Bariatric Surgery:
Update for the General Surgeon

2,000 B.C.  2,000 A.D.

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UCSF Postgraduate Course in General Surgery
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What’s New in Bariatric Surgery?

1. America keeps getting fatter without an end in sight.

2. Bariatric surgery is not just about weight loss; it’s about treating metabolic disease and reducing mortality.

3. Band: out. Sleeve: in

4. Expanding the indications for bariatric surgery

Obesity Trends* Among U.S. Adults
BRFSS, 1990
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)

Obesity Trends* Among U.S. Adults
BRFSS, 1991
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1992
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Obesity Trends* Among U.S. Adults
BRFSS, 1993
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Obesity Trends* Among U.S. Adults
BRFSS, 1994
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Obesity Trends* Among U.S. Adults
BRFSS, 1995
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1996
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

No Data           <10%          10%–14%             15%–19%          ≥20%

Obesity Trends* Among U.S. Adults
BRFSS, 1997
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

No Data          <10%           10%–14%             15%–19%          ≥20%

Obesity Trends* Among U.S. Adults
BRFSS, 1998
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

No Data          <10%           10%–14%             15%–19%          ≥20%

Obesity Trends* Among U.S. Adults
BRFSS, 1999
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2000
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

Obesity Trends* Among U.S. Adults
BRFSS, 2001
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

Obesity Trends* Among U.S. Adults
BRFSS, 2002
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

Obesity Trends* Among U.S. Adults
BRFSS, 2003
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2004
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)

No Data          <10%           10%–14%            15%–19%           20%–24%        ≥25%

Obesity Trends* Among U.S. Adults
BRFSS, 2005
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)

No Data          <10%           10%–14%            15%–19%           20%–24%          25%–29%             ≥30%

Obesity Trends* Among U.S. Adults
BRFSS, 2006
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)

Obesity Trends* Among U.S. Adults
BRFSS, 2007
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2008
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

No Data          <10%           10%–14%            15%–19%            20%–24%          25%–29%             ≥30%

Obesity Trends* Among U.S. Adults
BRFSS, 2009
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

No Data          <10%           10%–14% 15%–19%           20%–24%          25%–29%           ≥30%

Obesity Trends* Among U.S. Adults
BRFSS, 2010
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Obesity reduces life expectancy

For young men, BMI >45 took off 13 years of life expectancy
For young women, BMI >45 took off 8 years of life expectancy
2. Bariatric surgery is not just about weight loss; it's about treating metabolic disease and reducing mortality.

Bariatric surgery has a durable effect on weight loss. The graph shows the mean weight change compared to obese controls over time. The number of patients for each group is as follows:

- Obese controls: 2037
- Bands: 1490
- VBG: 1242
- Bypasses: 1267
- Obese controls: 556
- Bands: 176
- VBG: 150
- Bypasses: 50
- Obese controls: 37
- Bands: 13

Metabolic benefits of bariatric surgery include:

- Migraines: 57% resolved
- Pancreatic Cancer: 67% resolved
- Dyslipidemia: Hypercholesterolemia 65% resolved
- Non-Alcoholic Fatty Liver Disease: 90% improved
- Insulin Resistance: 85% resolution of impairment
- 25% resolution of diabetes
- Type 2 Diabetes Mellitus: 69% resolved
- Polycystic Ovarian Syndrome: 79% resolution of infertility 100% resolution of androgenic dysfunction
- Venous Thromboembolic Disease: 60% resolved
- Depression: 80% resolved
- Sleep Apnea: 74-86% resolved
- Asthma: 80% improved or resolved
- Cardiomyopathy: 65% risk reduction
- Hypertension: 53-92% resolved
- GERD: 72-98% resolved
- Bladder Urinary Incontinence: 44-69% resolved
- Degenerative Joint Disease: 41-78% resolved
- Gout: 77% resolved
- Quality of Life: improved in 50% of patients
- Mortality: 60% reduction in 5-year mortality

HbA1C (%)

- Pre- and Postoperative HbA1C According to T2DM Duration and Severity
- 8.2% before bypass
- 5.5% after bypass
- Impaired fasting glucose: 6.0
- Diet controlled diabetics: 5.0
- Oral agent diabetics: 5.2
- Insulin dependent diabetics: 5.5

Effect of Laparoscopic Roux-en Y Gastric Bypass on Type 2 Diabetes Mellitus

- (Ann Surg 2003;238: 467–485)
Effect of Laparoscopic Roux-en Y Gastric Bypass on Type 2 Diabetes Mellitus

Long-term Changes in Blood Pressure in Extremely Obese Patients Who Have Undergone Bariatric Surgery

March 26, 2012

Bariatric Surgery versus Intensive Medical Therapy in Obese Patients with Diabetes

Bariatric Surgery versus Conventional Medical Therapy in Type 2 Diabetes

3/29/2012
Effects of bariatric surgery on cancer incidence in obese patients in Sweden (Swedish Obese Subjects Study): a prospective, controlled intervention trial

Lancet July, 2009

Bariatric surgery reduces risk of:
- colon cancer
- endometrial cancer
- breast cancer
- prostate cancer
- ovarian cancer

CANCER INCIDENCE

Effect of bariatric surgery on mortality in Swedish Obese subjects

Prospective, controlled trial
2010 patients underwent surgery
2037 matched patients underwent conventional Rx
Mean 11 years of follow-up
99% of patients were followed
Decreased mortality was from decreased myocardial infarction and cancer

What’s New in Bariatric Surgery?

3. Band: out. Sleeve: in

Long-term Outcomes of Laparoscopic Adjustable Gastric Banding

Jacques Himpsel, MD, Guy-Bernard Cadieux, MD, Philip Michel Bazi, MD; Michael Voute, MD; Benjamin Cadieux, MD; Giovanni Dupre, MD
Arch Surg. Published online March 21, 2011.

151 patients who underwent gastric banding from 1994-1997 were contacted for follow-up, and 84 patients completed follow-up.

- 39% experienced major complications (28% had erosions)
- 49% of the bands were removed
- 17% required conversion to a gastric bypass
In France:
10,000 gastric bands are placed each year
...and 5,000 gastric bands are removed

First Report from the American College of Surgeons Bariatric Surgery Center Network
Laparoscopic Sleeve Gastrectomy has Morbidity and Effectiveness Positioned Between the Band and the Bypass
Matthew M. Hutto, MD; MPH;† Bruce D. Schirmer, MD;‡ Daniel B. Jones, MD;§ Clifford Y. Ko, MD;¶
Mark E. Cohen, PhD;¶ Ryan P. Merkens, MD;¶ and Nisha T. Nourouz MD;¶
Annals of Surgery • Volume 254, Number 3, September 2011

Change in BMI after bariatric surgery

Sleeve gastrectomy

What’s New in Bariatric Surgery?

4. Expanding the indications for bariatric surgery

• Surgery for the primary treatment of diabetes?!

The Diabetes Surgery Summit Consensus Conference
Recommendations for the Evaluation and Use of Gastrointestinal Surgery to Treat Type 2 Diabetes Mellitus

Francesco Rubino, MD,† Luc M. Kaplan, MD, PhD,‡ Philip R. Schauer, MD,‡ and David E. Cummings, MD,§ on behalf of the Diabetes Surgery Summit Participants

(Ann Surg 2010;251: 399–405)

• FDA approved gastric banding for BMI 30-35 with co-morbidity in 2011

• Bariatric surgery for adolescents?

Questions?

Diabetic and bariatric surgery: A review of the recent trends
Raghavendra S. Rao • Subhashini Kini


This operation cures diabetes in “skinny” diabetics (BMI <35) about 85% of the time according to DePaula.

Fig. 1 Laparoscopic sleeve gastrectomy with distal resection