MANAGEMENT OF PRIMARY HYPERPARATHYROIDISM IN 2013:
HAVE WE COME FULL CIRCLE?

LTC Christopher Klem, MD
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All truth passes through three phases. First, it is ridiculed. Second, it is violently opposed. Third, it is accepted as being self-evident.

Arthur Schopenhauer
Disclaimer

• “The views expressed in this presentation are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.”

Agenda

• The “usual stuff”
• Indications for surgery
• Localization
• Surgical controversies
Diamond Head Crater
Epidemiology

- Common!
- 1% of adults
- Peak = 30-40 years old
- F:M 4:1
- Women > 60, incidence = 2%
The Past...

Primary Hyperparathyroidism

Surgery
Primary Hyperparathyroidism

Symptomatic

\[ \text{Surgery} \]

Asymptomatic

\[ ? \]

Consensus Guidelines

- Age < 50
- Creatinine clearance < 60 ml/min
- Serum calcium > 1.0 mg/dl above upper limit of normal
- T-score < -2.5 (lumbar spine, hip, femoral neck, distal radius) and/or previous fracture fragility
- Request surgery
- Difficult follow-up
Is Anyone REALLY Asymptomatic?

- Cardiovascular
- BMD
- Renal
- Psychiatric
- QOL

J Clin Endocrinol Metab, February 2009, 94(2):351–365

Should ‘Mild Primary Hyperparathyroidism’ be reclassified as ‘insidious’: is it time to reconsider?

David P. Macfarlane, Ning Yu, Peter T. Donnan and Graham P. Leese

Clinical Endocrinology (2011) 75, 730–737
Asymptomatic Primary Hyperparathyroidism

- Surgery
- Observation

Manoa Falls
“The only localization study indicated in a patient with untreated primary hyperparathyroidism is the localization of an experienced parathyroid surgeon.”

Doppman, 1986
Localization

Find the Adenoma!
The Ectopic Adenoma

Imaging

Parathyroid localization studies

<table>
<thead>
<tr>
<th>Noninvasive</th>
<th>Invasive</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-resolution US</td>
<td>Selective venous sampling</td>
</tr>
<tr>
<td>$^{99m}$Tc-Sestamibi scan</td>
<td>Angiogram</td>
</tr>
<tr>
<td>CT scan</td>
<td>Digital subtraction</td>
</tr>
<tr>
<td>MRI</td>
<td>US-guided FNA</td>
</tr>
<tr>
<td>SPECT/CT</td>
<td>US-guided jugular venous sampling</td>
</tr>
<tr>
<td>4D-CT</td>
<td></td>
</tr>
</tbody>
</table>
How Good Are They?
Which is Best?

Makapu’u Lighthouse
Minimally Invasive

- Preop localization
- Local anesthesia (?)
- Unilateral exploration
- Intraop PTH

In 7 Search Engines at Once. Find Answers on Ask.com. Search for Best
surgery different. Parathyroid Surgeons. If Norman’s surgery video explains
different surgery options available.
Leader in Spine Surgery www.heartandspinesurgery.com/
World leader in spine surgery and 50% cheaper than USA.
Para Thyroid Surgery
www.isifo.com/Para+Thyroid+Surger Find Para Thyroid Surgery
In 7 Search Engines at Once.
After Parathyroid Surgery surgery.webcrawler.com/
Search for After Parathyroid Surgery
With 100’s of Results at WebCrawler.

Recent trends becoming standard of care yielding smaller, more successful operations at a lower cost

National Trends in Parathyroid Surgery from 1998 to 2008: A Decade of Change
Decade of Change

Lanikai Pill-Box Trail
Prospective Study in 3,000 Consecutive Parathyroid Operations Demonstrates 18 Objective Factors that Influence the Decision for Unilateral versus Bilateral Surgical Approach

James Norman, MD, FACS, FACE, Douglas Politz, MD, FACS
Abandoning Unilateral Parathyroidectomy: Why We Reversed Our Position after 15,000 Parathyroid Operations

James Norman, MD, FACS, FACE, Jose Lopez, MD, FACS, Douglas Politz, MD, FACS, FACE


10-Year Cure Rates

Table 1. Number of Parathyroid Glands Removed in Unilateral vs Bilateral Operations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unilateral exploration (n = 3,000)</th>
<th>Bilateral exploration (n = 3,000)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single gland removed, %</td>
<td>96.9</td>
<td>75.3</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Two glands removed, %</td>
<td>3.1</td>
<td>16.7</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Three glands removed, %</td>
<td>0</td>
<td>5.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>3.5 glands removed, %</td>
<td>0</td>
<td>2.9</td>
<td>0.03</td>
</tr>
</tbody>
</table>

The number of parathyroid glands removed during 3,000 unilateral operations was dramatically lower than the number of glands removed during 3,000 bilateral operations.


Surgical Techniques Forthcoming...
Controversy!

No Need to Abandon Unilateral Parathyroid Surgery

Richard Hodin, MD, Massachusetts General Hospital
Peter Angelos, MD, PhD, University of Chicago
Sally Carry, MD, University of Pittsburgh
Herb Chen, MD, University of Wisconsin
Orlo Clark, MD, University of California, San Francisco
Gerard Doherty, MD, Boston University
Quan-Yang Duh, MD, University of California, San Francisco
Douglas B. Evans, MD, Medical College of Wisconsin
Keith Heller, MD, NYU Langone Medical Center
William Inabinet, MD, Mt Sinai School of Medicine
Electron Kebebew, MD, National Institutes of Health, National Cancer Institute
Janice Pasieka, MD, University of Calgary
Nancy Perrier, MD, MD Anderson Cancer Center
Cord Sturgeon, MD, Northwestern University

Unilateral vs Bilateral Parathyroidectomy: A Healthy Debate

Alexander Stojaradonic, MD, FACS
Bethesda, MD
Edmund Pribitkin, MD, FACS, David Rosen, MD, FACS
Philadelphia, PA
Michael Edwards, MD, FACS
Cincinnati, OH
David R. Byrd, MD, FACS
Seattle, WA

Olomana
“The only localization study needed is an experienced parathyroid surgeon...”

In Summary...

- Up-to-date “asymptomatic” guidelines
- Surgery curative (still!)
- Improved localization studies
- Improved (?) operative techniques
- Unilateral vs. 4-gland exploration
  - Controversy (still!)
Big Island Lava

Questions?