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## To Clinch a Point for Injection of a Botulinum Toxin for Aesthetic Smile.

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### ABSTRACT

Smile is the most recognized expression and most effective positive note of social interaction in the world. An excessive display of gingival tissue is often displeasing and taken not as a nice welcome greeting. So here topographic relations of three Lip Elevator levator labii superioris, levator labii superioris alaeque nasi, and zygomaticus minor were studied and reliable injection point is taken out for botulinum toxin-A is found out supplementary method of treatment for gummy smile due to hyper functioning of muscles.

**Keywords:** Gummy smile, Injection point, Lip elevator muscles.

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**INTRODUCTION**

A smile is one of the most effective means of connecting with the people. It is the most recognized expression in the world and is the cornerstone of social interaction and considered as the universal friendly greeting in all cultures. The value of attractive smile is undeniable. Excess exposure of gums on smiling has negative effects in communication skill. Gummy smile is a very unaesthetic and common condition defined as the exposure of more than 3 mm of gingival tissue while an individual is smiling [1]. It can results from abnormal eruption of teeth , hyperfunction of lip elevators or other perioral muscles (orbicularis oris, zygomaticus major and minor, depressor septi nasi, levator labii superioris alaeque nasi/anguli oris), lip length, clinical crown length, skeletal problems caused by maxillary excess [2] and delayed passive eruption resulting in gingival problems.

Polo recently introduced the use of botulinum toxin type A under electromyographic guidance for the correction of gummy smile caused by hyperfunctional muscles [3] Hwanga et al.[4] identified a simple and reliable injection point in the middle of a triangle formed by the vectors of the levator labii superioris, levator labii superioris alaeque nasi, and zygomaticus minor—converging on the area lateral to the ala (Yonsei point) and after they measured the distance of the center of the triangle from the ala and the lip line (the line that connected both commissures). This study is done to clinch a safe and effective injection point for giving botulinum toxin type A to patients with excessive gingival display.

**METHOD**

30 specimen of hemi faces from 15 cadavers were used for this study.Topographic relations of three Lip Elevator Muscles , levator labii superioris (LLS), levator labii superioris alaeque nasi (LLSAN),and zygomaticus minor (ZMi) were seen. Direction of all the muscles are noticed.The reliable injection point in the middle of a triangle formed by the vectors of the levator labii superioris, levator labii superioris alaeque nasi, and zygomaticus minor are calculated and after the distance of the center of the triangle from the ala and the lip line was measured.

**OBSERVATION AND RESULTS**

We noted the direction of the lip elevators Observe the point where the lip elevators cross with maximum The number of hemi-faces through which all three muscle vectors passed was greatest at the center of the triangle; The mean horizontal distance from the ala to the point was 10.2 mm and mean vertical distance from the lip line was 32.1 mm in Males . The mean horizontal distance from the ala to the point was 10.5 mm and mean vertical distance from the lip line was 32.1 mm in Females . This study identified a safe and effective injection point for patients with excessive gingival display.

Muscle	Sex	Side	Mean	Minimum	Maximum
LLS	Male	Rt	23.85	17.3	30.4
		Lt	24.15	18.6	29.7
	Female	Rt	28.5	22.4	34.6
		Lt	28.55	23.6	33.5
ZMi	Male	Rt	53.4	48.3	58.5
		Lt	53.95	47.5	60.4
	Female	Rt	52.15	46.6	57.7
		Lt	53.45	48.5	58.4
LLSAN	Male	Rt	-20.15	-17.6	-22.7
		Lt	-21.7	-18.3	-25.1
	Female	Rt	-20.45	-17.5	-23.4
		Lt	-21.7	-16.6	-26.8

**Table 1: Angular Measurements for LLS, ZMi, and LLSAN**

	No. of MUSCLES		
	3	2	1
Point 1	18	8	4
Point 2	9	16	5
Point 3	0	10	25
Center of triangle	22	8	0

Table 2: Frequency of Muscle Vectors Passing Through Diff. pt, Chi-square test ; P< .05



Figure 1: Dissected specimen showing the three lip elevators levator labii superioris (LLS), levator labii superioris alaeque nasi (LLSAN), and zygomaticus minor (ZMi).

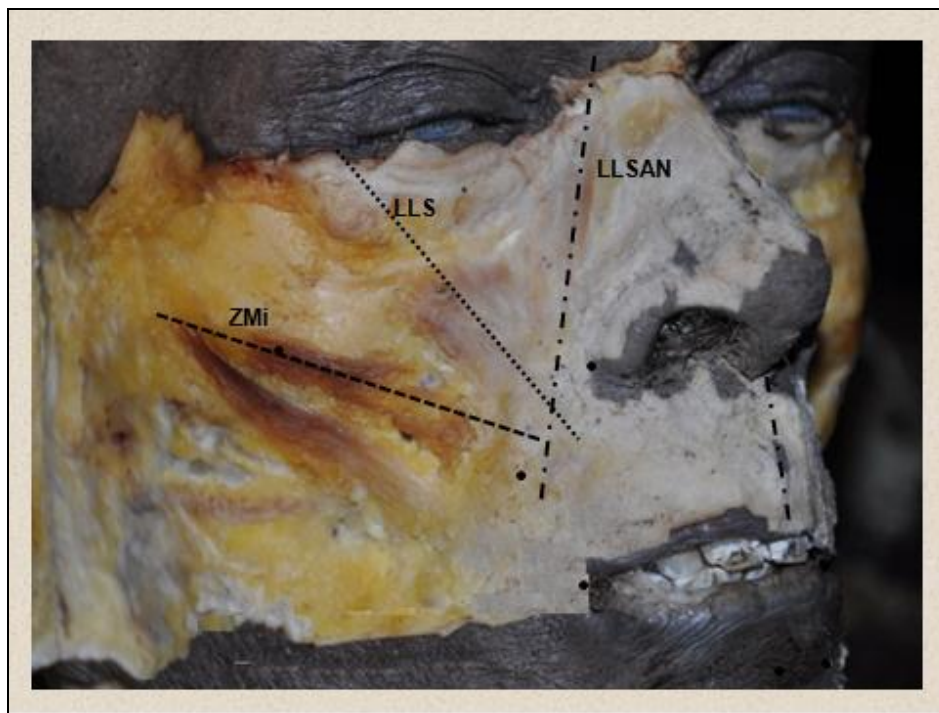


Figure 2: Dissected specimen with vectors showing the direction of muscle fibers.



## DISCUSSION

Gummy smile is also treated by some surgical methods as surgical reposting [5]. Now it is time to broaden our horizons as a profession and use all of the tools available to us. Pated D P et al also refer Botulinum as an aid for neuromuscular correction of gummy smile [6]. Treatment has been started at many places taking the reference of effective injection point for patients with excessive gingival display [7,8]. Previously multiple injections are given so finding of most effective point will be helpful for surgeons. But this study is done to clinch a safe and effective injection point for injecting BOTOX. It was described as Yonsei point by Hwanga et al.

## CONCLUSION

An injection point can be find out through which a single injection of botulinum toxin may serve as a favorable treatment in hyperfuntion of upper lip muscles. It is a non-surgical way to treat excessive gingival Display .Within 3-4 days elevation of upper lip progressively weakened and 4 -6 week it is established. A nice smile can act as a powerful communication tool; an unpleasing smile can have an equally powerful negative impact.

## REFERENCES

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