

Anterocollis Posture and Deep Cervical Muscle Injections with BoNT

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Introduction

Anterocollis presents several challenges to the neurotoxin injector. It represents approximately 6.8% of the abnormal posture seen in Cervical Dystonia. The anterocollis population has a higher proportion of females (67%). Some of the etiologies of anterocollis include neuroleptic exposure and parkinsonism syndromes. This posture is excluded in pivotal trials studying botulinum toxin. Furthermore, botulinum toxin treatment is often limited by dysphagia.^{1,2}

The initial challenge is the differentiation of anterocollis from similar but distinct postures such as anterocaput, anterior sagittal shift “goose neck” and posterior sagittal shift “double chin” posture”

Anterocollis: the flexion deviation of the cervical spine and head is in relation to the thoracic spine.

Anterocaput: the deviation only involves the head with respect to the cervical spine.

Anterior sagittal shift: forward translation of the head and cervical spine.³

Posterior sagittal shift: mild flexion of the head with extension of the cervical spine but results in double chin which may appear similar to other flexed neck postures.⁴

Accurate distinction is important as the other postures involve a different combination of muscles.

Methods:

Review of literature involving keywords: anterocollis, deep cervical muscles and botulinum toxin

Results:

There are 2 case reports of injections involving the lower SCM demonstrating benefit in anterocollis without side effects⁵.

Several case reports show benefit in “refractory” anterocollis posture with injections in Longus capitus and Longus coli. The benefit was sustained over several treatment cycles. ^{6,7,8,9,10} These muscles are located in the retropharyngeal space presenting an additional challenge in successful targeting of deep cervical muscles.

The muscles were successfully targeted using several guidance methods including EMG, CT, Ultrasound and fluoroscopy. ^{6,7,8,9,10} . Side effects if experienced involved mild dysphagia. As these muscles are not commonly injected doses are not well known. See Table 1 for dose details

Table1:

Muscles	Onabtx	Incbtx	Abobtx	Rimabtx
SCM	20-50 Units	20-50 Units	40-120 Units	1000-3000 Units
Scalene	5-30 Units	5-30 Units	20-100 Units	500-2000 Units
Longus Colli	15-30 Units	15-30 Units	20-60 Units	-
Longus Capitis	5-15 Units	5-15 Units	20-60 Units	-

Conclusion:

Anterocollis is an uncommon posture that is under treated. It is important to clearly define anterocollis and differentiate it from similar appearing postures. The SCM and scalene are the commonly injected in anterocollis but may not provide significant benefit.¹² Consensus statements mention bilateral sternocleidomastoid (SCM), Scalenes, Longus capitus and Longus coli.¹³

Literature review indicates that refractory anterocollis involves deep cervical muscles (Longus colli and Longus capitus). Injections with botulinum toxin under various guidance modalities result in improvement of posture with mild side effects. One should consider injections in these muscles in cases of anterocollis that do not improve with SCM and scalene injections.

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