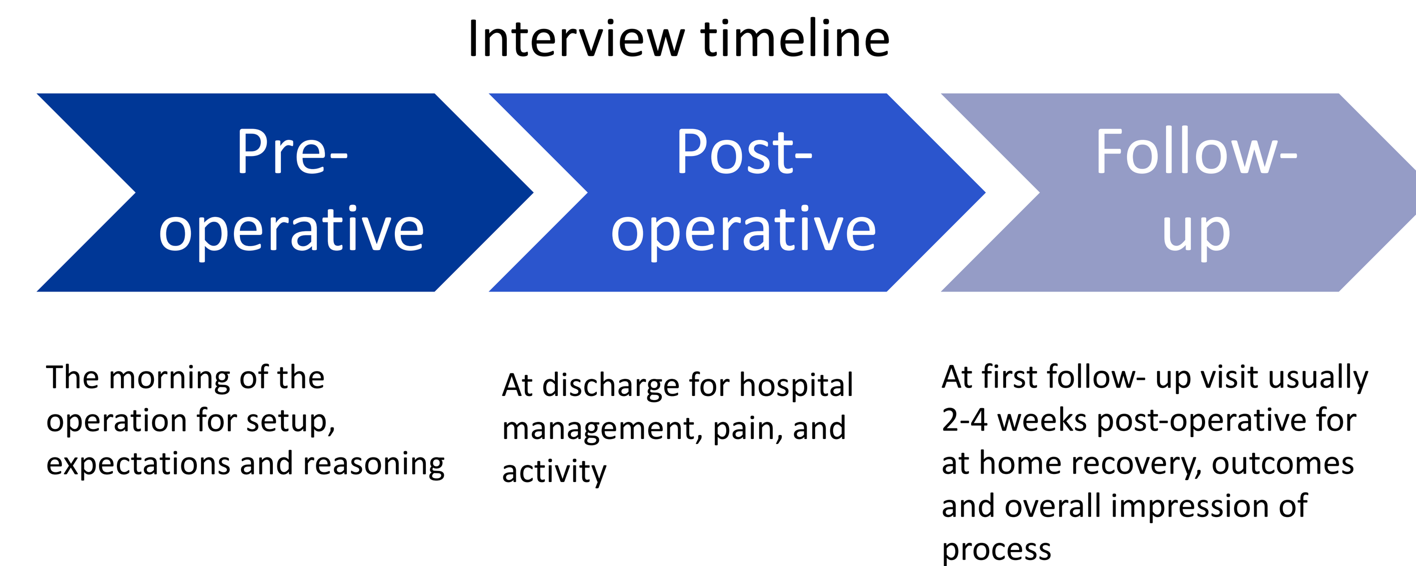
Objective

- To perform a qualitative review of the patient experience after minimal invasive repair of Pectus Excavatum
- To identify the most common complaints of patients and their families in the post-operative period
- To assess gaps in care and identify areas of improvement of treatment of patient undergoing MIRPE

Methods



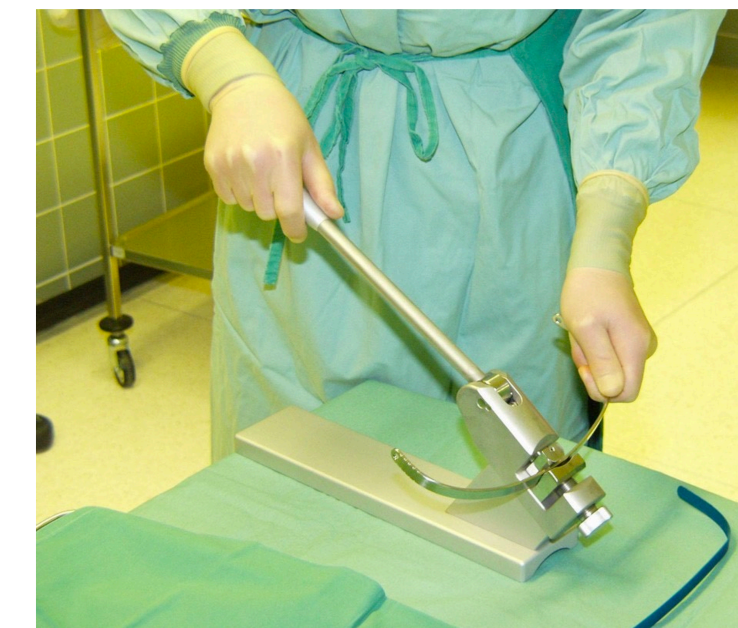


Image 1: Operation room Pectus Bar Bender

- Semi-structured interviews were conducted and recorded
- Analysis using an inductive coding, a group-up method

Results

- Total of 5 patient were eligible with 4 agreeing to participate

Positives

"It was less pain than I expected."

"Just a light jog right now. But my breathing is much better. I'm not running out of breath very fast. So that's really good."

- All interviewed patients stated that their pain on average was properly managed throughout hospital stay and at home
- Level of activity post-operative was as expected or better for all patients
- All patient were satisfied with their results and would elect to have the procedure done again if needed.

"I need some help lifting some things, some things that were heavy. I'm pretty much back to normal. "

Negatives

"I had to relearn how to breath."

"The most painful experience, came out of the recovery, before a lot of meds were in my system. That was definitely one of the worst."

- Two participants expressing concerns regarding minor pain/discomfort in the immediate post-sedation time frame
- Increased education regarding opioid side effects.
- PT/OT visit provided useful techniques, but desired additional visits

" I difficulty getting out of bed. Physical therapy helped… So it would have help if they came earlier."

"I didn't realize that narcotics could bind you up so much. I wasn't expecting the constipation issues that he had."

Conclusions

- Patients' expectations are consistent with post-procedure outcomes
- Current guidelines and peri-operative management practices have resulted adequate pain management from a patient's perspective.
- Consider multimodal pain strategy to improve patient pain in the immediate post-operative period
- Improve utilization of PT services in the post-operative period

Future directions

- Further investigation into patients' expectations and experiences in order to identify areas of improvement that can lead to better patient experience
- Standardize post-operative protocols to try to reduce variable in post-operative pain management
- Evaluate the use of cryoablation of intercostal nerve as a pain management strategy
- Develop better education material regarding opioid use

References

1. Mayer OH. Pectus excavatum: Etiology and evaluation, 2015 2017].
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3. Surgical correction of 639 pectus excavatum cases via the Nuss procedure. *J Thorac Dis.* 2015;7(9):1595-605.

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