

## Chronic Neck Pain Consideration in the Facelift Patient

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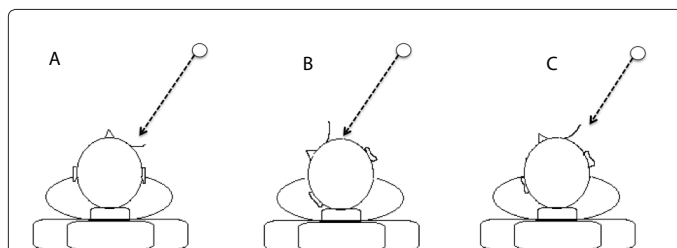
### Abstract

With the aging population and concomitant increased prevalence of arthritis and pain, especially in the neck, special considerations should be considered during facelift surgery. Asymptomatic or undiagnosed neck arthritis can result in stiffness in the neck decreasing the mobility during surgery. This will not only hinder the surgeon's visual field but also cause discomfort to the patient peri-operatively. We propose a rotating surgical bed with a separate head and neck mobility piece to protect the neck of the arthritic patient and the back of the surgeon.

**Keywords:** Facelift patient; MRI; Neck arthropathies

Facelift surgery is a common procedure ranking amongst the top five most common cosmetic surgeries performed [1]. Its popularity continues to rise with a 5 % increase in procedural numbers from 2010 to 2011 [1]. Whether the procedure is performed under local or general anesthesia the neck must be rotated over 120 degrees in the sagittal plane to allow the surgeon to adequately visualize the dissection planes. Asymptomatic or undiagnosed neck arthritis can result in the inability to rotate the neck adequately during surgery. This will not only hinder the surgeon's visual field but also cause discomfort to the patient peri-operatively, (Figure 1). Aggressive rotation of the arthritic neck can even theoretically result in inadvertent injury to the cervical spine of the patient.

Cervical spondylosis (degenerative osteoarthritis) is likely more common in the facelift patients than previously expected. Facelift surgery comprises over 65% of cosmetic procedures performed in those aged over 55 years and over 33% of cosmetic procedures for those aged between 40 and 54 years [1]. Arthritis in the neck effect people in their 4<sup>th</sup> and 5<sup>th</sup> decade of life [2]. These degenerative changes in the neck increase with age in the general population [2,3]. In fact, the majority of patients are unaware of their neck arthritis. Studies of the cervical spine in asymptomatic persons have discovered that degenerative changes on MRI are present in 60% of persons older than 40 years [4]. In those individuals older than the age of 60, degenerative changes on cervical spine radiographs are present in more than 60% to 75% of persons [4].



**Figure 1:** Schematic representation of a facelift patient on an operative table. The surgeon's vision is represented by the circular eye with an arrow to the surgical field.

A. Patient lying supine on the operative table with facelift skin flaps of the right cheek elevated and the surgeon's line of vision unable to visualize the underlying skin and Superficial Musculoaponeurotic System (SMAS) layer.

B. Facelift patient with a non-arthritic neck that is able to rotate toward their left side at 45 degrees in the sagittal plane from the meridian. The surgeon's line of vision is adequate to visualize the surgical field.

C. Typical facelift patient undergoing facelift surgery with stiff neck secondary to undiagnosed cervical spondylosis. The surgeon is unable to adequately visualize the surgical field secondary to the inadequate ability of the patient to rotate their neck.

On MRI this evidence was seen in more than 85% of persons [5,6]. No differences in abnormal findings were found between males and females [3]. The prevalence of positive MRI findings in asymptomatic individuals emphasizes the importance for pre-operative history and physical exams prior to cosmetic surgery of the face. Moreover, since the vast majority of patients undergoing facelift surgery fall within the age group of increased prevalence of cervical spondylosis, plastic surgeons are recommended to be mindful of this important but often silent condition.

Aggressive mobility of the neck can expose the cervical spine to theoretical risk factors not seen in the general population [7]. This can occur during participation of sports or even facelift surgery. Some of these risk factors include body mechanics, repetitive loads, acute bony and ligamentous injuries, spondylolysis, and muscle imbalances [8-14]. During cosmetic facial surgery, the neck can be exposed to such stress and strain forces acting on the cervical bony and ligamentous constructs as well as the strap, sternocleidomastoid and trapezius muscles. The prolonged positioning of the neck to each extreme rotational position during a facelift procedure can aggravate pre-existing spondylosis and result in painful spasm of the surrounding muscles.

Cervical spondylosis can be a predisposing condition leading to cervical radiculopathy. The latter is a neurologic condition that is featured by a dysfunction of a cervical spinal nerve and/or the roots of the nerve. It most commonly presents with pain in the neck and upper extremity. It can also present with a combination of changes in the sensory, motor, or reflexes in the affected nerve-root distribution [15]. Cervical radiculopathy has an annual incidence of 170 per 100,000. It peaks at 50 to 54 years of age [16]. A history of physical exertion or trauma precedes the onset of symptoms in only 15 percent of cases [16,17]. If the plastic surgeon suspects cervical radiculopathy, cosmetic surgery is recommended to be put on hold until adequate further neurologic evaluation and treatment is established.

For all facelift patients above 40 years of age, plastic surgeons are advised to continue to perform thorough history and physical exams

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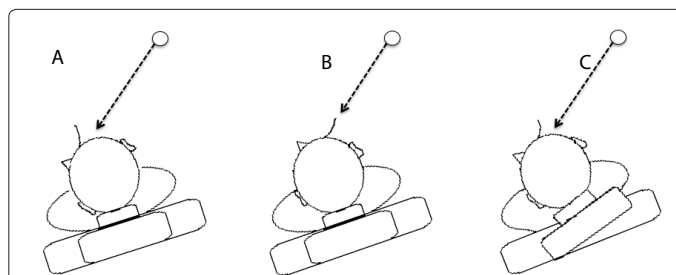
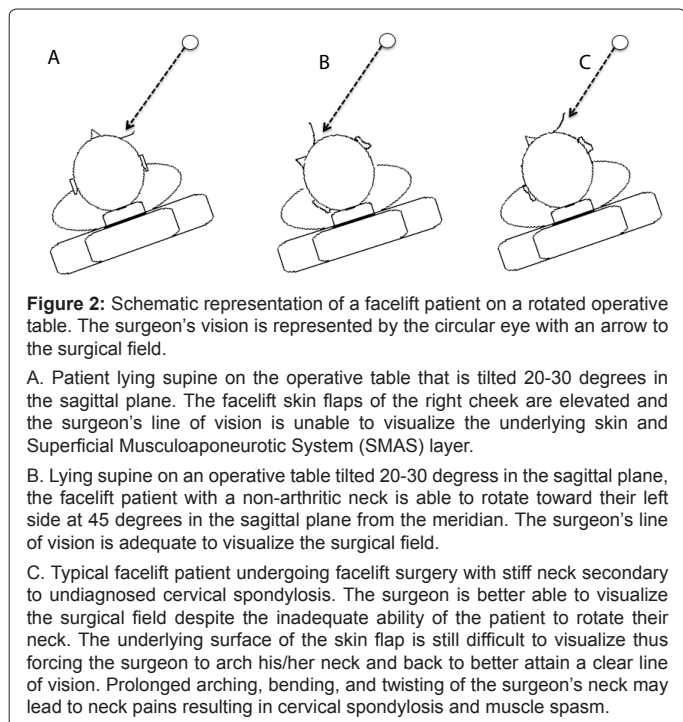
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with cervical spondylosis in mind. Any signs of stiffness or tenderness of the neck and upper extremity must be noted. The threshold for neurologic consultation in a high risk patient and follow-up should be low to prevent any inadvertent injury to the patient or intra-operative surprises. A surgical bed that has a rotatory setting in the sagittal plane is recommended, (Figure 2). A separate rotatory neck part on the table would also prove superior allowing a differential rotation of the neck from the rest of the body to improve surgical exposure and prevent the patient from sliding from the table, (Figure 3). This is especially true for the majority of the facelift patients who are likely to be within the 85 % of individuals with neck arthritis because of their age group [1,2]. Furthermore, this set-up would protect the surgeons' own neck and back from developing discomfort and pain that may in itself exacerbate cervical spondylosis of their own.

The type of anesthesia is another important consideration in older patients with suspected neck arthropathies. Local anesthesia will likely be inadequate to achieve full comfort for the patient and the surgeon during a prolonged facelift surgery on a patient with neck arthritis [18]. The patient will generally feel more pain and develop more stiffness throughout the case. We believe that general anesthesia will result in appropriate patient comfort during the surgical procedure. Unfortunately, in many of the aging patients requesting facelift surgery, other medical co-morbidities may preclude a general anesthetic. Under general anesthesia the surgeon may inadvertently hyper-extend or hyper-rotate the arthritic neck that may increase risk of acute injury and/or result in post-operative neck pain. Local anesthesia with light sedation is an adequate modality for this patient population [18,19]. If performed well, the patient will be comfortable during the procedure while preventing inadvertent injury to the skeletal-muscular unit of the neck [19].

Neck arthritis is common in the facelift patient cohort. Careful history and physical exam are recommended to adequately screen plastic surgery patients, especially in the setting of silent cervical spondylosis.



**Figure 3:** Schematic representation of a facelift patient on a rotated operative table with a separate adjustable neck rotation. The surgeon's vision is represented by the circular eye with an arrow to the surgical field.

A. Patient with no neck arthritis is lying supine on the operative table that is tilted 20-30 degrees in the sagittal plane. The facelift skin flaps of the right cheek are elevated and the surgeon's line of vision is able to visualize the underlying skin and Superficial Musculoaponeurotic System (SMAS) layer. The prolonged rotation of the neck at this angle of 45 degrees may result in early patient discomfort in an awake patient and/or post-operative neck pain in a sedated patient.

B. The typical facelift patient undergoing facelift surgery with stiff neck secondary to undiagnosed cervical spondylosis. As compared to the flat horizontal position, a 20-30 degrees of rotation of the operative table will allow the surgeon to have improved visualization of the surgical field despite the inadequate ability of the patient to rotate his/her neck. The underlying surface of the skin flap is still difficult to visualize thus forcing the surgeon to arch his/her neck and back to better attain a clear line of vision. Prolonged arching, bending, and twisting of the surgeon's neck may lead to neck pains resulting in cervical spondylosis and muscle spasm. The operative table should not be rotated further than 20-30 degrees in the sagittal plane as to prevent the patient from sliding off despite the mandatory seatbelt security.

C. The surgeon possesses superior visualization of the whole operative field including the SMAS and underlying skin flap surface in the stiff neck patient secondary to the differential rotation of the neck piece of the operative table. The patient is secure from sliding off the table with the seatbelt and the fact that the body of the patient is not rotated more than 20-30 degrees in the sagittal plane. The surgeon can continue the operation with a comfortable upright back and neck with superior visualization of the surgical field.

Simple surgical table differential rotation settings can provide plastic surgeons with improve surgical field exposure and decrease risk and discomfort to the patients and themselves.

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