Unusual approaches to thyroidectomy

Insoo Suh, MD
Assistant Professor, Endocrine Surgery Section
UCSF Department of Surgery
Staff Surgeon, Endocrine & General Surgery
San Francisco VA Medical Center
3/6/2015

Disclosures

- Intuitive Surgical
  - Research grant support
- Grand Rounds
  - Consultant
- Prescient Surgical
  - Shareholder, consultant

Agenda

- History
- Definitions
- How?
- Why?

History

The phases of surgical innovation – an oversimplified model

- First make it... safe
- Then make it... effective
- Then make it... smaller

“Surgical innovation” is often synonymized to “minimally invasive”
History

The benefits of “smaller” — the underlying idea

- Minimize invasiveness of dissection
- Clinical benefits:
  - Pain
  - Recovery/length of stay
  - Complications
  - Mortality
  - Cosmesis

Open chole  Lap chole

---

History

Surgical innovation = Smaller incision:
The minimally-invasive thyroidectomy edition

- Minimally invasive video-assisted thyroidectomy (MIVAT)
- 1.5-3 cm
- Endoscopic lateral thyroidectomy
- <1 cm x 3

---

History

The “eras” of surgical innovation – an oversimplified model

- First make it... safe
- Then make it... effective
- Then make it... smaller
- Now make it... “disappear”
  - How?
  - Why?

---

Definitions

What constitutes an “unusual” approach to thyroidectomy?

- Things in common:
  - Location of incision - away from the anterior neck
    - Below vs above the neck
  - Use of minimally-invasive technology
    - Endoscopic vs robotic
  - Addition of significant extracervical dissection and tunneling
    - Gas insufflation vs gasless retraction
    - “Remote-access thyroidectomy”
“Below-the-neck” approaches

- **Infra-clavicular (chest wall)**
    - Unilateral lobectomy
    - Two main infraclavicular incisions and small cervical incisions
    - Endoscopic
    - Gasless retraction
      - Use of Kirschner wires

“Below-the-neck” approaches

- **Transaxillary**
  - Ikeda and Takami (2000)
    - Unilateral lobectomy
    - 3-6 cm axillary incision
    - 3-4 endoscopic instruments placed in incision
    - Plane of dissection above pectoralis and over clavicle
    - Gas insufflation

“Below-the-neck” approaches

- **Transaxillary**
  - Options
    - Endoscopic vs robotic
    - Gas vs gasless
  - Robotic gasless transaxillary thyroidectomy probably the most well-known in US
    - First described by Chung et al (2007)
“Below-the-neck” approaches

• Transaxillary
  • Options
    – Endoscopic vs robotic
    – Gas vs gasless
  • Robotic gasless transaxillary thyroidectomy probably the most well-known in US
    – First described by Chung et al (2007)

“Below-the-neck” approaches

• Breast
  • Breast-axillary hybrid
    • Axillary-Bilateral Breast Approach (ABBA)
    • Bilateral-Axillo-Breast Approach (BABA)

“Below-the-neck” approaches

• Breast
  • Breast-axillary hybrid
    • Axillary-Bilateral Breast Approach (ABBA)
    • Bilateral-Axillo-Breast Approach (BABA)
      – Choe et al (2007)
      – Ability to perform bilateral dissection
      – No anterior chest scar
“Above-the-neck” approaches

• Retroauricular
  • Pioneered by Terris et al (2011)
  • Facelift-style incision

“Above-the-neck” approaches

• Transoral (NOTES, TORS)
  • First successful endoscopic transoral thyroidectomy by Wilhelm & Metzig (2010)
  • Incisions either…
    – Sublingual (floor of mouth)
    – Vestibulum with dissection over mandible
      • Nakajo et al (2013)
  • Largely still experimental (except in China)

Why?

• Safer? ?
• More effective? ?
• Less invasive/morbid?
• Improved cosmesis?
• Incorporates new technology?

Why?

• Safer? ?
• More effective? ?
• Less invasive/morbid?
• Improved cosmesis?
• Incorporates new technology?

Patient selection very important
Contraindicated in:
• Larger glands
• Significant substernal extension
• Cancers with preoperatively suspected difficulties related to size, lymph node mets, local invasion
• Scarring in the area of dissection (e.g. from prior surgery/radiation)
Why?

- Safer? ?
- More effective? ?
- Less invasive/morbid? ❌
- Improved cosmesis? ✔
- Incorporates new technology? ✔

- By definition, remote-access approaches are **more invasive**
- Drains often necessary
- Longer operative times
- Longer LOS
- Other complications:
  - Brachial plexus injury
  - Tracheal/esophageal injury
  - Paresthesias

Why?

- Safer? ?
- More effective? ?
- Less invasive/morbid? ✗
- Improved cosmesis? ✔
- Incorporates new technology? ✓

Why?

Culture and aesthetics: Powerful drivers of behavior
Conclusions: “Neat…” but at what price?

Robotic Thyroidectomy: Must We Drive a Luxury Sedan to Arrive at Our Destination Safely?

- **Cost** considerations
  - Robot can add up to 1.5-8x the cost (Cabot et al 2012, Yoo et al 2012)
- **Ethical** considerations
  - Individual implications: What is the absence of scar worth?
  - Societal implications: Should society pay for the extra cost? Should surgeons be expected to train more for this?