

FACELIFT SURGERY COMPLICATIONS

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ABSTRACT

Facelift surgery (rhytidectomy) is an aesthetic rejuvenation procedure of the face to remove excess sagging skin, minimize the appearance of creases and marionette lines, and correct facial fat depletion or double chin (jowls). For the patients greater than 65 is the most commonly performed procedure and is the seventh most commonly requested aesthetic procedure as well (126,713 procedures performed in 2014) (<http://www.surgery.org/media/statistics> ; Gupta et al., *Aesthet Surg J* 36:1–13, 2015). Rhytidectomy normally generates a very high satisfaction rate provided patients are properly selected and complications are minimized. In this publication, I will review the most important aspects of the preoperative assessment and intraoperative procedure focusing on the identification of complications of rhytidectomy procedure.

INTRODUCTION

Facelift has a very long history dated backed to 1901. At first, the procedures were limited to excise the excess skin of the face without any manipulation of subcutaneous or deeper tissue. These procedures are easy to perform and have some good results but they lack deep tissue control and longevity. Until early 1970s Skoog was the first person introduced more elaborate techniques involving dissecting and lifting superficial musculoaponeurotic system (SMAS) layer [3]. Since then, facelift surgery has more satisfaction rate and SMAS surgery has also been modified several times including SMAS plication, minimal access cranial suspension lifts, lateral SMASectomy, extended SMAS lift, composite facelifts, and a subperiosteal facelift [4]. All advanced techniques and modification target to minimize scar and restore subcutaneous volume and provide a long-lasting results and prevent complications as well.

Facelift is a cosmetic procedure of the face which can remove excess sagging skin, reducing the appearances of creases and marionettes lines, and correct facial fat profile or jowls. It is amongst

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the top ten requested aesthetic procedure especially for patients greater than 65 year old [1, 2]. Rhytidectomy generally has a very high satisfaction rate provided customers are properly selected and complication are minimized. The following chapter will focus on identification and minimization of complications related to facelift during preoperative assessment and intraoperative procedure.

PREOPERATIVE ASSESSMENT

Most surgical procedures come with a risk of complications and rhytidectomy is not excluded, a careful pre-op assessment and meticulous surgical planning perhaps are the most important steps to minimize complication. The most common complication of facelift is hematoma [2], other complications including skin flap necrosis, nerve injury, scar and rarely infection [5].

Beside careful preoperative assessment, specific intraoperative surgical maneuvers and complete postoperative management are also vital roles to attain satisfaction and low complication rate. The main indication for surgery the potential for facial rejuvenation in only selected patients with real expectations. Absolute contraindications include bleeding diseases, ASA classes IV and V. Relative contraindication include diseases which promote a poor wound healing, such as history of smoking, diabetes, long-term steroid users [6]. A good preoperative assessment with a thorough history and physical exam would elucidates indications or contraindication, conventional laboratory tests are necessary and helpful to prepare a better surgical planning and to reduce complication rates.

We should know that facelift address only ptosis and atrophy of facial tissue. It does not have any effects on the quality of the skin. Consequently, rhytidectomy is not a proper procedure for wrinkles, sun damage, and irregular pigmentation. Other procedures may accompany facelift for better results such as skin care or resurfacing are needed for wrinkles and hyperpigmentation. The patients presents with complains of sagging skin in the midface/jaw lines, facial fat loss or displacement, marionette lines, jowls, double chin and sagging in the neck area would be indications for rhytidectomy [6]. However, we should know that not all wrinkles and creases can be completely addressed with facelift procedure, such as nasolabial fold, so we may still need additional treatment in the form of fillers or neurotoxins. In addition, other surgeries may be indicated if a patient still complaining of other facial issues like brow ptosis or excess eyelid skin, in which case, browpexy or blepharoplasty may be included as well.

A good history examination can also ascertain some contraindication for surgery as well as for a better surgical planning, one should ask about the following conditions:

- . Prior surgery or surgical complications
- . History of easy bruising or bleeding
- . Current use of drugs: anticoagulants (for example aspirin), herbal supplements
- . Smoking
- . Corticoids/ Chemotherapy
- . Diabetes mellitus

These simple questions really help us for contraindications which may predispose to anesthetic, bleeding or poor wound healing. For example, cigarette smoking increases the risk of skin slough, the second most complication of facelift. It is found that cigarette smoking increases the risk of skin necrosis by 12.5 times when compared to nonsmokers [2]. This is due to an acute vasoconstriction effect, which leads to a tissue hypoxia and a subsequent delayed wound healing. Patients should quit cigarettes smoking at least two weeks before operation. However, patient should know that it does not make him or her become a nonsmoker and the long term effects of smoking does not disappear after two weeks and our preventive measure is just good enough for the surgery only.

Physicians should also work up other potential coagulopathies and other complications based on history given. Aspirin, NSAID and herbal supplements should be stopped at least two weeks prior to surgery, and steroids/ chemotherapies at least several weeks before surgery [7]. The most common complication of rhytidectomy is hematoma so all the drugs and medical conditions relating to blood clotting should be carefully examined. Patients are currently using Coumadin or Plavix are not suitable for surgery and these drugs need to be discontinued at least two weeks prior aesthetic procedure, and even so facelift on those patients should be performed with extreme conservation. Hypertension is probably the single factor that most closely correlates to post-operative hematomas so plastic surgeon should be facile with antihypertensive medications and be ready with blood pressure management during operation.

In addition, we also should examine the patients for psychological illness such as body dysmorphism, personality disorders, as psychological health of this kind will really distort the cosmetic surgical outcomes [8]. The patient with clearly understanding the anatomical alterations desired is always a better candidate than the patient defers to ‘Whatever doctor said’.

Next, a thorough physical exam for signs of aging and suitability for rhytidectomy should be performed; the following signs should be checked:

- .Facial asymmetry
- .Facial nerve function
- .Facial rhytids
- .Previous scar
- .Facial fat (midface, malar, and submental areas)
- . Basolabial folds
- .Platysma bands and deep neck lines
- .Bone structures
- .Hairlines characteristics
- .Ear/earlobe characteristics

Eventually, we must establish patients expectations and goals of surgery. It is common that in all aesthetic procedures patient should have realistic expectations for outcomes and recovery, as well as awareness of the possible need for revision and complications if any. A good communication between physician and patient should ascertain that patient expectations meet doctor's abilities and post-op outcomes. The dialogue needs to be open and honest in order to build rapport with the patient and avoid perceived suboptimal outcomes postoperatively.

INTRAOPERATIVE CONSIDERATIONS

We must pay attention from the induction of anesthesia to a smooth extubation to avoid any intraoperative complications. The endotracheal tube should be secured in the central incisors in order to avoid tape to the face, which can distort anatomical structures. In addition, careful patients positioning also helps with the visibility and sterile technique. Local anesthesia also needs to have enough time for epinephrine to take effect before incisions are made. The marking steps should be carefully made. Typically, incisions are made with #15 scalpel, skin flaps are then elevated using tenotomy scissors for the first few centimeters and then facelift scissors. Taking care to avoid trauma to the flap and keeping the flap at an proper thickness. Transillumination the flap also helps to ensure the suitable plane for dissection. The skin comes with some subcutaneous fat and the light will shine through. If the flap is too thick then the light is dim, the surgeon needs to adjust his dissection. If we dissect too deep the understructures, such as parotid gland and facial nerve, are in danger. The temporal branch of nerve VII is most vulnerable with the dissection too deep

anterior to the temporal hairline. The marginal mandibular and cervical branches of the facial nerves are also susceptible to injury if dissection distal to the mandible extends beneath the platysma. Posteriorly, neck flap dissection should be done superficially to avoid injury to the great auricular nerve and external jugular vein. In addition, the spinal accessory nerve is also susceptible to injury [7, 10].

In addition to facelift surgery, submental or jowl liposuction can be used alone or in conjunction with lipotransfer to improve contour and symmetry. SMAS plication is done to create more youthful cheek and blunt the nasolabial fold [7]. Plication or transection of platysma also help to restore more beautiful appearance but must be done with attention to reduce the risk of injuring deeper structures as mentioned above.

POSTOPERATIVE COMPLICATIONS

Hematoma

Hematoma is the most common complication of facelift procedure; it may happen in the first 24 hours postoperative and leading to flap necrosis due to tissue ischemia and edema [11]. Preventive measures of hematoma include the use of compressive dressings (not too tight as this may lead to tissue ischemia), drains, smooth extubation, and control of blood pressure and avoidance of anticoagulant/antiplatelet medications. Treatment will focus on prompt surgical exploration, hematoma evacuation and control of bleeding.

As stated before, hypertension is the single factor that most likely increases the risk of hematoma. Patient blood pressure must be kept under control both during and after operation with the use of beta blockers, calcium channel blockers or alpha agonists. Incidence of hematoma in hypertension males is 8% and that is double more than males without history of high blood pressure [13]. In addition, one should notice factors that may increase blood pressure, such as pain, anxiety, nausea and vomiting [12]. The incidence of hematoma also increases in patients taking anticoagulant, antiplatelet or NSAID medications. If the patient is suspected of having impaired platelet function, intravenous desmopressin can be used intraoperatively [13]. Furthermore, some supplements with antiplatelet/anticoagulant properties, such as ginger, vitamin E, fish oil, glucosamine, and green tea should be discontinued at least 2 week prior to surgery [15].

Infection

Infection is a rare complication of facelift. In addition, antibiotics are often given preoperatively, typically cephalosporin or vancomycin, that target skin pathogen although there is

little evidence that supports their usefulness [7]. *Pseudomonas aeruginosa* can cause preauricular infection and typically responds to oral ciprofloxacin [16]. Minor infection also comes from a stitch abscess, which can be treated by stitch removal and local wound care.

Nerve Injury

Rates of nerve injury with rhytidectomy has been reported around 0.7 – 2.5% [9]. Nerves vulnerable to injury include facial nerve, great auricular nerve and accessory nerve. If we can identify the injury during surgery, it is best to fix it right away. The distal end of the injured nerve can be identified using electrical stimulation, once identified, the nerve can be repaired using a 6-0 nylon suture [7]. Mild transient paresis is common and may last for 12 hour after surgery due to local anesthetic effects [17]. Extended nerve injury may be identified days after surgery and secondary to cauterization, suture traction or surgical division. Many injuries of this kind can spontaneously recover after 3-4 months [11,17]. Permanent nerve injury is confirmed if its function does not recover after 2 years. Both motor and sensory nerves are susceptible to permanent nerve injury. The most commonly noticeable motor nerve vulnerable to injury is the temporal branch of the facial nerve, resulting in permanent damage in 0.1% cases, though may resolve within 18-24 months after injury [7]. Like while, the buccal branch is injured more often than the temporal but is not noticed secondary to arborization and rich collateral innervation [9].

Flap necrosis

This complication is not common following face lift. Preoperative factors, such as smoking, diabetes, and intraoperative issues such as flaps under excessive tension and thinly dissected flap, hematoma, tight dressing all increase the incidence of flap ischemia [19]. Reduction of salt and water intake can decrease tissue edema postoperatively [10]. In addition, Drains also decreases the amount of serum fluid collection beneath the flap and may contribute to reduce flap ischemia although this has not been shown to have an effect on significant hematoma development or evacuation [10].

Poor Scar and Other Deformities

There are many complications related to normal face lift or other surgical procedures, such as hypertrophic or keloid scarring, contour deformity, ear deformities, alopecia or hair line distortion.

Classic deformity related to overcutting at the base of ear lobe and the earlobe is sutured more inferior to the cheek skin resulting in an elongation of the lobe which make a pixie or elfin appearance [20].

Hypertrophic and keloid scars may present too. Corticoid can be used in those cases. Big, widened scar, and irregular or very obvious scar at the face can be treated with scar revision once the scar is matured and relaxed, which usually happens at least 6 months after surgery [10]. Contour deformities due to edema can be common postoperatively and last for several months. However, this deformity generally subsides as edema resolves and healing proceeds. gently local massage can speed up resolutions. If those deformities still persist, dermal filler or fat transfer can be used to improve the facial contour and create better facial symmetry [7]. Poor incision marking, excessive tension on skin flap can results in an hairline asymmetry. Alopecia happens due to damage to hair follicles from cauterization or elimination of the temporal hair tuft and hair line. Treatment include using minoxidil to reduce temporal loss. Alopecia can be addressed by excision of skin area or definitive hair replacement surgery, which includes the insertion of single hair follicle units into affected areas [7]. The treatment can be delayed up to 12 months until it is certain that the loss is permanent, it usually 12 months.

CONCLUSION

Facelift is the standard procedure for facial rejuvenation and normally generate very high satisfaction rate. The complication rate is low if the surgeon performs meticulous surgical plan and provides detailed postoperative management. We are trying to avoid any complications, but if one does occur, manage it properly is our goal. Though preoperative assessment, create detailed operative plan and postoperative management are the factor that must be done to reduce the risk of facelift complications.

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