



# SOAPPS



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## Post-Operative Management of Nuss Bar

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The minimally invasive repair of pectus excavatum (MIRPE) or Nuss procedure, is an operation that uses a metal bar (stainless steel or titanium) to elevate the sternum.

### Cryoablation and Pain Management

- Cryoablation (Cryo)
  - Intercostal nerves T3-8 frozen with cryo probe to  $-50$  to  $-70$  degrees C
  - Effective cryo decreases hospital length of stay and narcotic use
  - Anatomic variations can affect efficacy of cryoablation
  - Not immediate – can take 1-3 days to work
  - Adds time in the OR
  - Effects typically last 2-12 months for full sensation to return
    - Important to educate pre-op that cryo doesn't fully eliminate pain or sensation
    - Patients should NOT expect a pain score of "0"
    - Pain generally perceived as severe pressure with cryo use
  - Possible risk for long-term neuropathy
    - Can be treated with gabapentin and capsaicin
    - Consider referral to pain management
- Role of narcotics
  - Narcotics are usually a necessary adjunct to cryo for severe pain control
  - Cryo significantly decreases the narcotic days of use ( $8.2 \pm 7.0$  days versus  $18.2 \pm 10.4$  for those without cryo)
  - Epidural or PCA typically used if cryo not available for use
  - Oxycodone 5mg PO q 4-6 hrs PRN
    - Wean first before acetaminophen and NSAID
    - Consider higher dose and/or longer duration for pts not receiving cryo
  - Use stool softener during use of narcotics
  - Advise NO DRIVING during use of narcotics
- Adjunct therapy
  - Scheduled acetaminophen and NSAID
    - Discontinue narcotic first, then wean as tolerated
  - Gabapentin used at some institutions, up to 14 days
  - Muscle Relaxers
    - Zanaflex, is an alpha-2 ( $\alpha_2$ ) adrenergic receptor agonist
    - Cyclobenzaprine, a centrally acting muscle relaxant PRN for muscle spasms
  - Capsaicin 0.1% topical cream

- Non-pharmacologic/complementary medicine
  - Heating pads or cool compresses, whichever provides more comfort
  - Breathing exercises
  - Meditation apps
  - Advise familiarization of these non-pharmacologic interventions pre-op so their use can be practiced before being needed
- New acute pain (lasting over 24 hours), feeling bar move or change in shape of chest
  - Recommend 2 view x-ray to verify placement

### Other Post-op care

- Bathing
  - Shower only for first week
  - Do not soak incisions
  - Allow steri-strips/glue to fall off on their own
- Medical alert bracelet
  - Medical alert bracelet is recommended. Inscription should state "surgical metal bar in chest". You can find these at [www.americanmedical-id.com](http://www.americanmedical-id.com)
  - CPR can still be performed but it may require more force for compressions
  - If a defibrillator is necessary, use anterior/posterior pad placement
  - Do not get an MRI of the chest
- Follow-up
  - 2-4 weeks post-op for evaluation of:
    - Effects of cryo
    - Pain management
    - Return to activities
  - Consider continued follow up at 3 months post-op and PRN
  - Schedule pre-op visit prior to bar removal

### Activity Restrictions

- Activity restrictions vary per provider and institution
  - Examples of institutional variations
    - Light activity as tolerated for 2 weeks, then slow return to normal activity
    - For the first two weeks: No exertion. Do not lift anything over your head. Do not twist at the waist
    - For 3 months: Limit activities to walking, ADLs - no running, biking, sit-ups, weights, PE, or strenuous activity. Do not sleep on your side or stomach - sleep on your back only. Do not lift anything over ten pounds. No backpacks or shoulder bags. No contact sports.
- Physical Therapy/Exercise
  - Prescribed exercises for posture and stretching and/or physical therapy sessions may be beneficial for recovery
  - Referral for physical therapy sessions may be considered pre- and post- procedure

### Complications

- Surgical site infection

- o Most commonly occurs within 10 days post-op
- o Treat with Keflex unless hx MRSA, then clindamycin
- o Elastomeric pump may increase risk for SSI
- Seroma after removal
  - o “Dead space” from bar removal can lead to fluid build-up
  - o Treat with compression wrap
  - o Consider fluid drainage if compression not improving or fluid build-up is causing discomfort
- Chest rash after bar placement
  - o Differentials:
    - Contact dermatitis related to surgical prep
      - Treat with OTC antihistamine (Benadryl, Zyrtec)
    - Metal/bar allergy
    - Bar infection
- True metal allergy and sequelae
  - o Metal allergy can occur in 1-3% of patients with bar placement
  - o Variable recommendations for preop metal allergy test
    - Up to 50% of can test negative and still develop a metal allergy
  - o Nickel and chromium are most common allergens in stainless steel
  - o Small risk of allergy to titanium bar
  - o Metal allergy twice as common in females
  - o Treatment
    - Steroids, antihistamines, referral to allergist
    - Consider bar replacement with titanium bar
    - Consider early bar removal
- Bar Infection
  - o Approximately a 3% risk of infection postoperatively
    - Must consider whether it is a superficial or deep bar infection
    - Choice of antibiotic therapy is variable
      - Consider consulting Infectious Disease
      - A cephalosporin (Ancef in the inpatient setting, Keflex in the outpatient setting) can be given first-line
      - Also can consider clindamycin
      - Synergistic therapy with Bactrim can be used for long-term treatment of a deep bar infection
    - Most bar infections do not require bar removal

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