Multidimensional Evaluation and Surgical Approaches to Neck Rejuvenation

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KEYWORDS

- Cervicoplasty Neck aesthetics Aging neck Deep cervicoplasty Neck rejuvenation
- Mandibular implants

KEY POINTS

- Aging of the neck is dependent of: skin elasticity, amount of superficial and deep neck fat accumulation, quality and volume of mandibular support, degenerative changes of the cervical spine and body mass index.
- Evaluation of the neck should take into account the superficial and deep structures as it relates the factors above mentioned.
- The surgical plan to be outlined will depend of the aesthetic and anatomical findings.
- Cervicoplasty should not be limited to the treatment of the skin, subcutaneous fat and platysma
 muscle only. It should consider the changes in the deep structures of the neck: deep cervical fat,
 digastrics and salivary gland.
- Assessment of volume and quality of support of the entire mandible should be a routine part of your preoperative evaluation.
- Appropriate surgical maneuvers should be planned based on a comprehensive, multidimensional evaluation.

Editor Commentary: Oscar and I began our friendship in the mid 90's when he was pioneering the endoscopic approach to upper, middle, and lower third facial rejuvenation. His interest in evaluating the anatomical findings in the aging neck and correlating the anatomy to the surgical technique is a common thread throughout his chapter. His advice is logical and intended to safely guide the reader to the best approach to reverse the signs of the aging neck adding ancillary techniques such as suture suspension to improve the outcome.

OVERVIEW

Neck aging is still a challenging problem despite that many procedures and techniques have been described over the years.^{1–8} A result that looks good in the early postoperative period can be followed a few weeks or months later with frustrating

subcutaneous indurations, skin flaccidity, contour irregularities due to preexisting salivary gland ptosis, digastric "malposition" hypertrophy or subplatysma fat that has not been addressed during the initial surgery. Despite the emphasis of many surgeons on the platysma banding, recurrence of this problem is limited to patients with thin necks.

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Not all necks are alike. Aesthetic problems of the cervical area are influenced by the following:

- Age
- Inherent skin elasticity
- Subcutaneous and subplatysma fat accumulation
- Volume and quality of the skeletal support of the mandible from the chin to the gonial angle
- · Natural height of the cervical spine
- Presence of arthritic changes on the cervical spine that modifies its height and curvature
- Body mass index (BMI)

Aging of the neck is greatly influenced by the acquired or inherent anatomic, aesthetic, and metabolic milieu. An aging neck in the preexisting presence of low BMI with a long slender neck with a normal curvature and excellent mandibular support is going to be completely different from the aging neck in a patient with high BMI, short neck, and poor skeletal support. Between these 2 extremes are a wide variety of conditions that need to be individualized to treat the patient adequately.

In the first situation (low BMI, long slender neck, normal curvature, mandibular support), simpler techniques, such as a cervicofacial lift from the lateral approach, will work well. In the second situation (high BMI, short neck, poor skeletal support), this simple procedure as is proposed by many surgeons will give at best a mediocre result and, at worst, it will make more apparent the underlying anatomic issues with associated aesthetic deformities.

This simple analysis will explain why you cannot compare techniques when you apply them to different anatomic and clinical situations. Any 2 techniques have to be compared when you apply them to similar clinical situations.

Obesity

Obesity is an ever-increasing problem in the United States and in most of the industrialized world with 60 million obese adults in the United States. Likewise, there is increasing rate of obesity in children and teenagers. Since 1980, overweight rates have doubled among children and tripled among adolescents (Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, 2006). That is the population that plastic surgeons will be seeing as patients when they approach middle and old age, not to mention the current middle-age and aging population. Obesity affects not only the trunk but also to a significant degree the face and neck. Those patients develop accumulation

of subcutaneous fat not only on the anterior neck but also on the posterior neck. They also develop fat accumulation deep to the platysma muscle more than average-weight people. Overweight and obese patients also present more jowling. Obesity is a condition essential to consider during preoperative planning.

Bulging Digastric Muscle

Bulging of the anterior belly of digastric muscle is another problem not routinely approached during cervicoplasty. This bulging can be due to hypertrophy or malposition of the muscle. I do not know why hypertrophy occurs. Malposition of the anterior belly of the digastric is related to the low-lying position of the hyoid bone. This is seen in patients with obtuse- firm necks and in patients with microgenia.

Salivary Gland Ptosis

Salivary gland ptosis is another complex problem that affects many patients and makes it difficult to obtain a nice contour on the neck during cervicoplasty. Salivary gland ptosis can happen in patients with thin or heavy necks. Preoperatively it is easier to spot this problem in thin necks. Patients with heavy necks can camouflage minor or large degrees of salivary gland ptosis. This can be a trap for the inexperienced surgeon because, if you overlook diagnosing this condition, postoperatively you will have an unsatisfied patient who will claim that you missed removal of "a lump" of fat tissue, which obviously it is not. Postoperative explanations to an angry patient do not go well and correction of this problem is more complicated at this stage.

Cervical Spine Degeneration

A problem not recognized in the etiology of aesthetic problems of the neck during aging is the gradual shortening of the cervical spine due to arthritic changes and the natural shrinkage or herniations of the intervertebral discs. Those changes are common to the entire length of the spinal column and the cervical spine is not spared of these degenerative processes. This will shorten the entire cervical cylinder, which, in turn, will push the deep neck and floor of the mouth structures to the areas of least resistance, which are the submandibular and submental triangles. As a consequence, the salivary glands, digastric/mylohyoid muscles and the subplatysma fat will "herniate" anteriorly and inferiorly. The more superficial neck envelope, skin, and platysma muscle will also become more redundant in the vertical and horizontal dimensions.

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