Cosmetic Surgery
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Why Cosmetic Surgery?

• Surgical and nonsurgical options exist to reverse the unwanted effects of *childbearing and age*
• Appearance is functional: positive self image can improve interactions with others
• Patients undergoing cosmetic surgery look and feel better and experience a renewed sense of confidence
• 12.5 million cosmetic plastic surgery procedures were performed in 2009
• Down 1 percent from 2008
• Up 69 percent since 2000
• The largest contributor to the increase in procedures has been the advent of injectable wrinkle reducers and minimally-invasive procedures
• 5.2 million reconstructive plastic surgery procedures were performed last year.
Cosmetic Minimally-invasive Procedures 2009

- Minimally-invasive procedures up 99% since 2000. The top five minimally-invasive procedures in 2009:
  - Nearly 11 million procedures
    - Botulinum toxin A  4.8 million
    - Soft tissue fillers    1.7 million
    - Chemical peel      1.1 million
    - Microdermabrasion  910,000
    - Laser hair removal  893,000
Top Five Surgical Cosmetic Procedures In 2009

1. Breast Augmentation (289,000)
2. Nose Reshaping (256,000)
3. Eyelid Surgery (209,000)
4. Liposuction (198,000)
5. Tummy Tuck (115,000)

Source: American Society of Plastic Surgeons®
Top Five Female Cosmetic Surgical Procedures In 2009

1. Breast Augmentation (289,000)
2. Nose Reshaping (190,000)
3. Liposuction (176,000)
4. Eyelid Surgery (173,000)
5. Tummy Tuck (111,000)

Top Five Male Cosmetic Surgical Procedures In 2009

1. Nose Reshaping (66,000)
2. Eyelid Surgery (30,000)
3. Liposuction (22,000)
4. Breast Reduction In Men (17,000)
5. Hair Transplantation (13,000)
What is Liposuction?

- Also known as lipoplasty, **liposuction** slims and reshapes specific areas of the body by removing excess fat deposits, improving body contours and proportions.
- Is not a weight control method or a fix for obesity.
- Can worsen appearance of cellulite, stretch marks.
- Improvement in appearance **in clothes**.
Traditional liposuction

- Local anesthesia, IV sedation, or general anesthesia accompanied with the infusion of a **tumescent** solution into the area where liposuction will be performed.
  - The solution contains dilute epinephrine and lidocaine to minimize pain and bleeding.
- A small hollow tube attached to a vacuum is inserted through small incisions, passed through subcutaneous fat to break up the fat, which is then aspirated.
What is a tummy tuck?

- **Abdominoplasty**, removes excess fat and skin, and can repair separated abdominal muscles (diastasis) creating an improved abdominal profile
- Women planning substantial weight loss or future pregnancies are advised to postpone a tummy tuck.
- Does not correct stretch marks, although these may be removed or somewhat improved if they are located on the areas of excess skin that will be excised, below the umbilicus
- Can be combined with liposuction, gyn procedures
“Mini-Tummy Tuck”

- Limited to skin excision in the lower abdomen without “undermining”
- Limited muscle tightening
- Less discomfort but less results
Panniculectomy versus Abdominoplasty

Staged Massive Panniculectomy

October 2002  November 2003  February 2004
What is a breast lift?

- A mastopexy raises the nipple position and removes excess skin, tightening the surrounding tissue.
- Does not change the size or round out the upper part of your breast (not a pushup bra).
- May want to consider either simultaneous breast augmentation or breast reduction surgery.
Mastopexy incisions

- Around the areola
- Around the areola and vertically down from the areola to the breast crease
Around the areola, vertically down from the areola and horizontally along the breast crease
Questions to Ask

- **Are you done having children?**
  If you plan to have more children, wait. The vertical muscles in the abdomen (which are tightened during a tummy tuck) can re-separate.

- **Are you at a stable weight?**
  Being at a stable weight before surgery can help maximize the results. Lose all your baby weight with diet and exercise before having plastic surgery.

- **Are you finished breastfeeding?**
  You should wait until you are finished breastfeeding before having breast surgery because the enlarged ducts and increased blood vessel activity of the breast during nursing increases bleeding and the risk of infection.
What is Breast Augmentation Surgery?

• Also known as augmentation mammoplasty, breast augmentation surgery involves using breast implants for breast enlargement or to restore breast volume lost after weight reduction or pregnancy

• A larger version of yourself, no change in shape

• Point out asymmetries
The incision

- Incisions are made in inconspicuous areas to minimize visible scarring.
- Incision options include:
Implant Placement

- Under the pectoral muscle (*submuscular* placement), or
- Directly behind the breast tissue, over the pectoral muscle (a *submammary/subglandular* placement)
- The method for inserting and positioning implants depends on the type of implant, degree of enlargement desired, body type, and your surgeon’s recommendations.
Implant choice: Silicone breast implants or saline breast implants?

- Variety of sizes and projection; choice determined not just on desired increase in size but more importantly on breast anatomy and volume, skin elasticity and body type
- All types of implants can
  - leak,
  - develop capsular contracture,
  - can have rippling or wrinkling
Saline breast implants

- Silicone shell filled with saline. They can be filled with varying amounts of saline which can affect the shape, firmness and feel of the breast.
- Should the implant shell leak, the leaking saline will be absorbed and the breast implant will “deflate”
- Smaller incision
Silicone breast implants

- Filled with a cohesive gel. The gel feels and moves much like natural breast tissue.
- If the implant leaks, the gel maintains its shape and form.
- A leaking implant filled with silicone gel does not collapse. An MRI may assess the condition of breast implants.
- Longer incision, greater cost
Third & fourth generation
Silicone Implants

• From the mid 1980s to present, advances in manufacturing techniques with elastomer-coated shells to decrease gel bleed, filled with more cohesive gel.

• Reduced potential leakage of the gel compared to earlier devices,

• More substantial shell improved durability.
Fifth generation

- “Gummy bear” or solid, high-cohesive, form-stable implants, in preliminary stages in the US but implants widely used since the mid 1990s in other countries.
- Eliminates the possibility of silicone migration.
- Potential improvements in safety and efficacy over the older implants with low rates of capsular contracture and rupture.
Silicone Implants and the FDA

• On Nov 17, 2006, FDA lifted restrictions on the use of silicone gel-filled breast implants cosmetic breast augmentation.
• Requirement to complete post-approval studies
• Recommended q2 yr MRI to look for signs of leakage
Leak Rates

- In 2009, patients followed in one arm of the core FDA clinical trials for primary breast augmentation reported rupture rates of 1.1% after six years followup.

- The first series of MRI evaluation of the highly-cohesive (5th generation) gel implants suggests improved durability, with a rupture rate reported at 1% or less at a median age of six years.
Capsular Contracture

• Capsules of tightly-woven collagen fibers form around a foreign body

• **Capsular contracture** occurs when the capsule tightens
  – Pain, Firmness and distortion

• Cause of contracture is not known
  – bacterial contamination -> biofilm
  – silicone rupture or leakage, and hematoma
Capsular Contracture

- Methods to reduce capsular contracture:
  - Massage
  - Submuscular implant placement, textured or polyurethane-coated implants
  - Limiting handling and skin contact prior to insertion, irrigation with antibiotic solutions

- Correction of capsular contracture
  - Surgical removal or release of the capsule,
  - Closed capsulotomy (disrupting the capsule via external manipulation), can cause implant rupture
Nonsurgical methods

- Massage, external ultrasound
- Leukotriene pathway inhibitors (Accolate, Singulair),
- Pulsed electromagnetic field therapy
Implants and Mammography

- Radio-opaque breast implants may interfere with the sensitivity of screening mammography.
- Manual displacement (Eklund views) may improve this somewhat, but up to 1/3 of the breast may not adequately visualized.
- ? Submuscular versus subglandular
Breast Cancers and Implants

- No significant difference in stage of disease at time of diagnosis, prognosis appears to be similar in both groups with augmented patients not a higher risk for subsequent recurrence or death.

- Use of implants for reconstruction *after* mastectomy for breast cancer also appears not to have a negative effect on cancer-related mortality.
Breast feeding and Implants

• Women with implants are able and encouraged to breastfeed
• Periareolar incisions and subglandular placement associated with greater difficulties
• Leakage into breast milk, causing problems for the nursing infant?
  – Saline is salt water, and silicone is used in colic drops, and considered indigestible
Additional surgery (re-operations)

- Regardless of the type of implant, likely that women with implants will have one or more additional re-operations
- Most common indications for re-operations include capsular contracture, replacement of ruptured/deflated implants, ptosis repair, aesthetic indications
- Reconstruction patients have higher rates of re-operation
Emerging Technologies

- Injectable muscle paralysis – 2 options
- Soft tissue fillers
- Noninvasive fat ablation
  - Laser
  - High intensity focused ultrasound
  - Cryolipolysis
- Noninvasive skin tightening
  - Fractional ablative laser
  - Cutaneous ultrasound
  - Radiofrequency heating
Soft Tissue Fillers

• Administered by intradermal injection directly into moderate to severe facial wrinkles and folds, such as nasolabial folds (the “parentheses” along the side of the nose and mouth), temporarily filling and augmenting the treated area.
Soft Tissue Fillers

- Clinical differences governed by how long the effects last, as well and how the filler "feels"
- Soft fillers tend to have a shorter duration of effect and smaller particle size (best for locations such as lips)
- Fillers that last longer tend to have more structure and larger particle size, are better suited in regions where they will not be palpable (such as the nasolabial folds)
Collagen

- Used in the past, with sources ranging from bovine to human
- For some collagen formulations, skin testing before injection is necessary to rule out allergic response to the filler
- Collagen based fillers last 3 to 6 months
Hyaluronic Acid

- Naturally occurring, biodegradable complex sugar found in mammalian skin
- In vivo, HA binds water, hydrating skin in the treated region, acting as a volume filler
- Versions vary with the size of molecules (governed by the amount of crosslinking) and other components of the injectate (such as local anesthetic to help decrease the discomfort associated with injections).
Hyaluronic acids

- Eventually absorbed
- Length of time of clinical effect dependent on a multitude of factors including the patient, the location of injection, and the particular product used
- Results last from 3 months in highly mobile areas (lips), and up to 1 year in regions such as the nasolabial folds, with most patients experiencing the desired effects for 6 months.
JUVÉDERM®

- JUVÉDERM® is the first smooth consistency gel formulation, the only hyaluronic acid dermal filler approved by the FDA to last up to one year from initial treatment.
Restylane®

• Hyaluronic acid formulation indicated for mid-to-deep dermal implantation
• Clear gel formulation of hyaluronic acid.
• Biocompatible and biodegradable
CaHA Microspheres

• Radiesse® dermal filler, calcium-based microspheres suspended in a gel carrier to restore volume
• Indicated for the correction of moderate to severe folds and wrinkles, as well as for facial lipoatrophy seen in HIV patients
• Collagen ingrowth occurs, providing a long lasting effect that may last a year or more
• Not approved for use in the lips.
Sculptra

• **poly-L-lactic acid**

• 3-5 injection sessions over a few months, can last up to two years

• Applied to subcutaneous plane

• Biodegradable synthetic material that gradually replaces lost collagen, restoring the look of fullness of shallow to deep facial wrinkles and folds
Complications

- All of these injectable fillers are placed by an injection, so the group carries usual risks of bruising, lumpiness, redness, product specific adverse reactions, and in rare cases local infections.
- Granulomas, palpability, asymmetry
Botulinum Toxin type A

- Over time, repeated movement of the facial skin by the muscles forms wrinkles
- Temporarily prevents contraction of the muscles that cause wrinkles
- 1st neurotoxin to be approved for cosmetic use in the United States; others in the pipeline are differentiated by their time to onset, duration of effect and the distance of effect from the injection site.
Botox

- Risks include bruising at the injection site, rare chance of an infection, and the possibility of unintentionally affecting nearby muscle groups.
Complications

- Spread of toxin effects to areas away from the injection site
- Drooping eyelids
- Double vision, blurred vision
- Hoarseness or change or loss of voice, dysphonia or dysarthria
- Trouble breathing
- Trouble swallowing
There has not been a confirmed serious case of spread of toxin effect away from the injection site when BOTOX® has been used at the recommended dose to treat severe underarm sweating, blepharospasm, or strabismus, or when BOTOX® Cosmetic has been used at the recommended dose to treat frown lines.
Dysport
Abobotulinum toxin

- Neuromuscular blocking agent indicated for the temporary improvement in the appearance of glabellar lines associated with procerus and corrugator muscle activity in adult patients less than 65 years of age.

- Inject a total of 50 U of Dysport in 5 equally divided aliquots of 10 U into each of 5 sites, 2 in each corrugator muscle, and 1 in the procerus muscle.
Botox versus Dysport

- Initial reports suggest that Dysport may have quicker onset
- Dysport is approximately 1/3 the cost of Botox; also 1/3 the strength per unit
- Packaging differences
Botox manufacturer Allergan points out that Dysport may be more likely to cause antibody formation which may result in neutralization of the toxin, potentially preventing it from working.
Body Dysmorphic Disorder

- Are some patients inappropriate candidates for cosmetic procedures?
- Do changes in physical appearance result in changes in psychosocial function?
- Preoccupation over slight or imagined defects, resulting distress/obsession, high levels of dissatisfaction postoperatively
- DSM 3rd ed. 1980
Body Dysmorphic Disorder

- 70% seek cosmetic surgery
- 7-15% presenting for cosmetic/dermatologic procedures may have BDD
- More likely to carry out violent or legal action
Risk factors for Venous Thromboembolism

- Long OR times, disruption of superficial veins, slow postop mobilization
- BMI > 30, OCP
- Venous thromboembolism is the most common cause of death in plastic surgery patients
- Circumferential body lift 7-9% incidence
- Abdominoplasty 5%
Prophylaxis

• No strong data or guidelines
• Low molecular weight heparin preoperatively and postoperatively
• May increase need for transfusions but not rate of hematoma
• ?Length of time
• Mechanical compression devices
ASPS Patient Safety Committee

• Pressure to keep a full OR schedule to offset expenses, especially with an office-based surgery facility (OBS)
• Need to maintain patient selection criteria
• Patients may press for multiple procedures or specific timetable, downplay co-morbidities
• Need to adhere to same standards as hospital-based facilities
• Only 17 states require accreditation
Example

- 28 year old getting married in 12 weeks, requests circumferential body lift, breast reduction, liposuction
- BMI 32, OCPs, controlled asthma
- ? Staged
- ? OBS
- ASPS requires compliance
Choosing Your Plastic Surgeon

- Board certification
  - American Board of Plastic Surgery
  - Extended training, written and oral exams
- Hospital privileges
  - Even if performed in office or OPSC, MD should have admitting privileges
  - Licenses, malpractice check
- Surgeon’s experience
  - Specialty society membership
Choosing Your Plastic Surgeon

• Surgical facility accreditation
  – AAAASF, AAAHC
  – State licensed +/or Medicare certified

• Details of your surgery
  – PMH, meds, PSH
  – Total cost broken down
    • Policy for revisions
  – Postop care and activity level