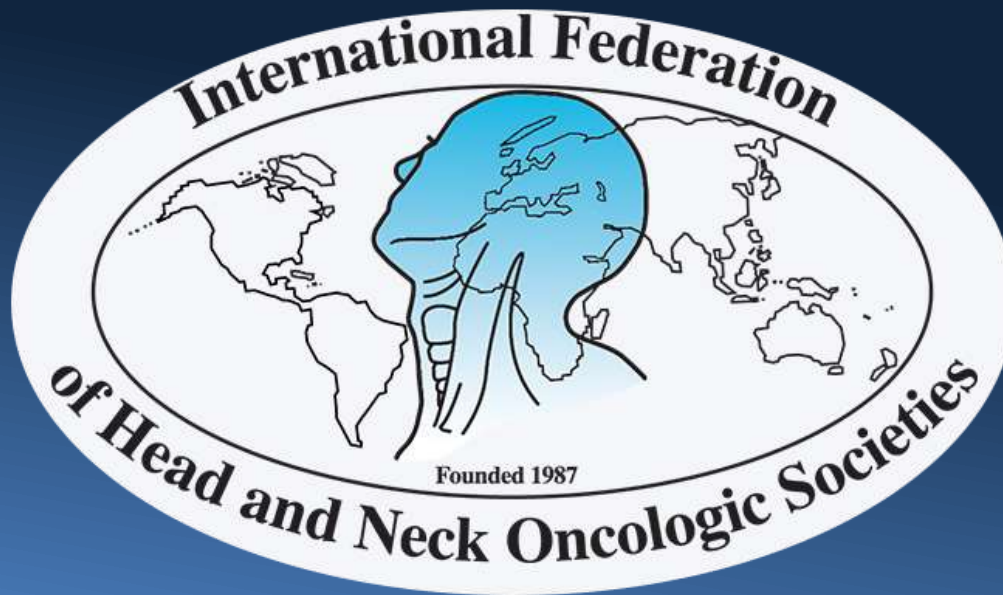




The International Federation of Head and Neck Oncologic Societies

Current Concepts in Head and Neck Surgery and Oncology 2017



www.ifhnos.net



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Current Concepts in Head and Neck Surgery and Oncology 2017

Minimally-Invasive Thyroid Surgery

Ashok R. Shaha



2017

Samuel D. Gross - 1866 Philadelphia

A System of Surgery

Thyroid surgery: 'Horrid butchery'

"No honest and sensible surgeon would ever engage in thyroid surgery"

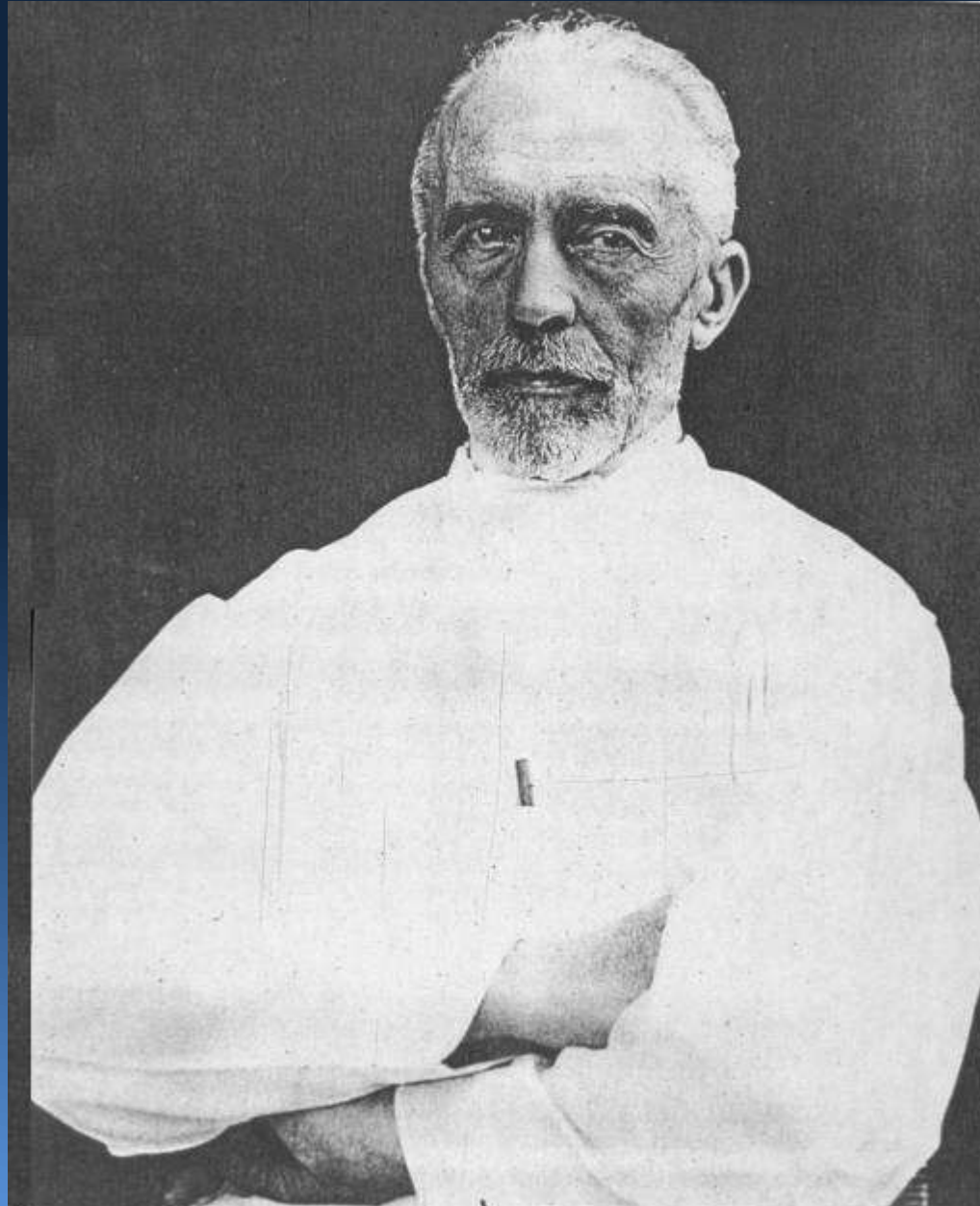
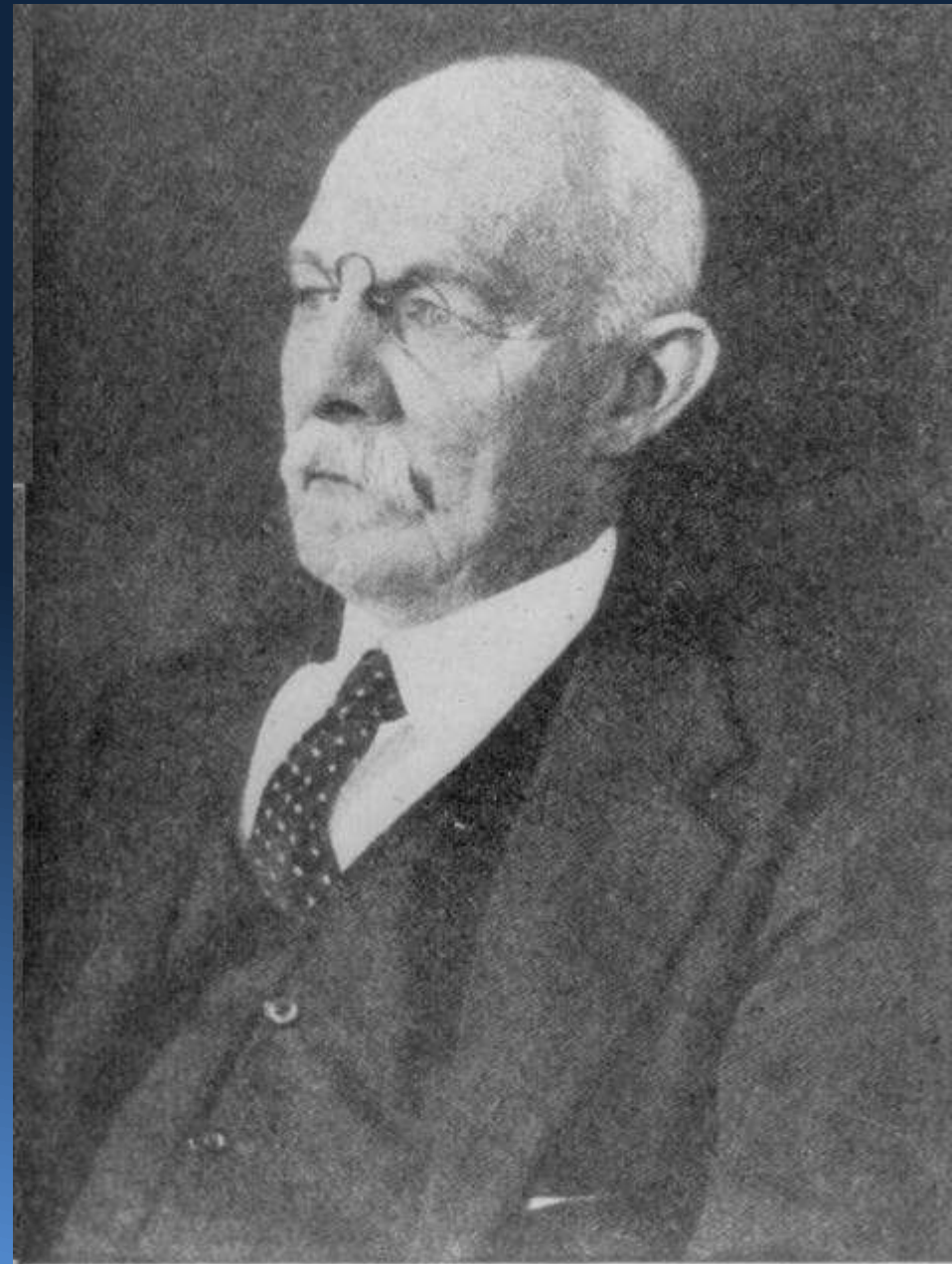


Figure 1. Theodor Kocher (1841–1917) in a photograph dating from 1912. Courtesy of the University of Bern, Switzerland, Institute for the History of Medicine (biographic archives).

The extirpation of
thyroid gland
typifies perhaps
better than any
operation the
supreme triumph of
the surgeon's art.



William Stewart Halsted (1852–1922).

Surgical Procedure

- Anatomically and Biologically Sound
- Reproducible
- Least Complications
- Short Learning Curve
- Easy to Teach, Learn, and Practice
- Cost Effective
- Best Cosmetic and Function Results

The fact that a new technique is available does not necessarily mean its implementation is appropriate.

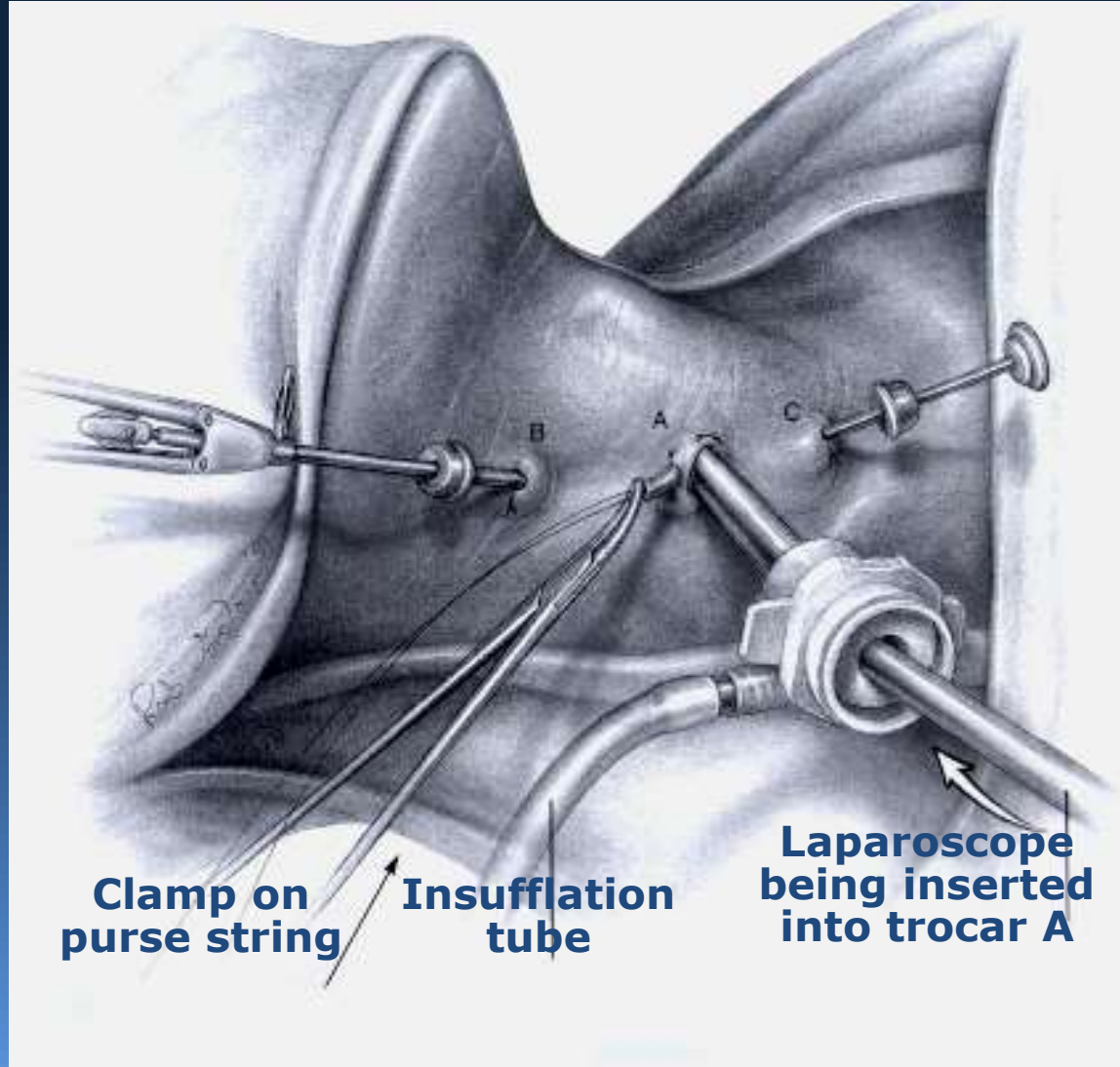
– Leigh Delbridge, MD, FRACS

Endocrine Procedures by U.S. Residents 1993-1994

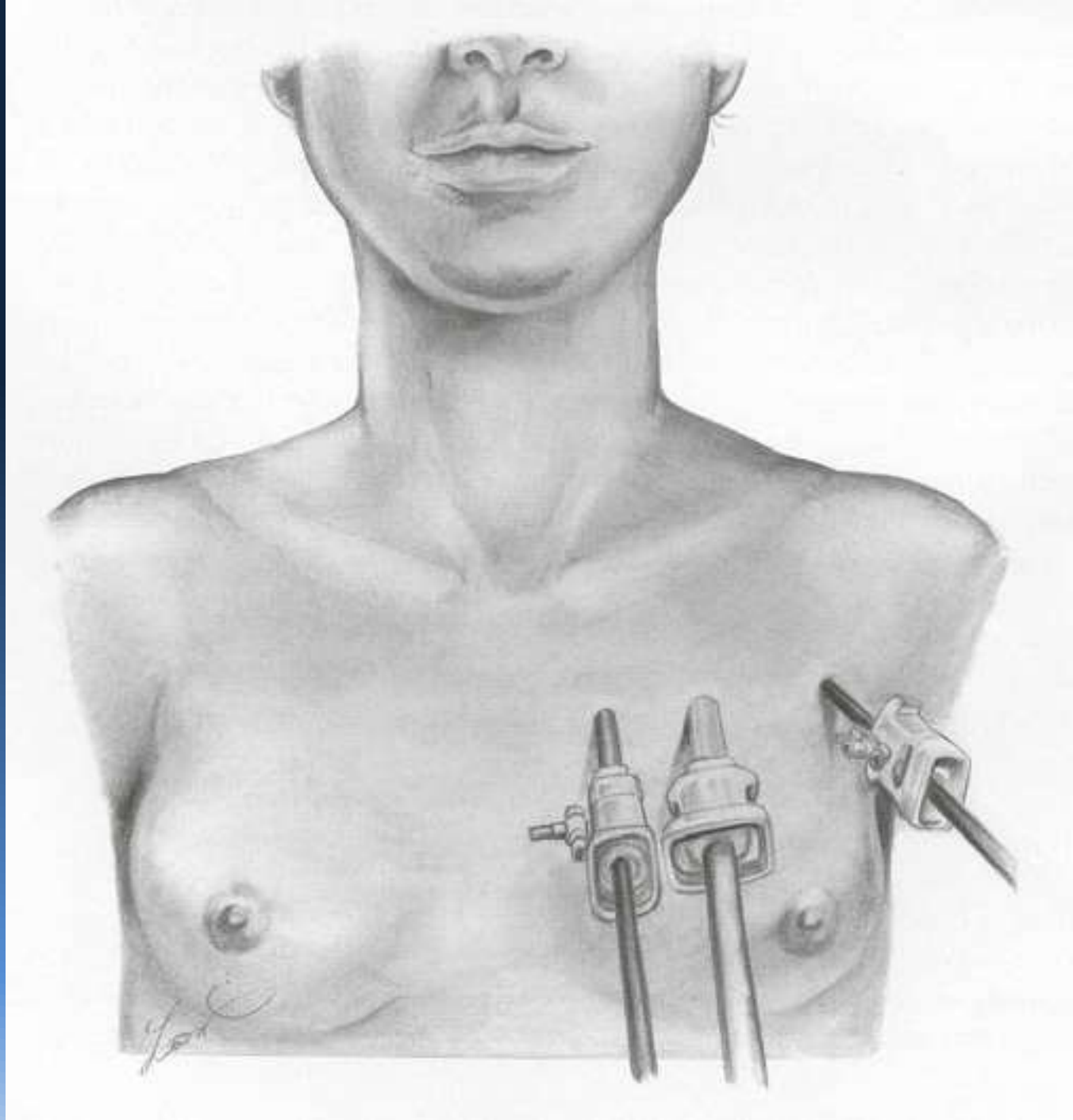
% Programs	<u>Mean</u>	<u>Mode</u>	<u>With 0</u>
Thyroid	12.6	7-10	0
Parathyroid	5.6	2	1
Adrenal	0.98	0	38
Pancreas	0.15	0	85

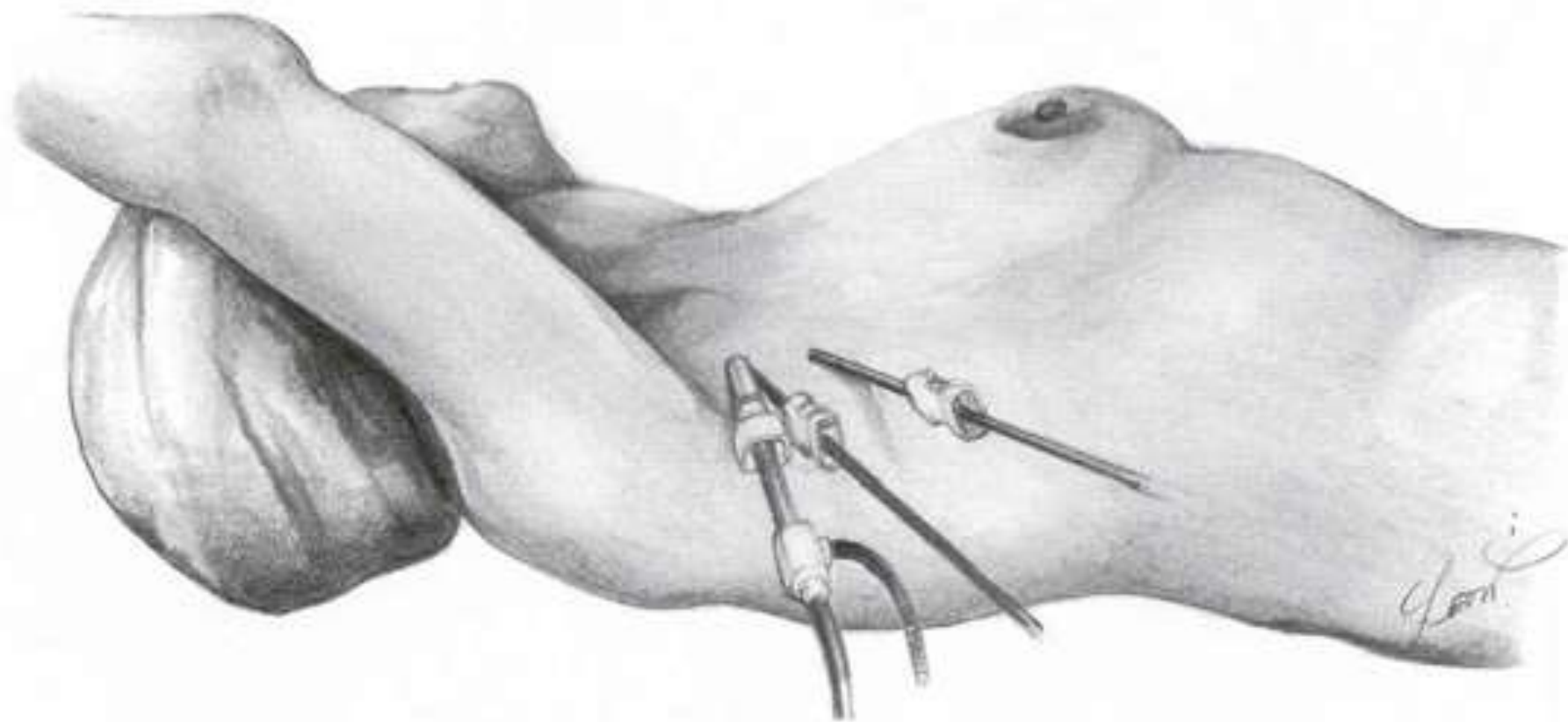
Minimally Invasive Thyroidectomy

- 'PURE' Endoscopic Approach Completely closed technique with continuous gas insufflation
- Neck Approach
- Anterior Chest Approach
- Axillary Approach
- Breast (Submammary Approach)
- Video assisted Technique
- Video assisted Neck Dissection
- Video assisted under LA



2017





2017

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Endoscopic
Surgery



Minimally Invasive
Surgery



Maximally Expensive
Surgery

Minimally Invasive Thyroidectomy

- Minimally Invasive 'Open' Surgery
- Mini-incision
- Smaller Incision
- Lateral Incision
- Harmonic Scalpel
- Ligasure
- Local Anesthesia/Regional
- 23 Hour Discharge

In cosmetic terms, the quality of the scar is more important than the actual length

Minimal incision may cause
excessive skin stretching,
bruising, forcible retraction, or
inadvertent cauterization of the
skin edges

Advantages of Minimally Invasive Thyroid Surgery

- Smaller Incision
- Better Cosmesis
- Less Pain
- Early Discharge

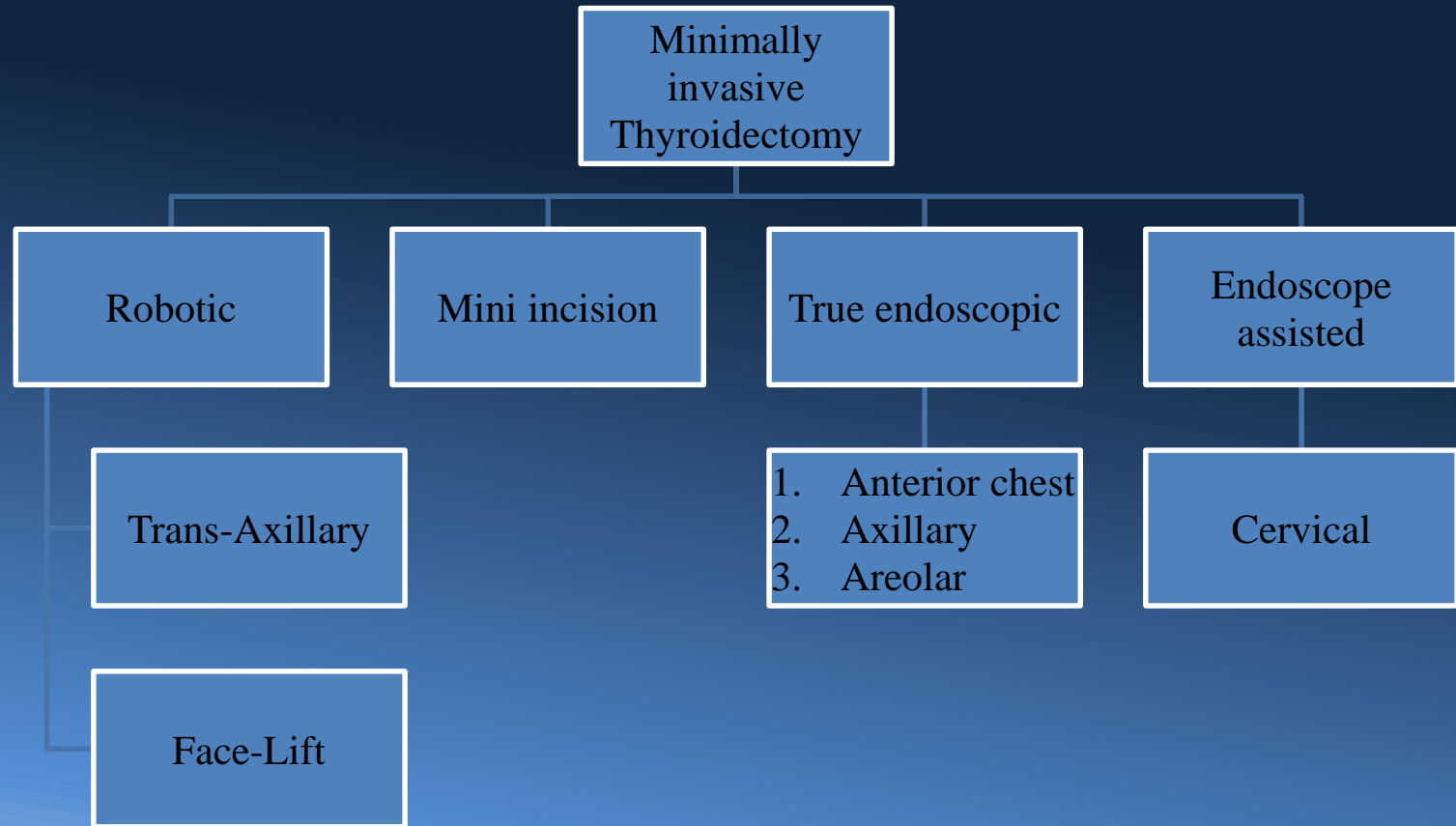
Minimally Invasive Thyroid Surgery

- Majority of thyroid surgery in the U.S. is performed for proven or suspected malignancy
- Paratracheal and nodal evaluation are difficult
- 20% of patients with thyroid cancer have extrathyroidal extension, which requires adequate exposure and excision
- Ultrasound detecting bilateral thyroid nodules requires total thyroidectomy

Minimally Invasive Thyroid Surgery

- First Principle of Surgery:
 - Adequate Exposure
 - Adequate Retraction
 - Adequate Lighting
- Learning curve
- Difficult to gain expertise
- Medicolegalities of minimally invasive thyroid surgery

Classification



Mini Incision

- Ikeda
- 3cm incision
- Isthmusotomy
- Use ligasure LS1200 or harmonic scalpel(focus) to divide superior pole vessels
- Use ligasure LS1200 or harmonic scalpel(focus) to divide isthmus

Ligasure Precise



Harmonic Focus Scalpel



2017



True Endoscopic

2000 Shimizu	subclavicular access
2000 Ikeda	axillary access
2000 Ohgami	breast access
2001 Gagner	supraclavicular access
2007 Chung	robotic via axillary access

Gagner

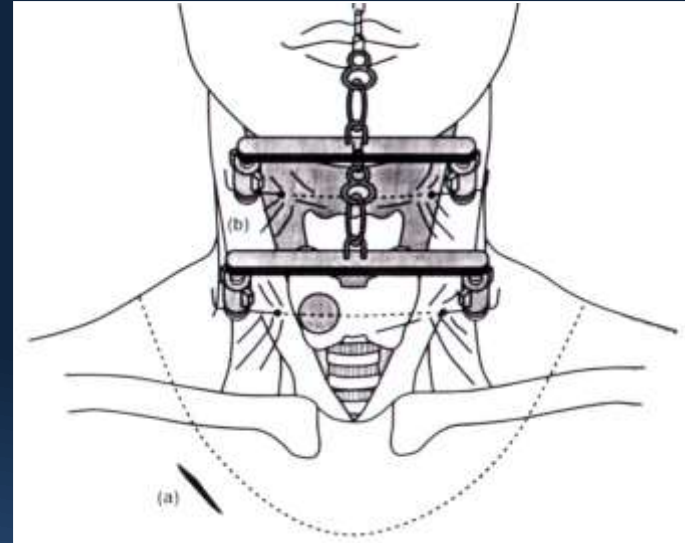


CO₂ (8 mm Hg) insufflation

Central incision (5 mm trocar)

3 additional Trocars: mid line
mid border SCM
sup border SCM

Shimizu

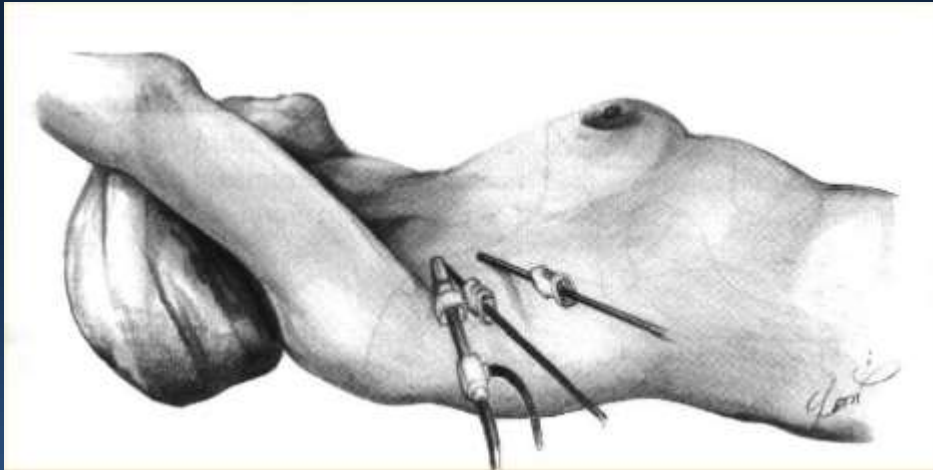


External retraction (Kirschner)

Lateral incision (SCM border)

5 cm subclavicular incision

Ikeda



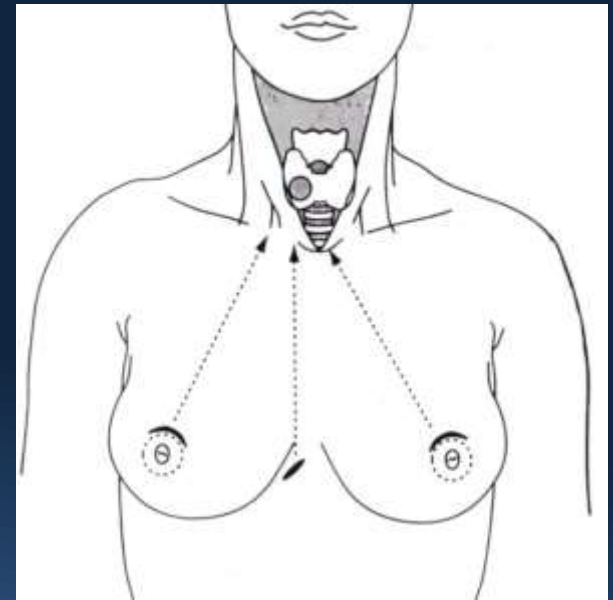
30 mm skin incision in the axilla

CO₂ insufflation (4 mm Hg)

Flexible endoscope

1 additional trocar near the main incision

Ohgami



Three incisions: 1 presteral
2 periareolar
CO₂ insufflation

Endoscopic Assisted

1999 Miccoli

central neck access

- Minimally invasive video assisted thyroidectomy
- Single 1.5cm incision -midline skin crease
- MIVAT

MIVAT

Minimally Invasive Video-assisted Thyroidectomy

INDICATIONS

Nodule < 3.5 cm

Thyroid volume < 25 ml

Benign disease

{ multinodular
follicular
Toxic adenoma
Graves

Malignant disease

{ Low risk Pap Cr
RET gene carriers

MIVAT: Contraindications

ABSOLUTE

- Large goiters
- Previous neck surgery
- Thyroiditis
- Presence of suspicious lymph nodes
- Local advanced carcinoma

RELATIVE

- Previous neck irradiation
- Graves' disease
- Short neck in obese patients

MIVAT: 5 steps

1. Incision and access to the operative space
2. Section of the upper pedicle
3. Identification of recurrent laryngeal nerve and parathyroids
4. Extraction and resection of the lobe
5. Closure

Da Vinci Robot

- Two components
 - Surgeon console
 - Surgical arm cart



Minimally Invasive Thyroid Surgery

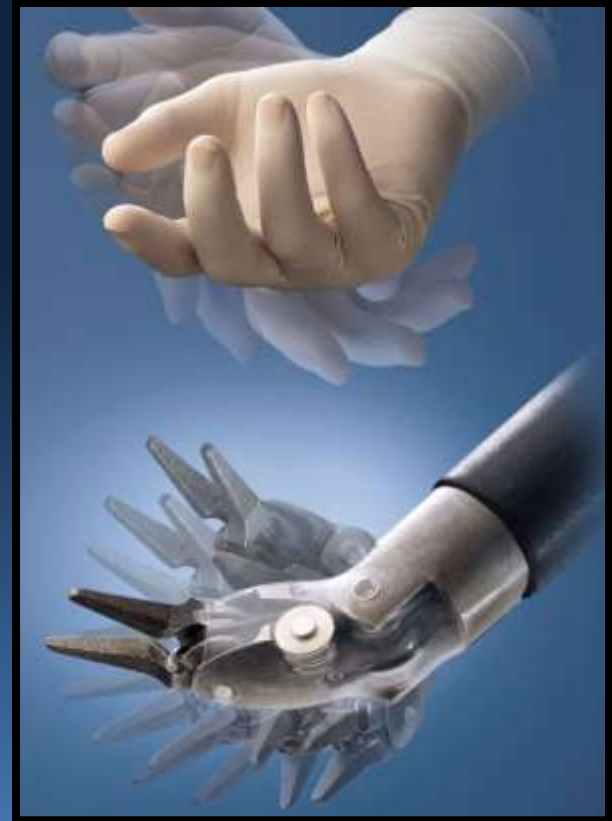
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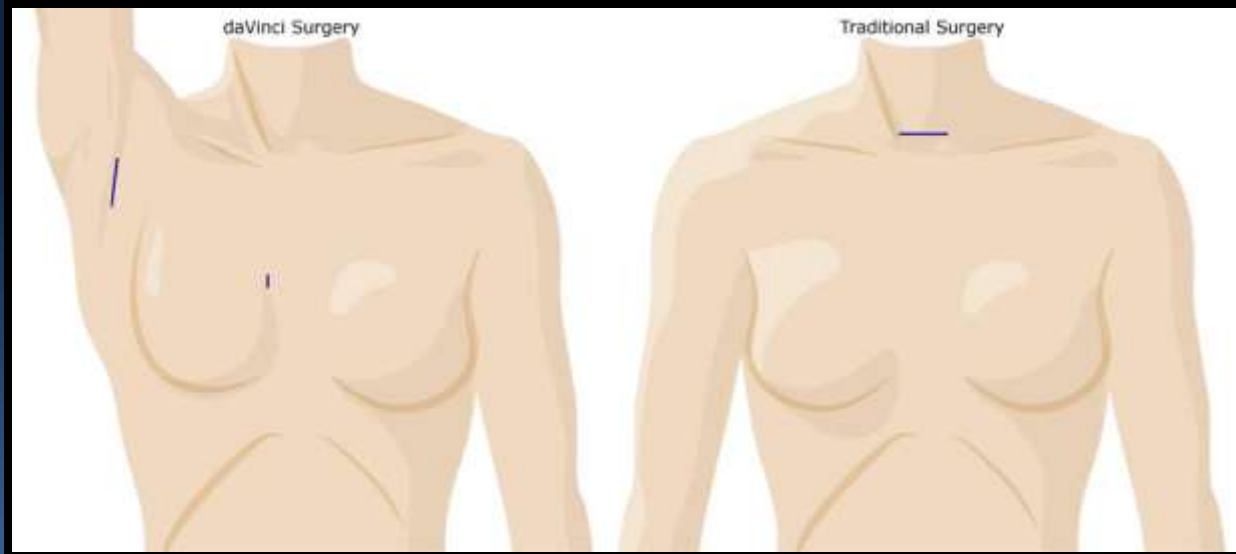
Da Vinci Robot

- Surgical arm cart holds
 - 3D camera
 - Instruments (2 or 3 arms)
 - Grasping forceps
 - Scissors
 - bipolar bovie
 - harmonic scalpel



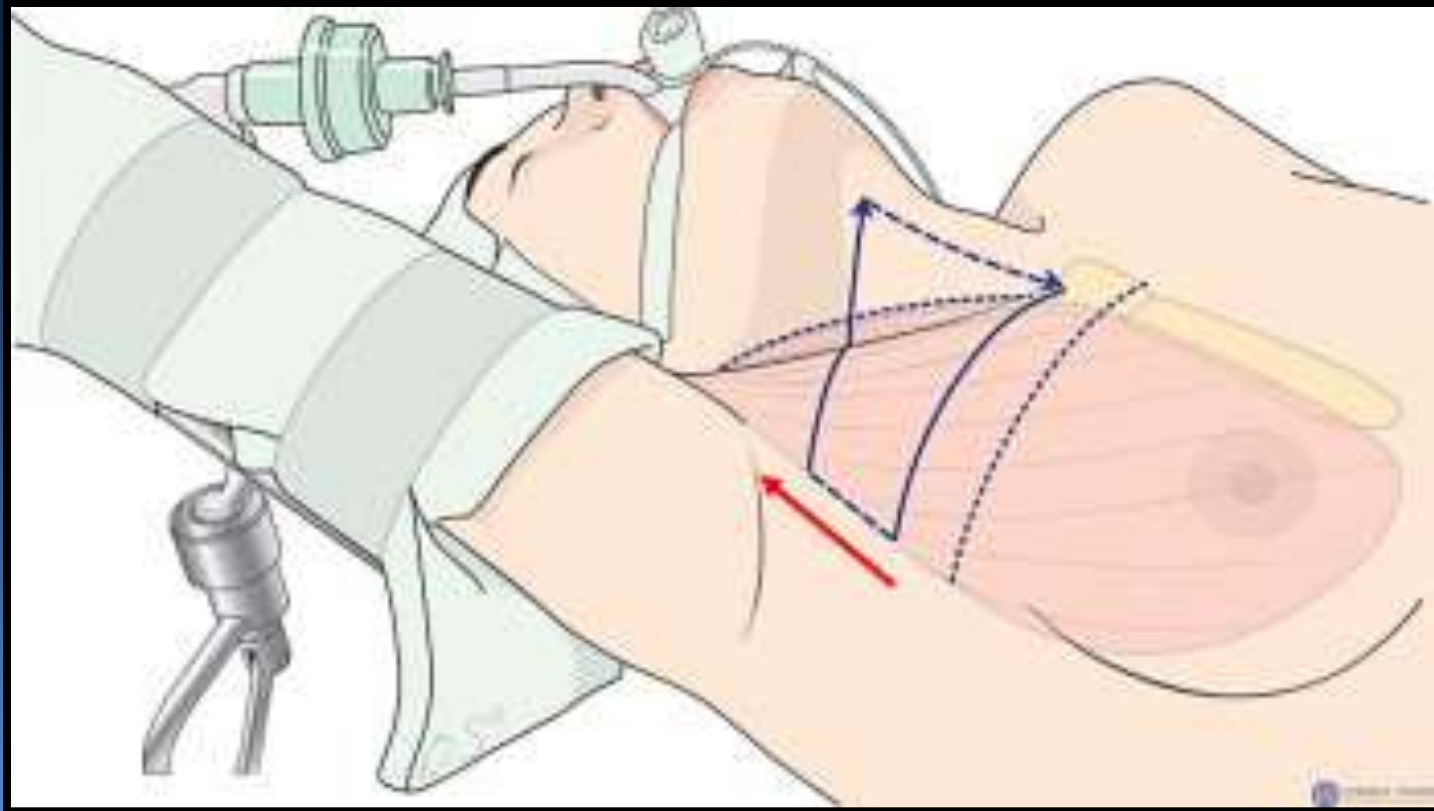
7 degrees of freedom using
an endo-wrist system

Approach



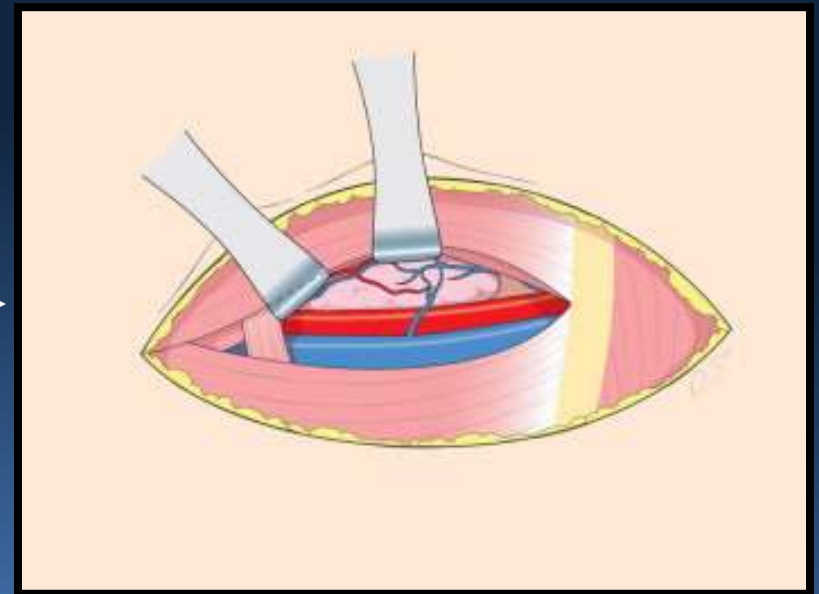
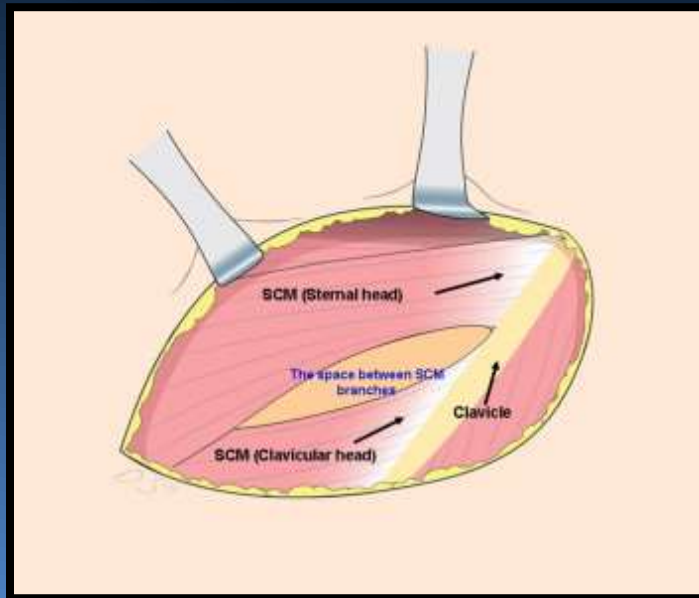
- 2 incisions
- Axillary incision
 - Camera
 - Harmonic scalpel
 - Dissecting forceps
- Substernal incision
 - Grasping forceps

Axillary Incision

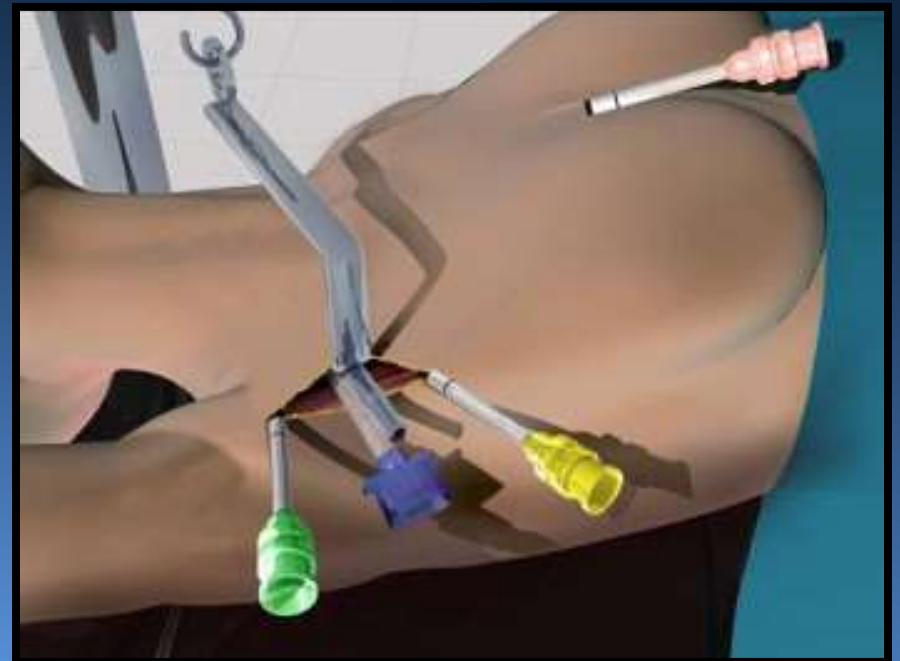
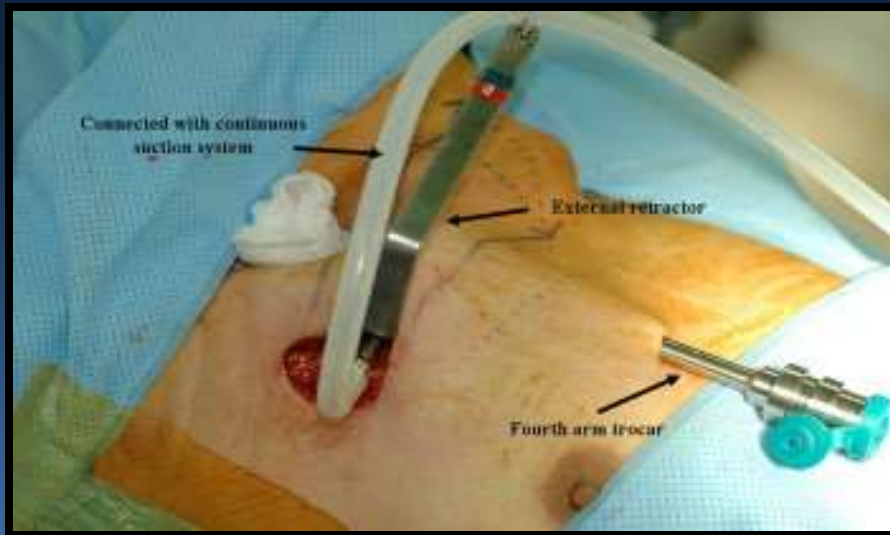


- 6cm axillary incision
- Dissect subcutaneous tunnel over pectoralis major muscle

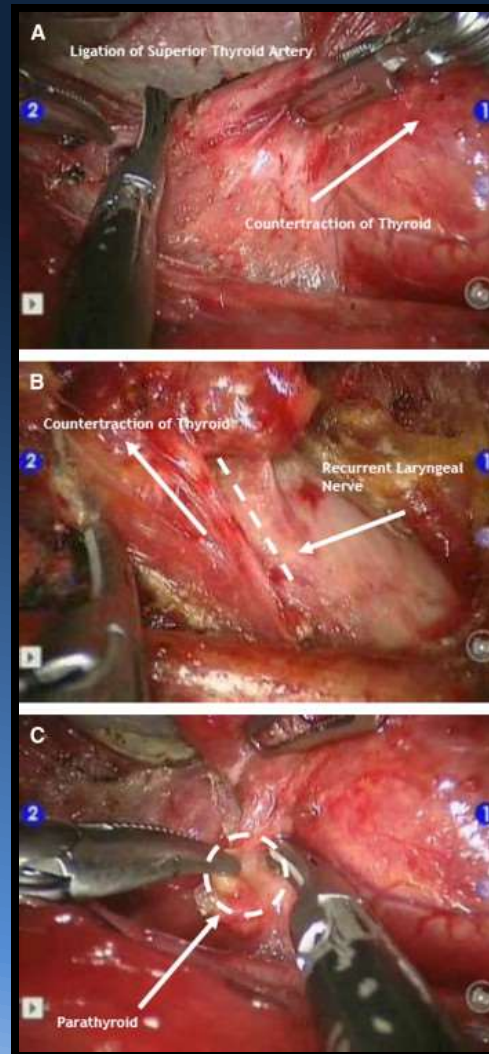
Exposure of Thyroid Gland



Position of Camera and Instrument Arms



Dissection of Thyroid Gland



Advantages & Disadvantages

- Avoids a central neck incision
- Increased magnification of RLN and parathyroids
- No tremor

BUT

- 6cm axillary incision
- Significant soft tissue dissection
- Lose sensory feedback
- Long OR time 2-4hrs
- Need postop drains
- Not suitable for day surgery
- Difficult to remove the contralateral lobe

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“Commonplace clinical problems in surgery are approached in diametrically opposite ways - by surgeons with similar training backgrounds, having read the literature but interpreting the available information differently, based on unique personal experience, vision or surgical prejudice.”

-- Richard Simmons

Good judgment comes
from experience;
but experience comes
from bad judgment!

“The best interest
of the patient is the
only interest to be
considered”

William J. Mayo, 1910

