

MINISCREW ANCHORAGE IN HERBST TREATMENT: INDICATIONS AND TECHNIQUE

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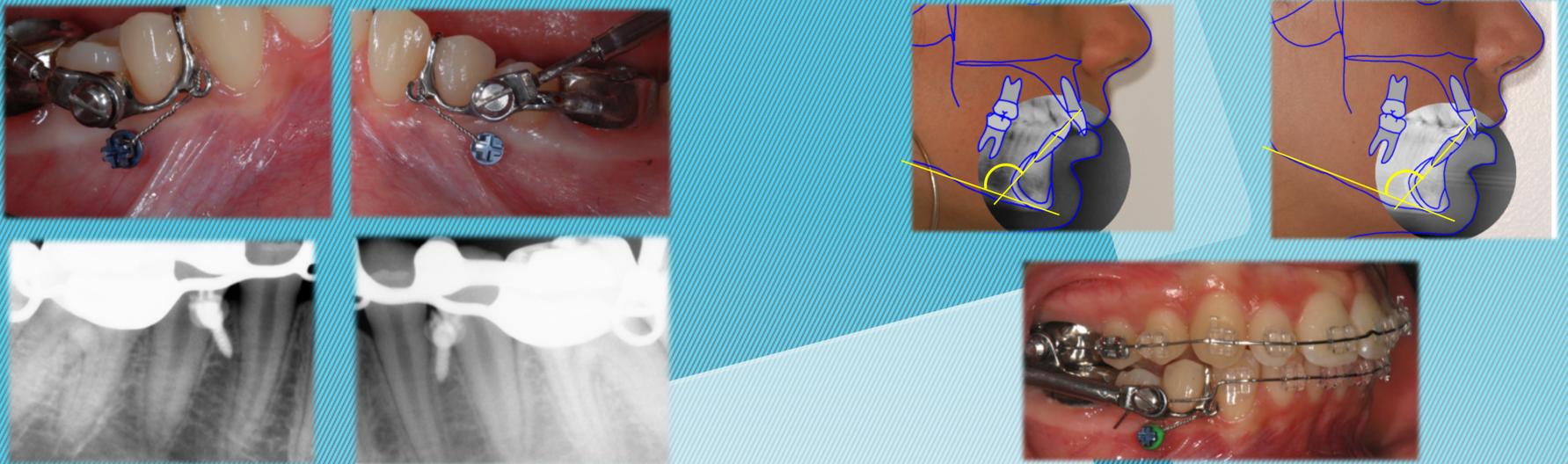


Introduction

Fixed bite-jumping devices for class II correction generate both skeletal and dental effects, and result, as a main side effect, in the proclination of lower incisors, thereby reducing partially the overjet by means of dento-alveolar compensations. The aim of this research is to describe a Herbst appliance-miniscrew anchorage combination technique for improved control of lower incisors position during Herbst therapy, testing the validity of the procedure with the help of cephalometric data.

Materials and Methods

20 consecutive Herbst treatments were assigned to two treatment groups. Ten cases were treated with a modified miniscrew-supported Herbst appliance (experimental group (EG)) and ten cases with a conventional cast Herbst appliance (control group (CG)). In all cases, the Herbst was kept in place for 9 months and was followed by fixed appliances until class I relationships were achieved. The initial (T1) and final (T2) ANB angle and lower incisor inclination on lateral headfilms were analyzed for each case, and the mean increase for the ten EG patients and the ten CG patients were compared.



Results

The ANB angle was reduced in both groups during active treatment. The increase in lower incisors inclination ranged between 0-3° in the miniscrew anchorage group and 2-11° in the conventional anchorage group.

Group	Patient	Initial L1/Go-Gn	Final L1/Go-Gn	Initial ANB	Final ANB
EG	N.P.	109°	109°	9°	5°
	F.M.	107°	109°	8°	5°
	R.R.	102°	102°	5°	3°
	T.M.	105°	107°	9°	4°
	M.S.	112°	113°	7°	4°
	A.V.	103°	104°	5°	3°
	G.Ce	100°	103°	7°	6°
	A.P.	103°	104°	5°	2°
	A.L.	107°	108°	6°	4°
	G.Ca	102°	104°	8°	5°
CG	S.C.	97°	104°	7°	4°
	M.E.D.	99°	103°	6°	4°
	M.R.	101°	111°	9°	7°
	J.G.	96°	101°	6°	5°
	G.D.	90°	95°	7°	5°
	Y.F.	94°	105°	4°	2°
	L.F.	96°	102°	6°	3°
	D.S.	91°	96°	7°	6°
	S.M.	98°	100°	8°	4°
	V.P.	96°	99°	5°	3°

Discussion:

The Herbst appliance is still the most widely used appliance for class II correction, with the ability of reducing the overjet and improving the molar class by means of both skeletal and dental changes. To reduce dental-alveolar effects several treatment methods have been suggested without satisfactory results. Although TADs have become a daily clinical tool in orthodontics their use in combination with the Herbst appliance has not yet been standardized into a treatment protocol or reported in clinical trials. These preliminary results describe the attempt to combine TADs and Herbst appliance to control the proclination of the lower incisors during treatment. The mandibular bone proved to have optimal characteristics for miniscrew stability. Although randomization was not involved and the most compensated case at treatment start were inserted in the experimental group, the results described pointed out a clear advantage in mandibular anchorage control.

Conclusion:

The use of miniscrews for indirect skeletal anchorage on the mandibular arch during Herbst therapy can be an effective strategy to reduce dento-alveolar side-effects, mainly lower incisors proclination, thereby enhancing skeletal response and optimizing treatment efficiency and success.