

# Understanding Deep Neck Anatomy and Its Clinical Relevance



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## KEYWORDS

• Necklift • Submandibular gland reduction • Subplatysmal fat • Digastric muscle • Platysma muscle

## KEY POINTS

- Surgery of the central neck is complex due to the number of anatomic structures encountered in a confined space with limited distant access.
- A thorough understanding of the complex anatomy and the 3-dimensional relationship of these structures is crucial to safely and efficiently perform surgery on the subplatysmal structures.
- Clinical pictures from surgery and anatomy laboratory dissections are used to illustrate the most pertinent structures encountered in subplatysmal surgery.

## INTRODUCTION

In aesthetic neck surgery, we are more widely recognizing that all necks are not created equally. There is increasing interest in understanding surgery of the deep central neck that previously has been practiced by few surgeons. There are anatomic variations that defy our traditional approaches to create the ideal neck in the aging patient as well as the young patient. These variations are related to the 3-dimensional relationship of the volume of deep central neck soft tissue structures, deep fat, musculature, fascial attachments, and submandibular glands, to the skeletal confinements of the mandible. When this discrepancy between soft issue volume and the skeletal structure that must contain it occurs, we are often required to give surgical attention to these anatomic characteristics and modify relative deep neck components to create an optimal aesthetically pleasing cervicomental angle (**Figs. 1 and 2**).

In deep central necklift surgery, the first step to safely and effectively modify all of the relevant components is a thorough understanding of the

nuances of the complex anatomic relationships and variations within the confined space of the deep central neck. This article concentrates on the surgically relevant anatomy and is presented in the order that the surgeon will encounter each structure.

## SUBMENTAL TRIANGLE

The platysma are paired, broad elastic muscles that originate from the deltopectoral fascia and inserts into the base of the mandible and into the modiolus of the lower lip. The labial component of the platysma is referred to as the pars labialis platysma and runs beneath the depressor anguli oris and lateral to the depressor labia inferioris muscles.<sup>1</sup> The cervical branch of the facial nerve innervates the platysma. The platysma acts as a depressor to the lateral lip and injury to the platysma or its innervation can lead to lower lip depressor dysfunction. The platysma muscle and the deep investing fascia form the roof of the submental and submandibular triangles. The paired platysma muscle has varied interdigitations in the

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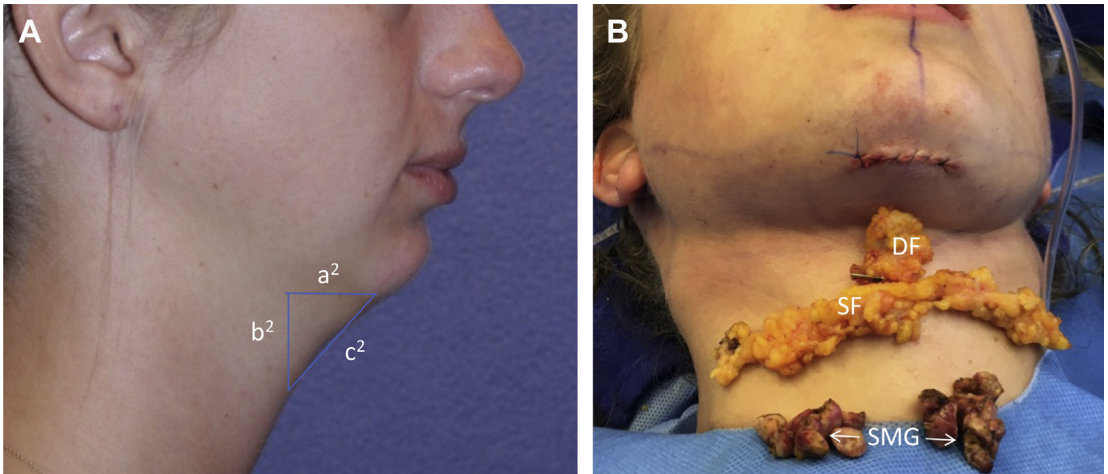
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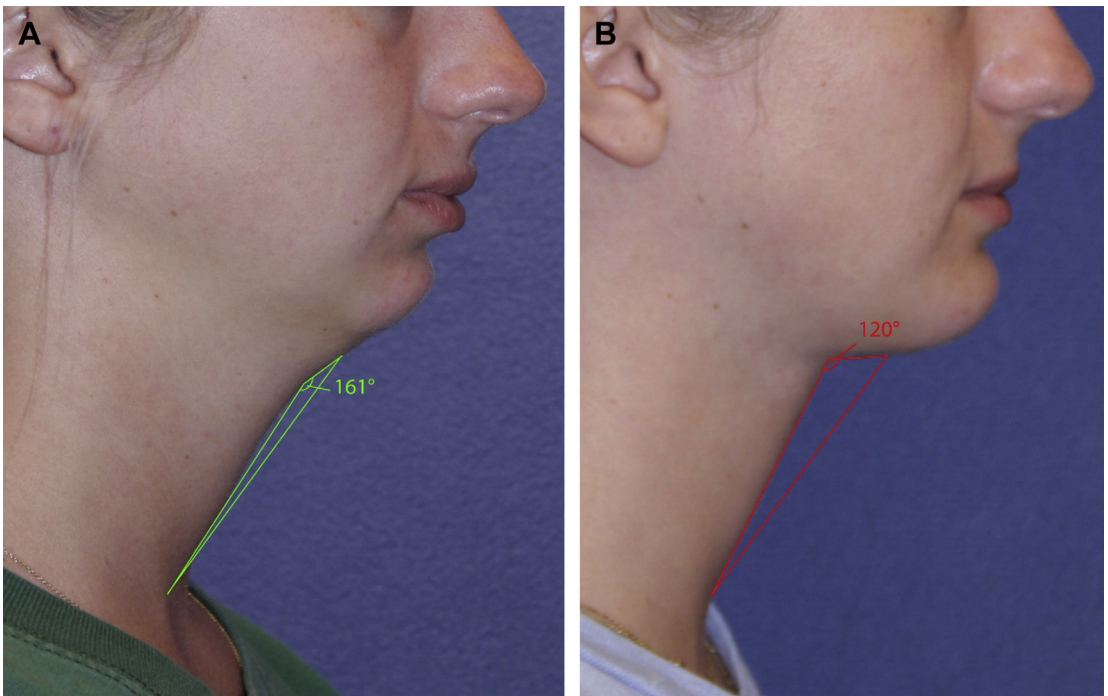


**Fig. 1.** (A) A 20-year-old preoperative. Space within the triangle is occupied by soft tissue in a tight skin envelope. (B) Volume is reduced by removal of 6 mL of deep subplatysmal fat (DF), 6 mL of supra-platysma fat (SF), and 8 mL of submandibular glands (SMG) during an isolated necklift. A chin implant was added.

midline, most often (85%) the muscle fibers interlace in the midline ranging from less than 2 cm area of decussation in half and greater than 2 cm in the other half. In 15%, the platysma does not meet in the midline.<sup>2</sup>

The superficial cervical fascia and deep cervical fascia are important in central neck surgery. The

superficial cervical fascia is a translucent membrane that covers the superficial surface of the platysma (**Fig. 3**). The fascia fuses with the deep fascia of the pectoralis and deltoid muscles inferiorly and becomes the superficial musculoaponeurotic system above the jawline. Maintaining the integrity of the superficial cervical fascia during



**Fig. 2.** (A) A preoperative cervicomental angle of 161°. (B) One-year postoperative cervicomental angle of 120°.

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