Considerations and Complications of Cervical Implantation

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Anatomical and Surgical Considerations of the Phrenic and Accessory Phrenic Nerves


(3) In six instances, the nerve to the subclavius was given off, not from the brachial plexus but from the main phrenic nerve at the level of the thorax. In these cases, there was no accessory phrenic nerve (figs. 5 and 2).

(4) In two cases, the nerve to the subclavius gave a small branch at the

3%
Surgery

- Electrodes can be placed either cervically or intrathoracically.
- No difference in efficacy has been observed, so choice is left to the surgeon’s preference.

Cervical Approach

- Phrenic nerve isolated over anterior scalene muscle.
- Can be performed on an outpatient basis, with local anesthesia and sedation.

Thoracic Approach

- Phrenic nerve isolated alongside pericardium.
- Can be performed through small intercostal incisions, thoracoscopically¹, or with use of robotic assistance.²

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Neck/Arm Pain Post Implant

- Can happen with both cervicle and trans-abdominal techniques.
- C5 is the dermatome for the shoulder. Stimulation of the C5 contribution to the phrenic nerve may also stimulate sensory afferents of the shoulder.
- Not reported in trans-thoracic technique
Cardiac Pacemaker
Acute Cervical Spine Fracture

- Surgical considerations
- Timing of procedure
  - Clinical Survival
  - Post Trauma Elective Survival
  - Prior to discharge from facility?
  - After acute rehab placement
    - Insurance issues
Monitored Anesthesia?

- If significant risk for general anesthesia
- Use experienced anesthesiologist as more difficult in OSA patients
Scoliosis

- Surgical considerations
  - Mobility of neck
  - Distorted anatomy
    - Landmarks
      - Mid Clavicular
      - Deep cervical fascia
      - Branchial Plexis
      - Recurrent Laryngeal Nerve
Scoliosis
Thoracic Duct Injury

- Left side
- Rare
- Ligate/dermabond