Goce Delcev Univrsity
Faculty of medical sciecnes

Facial orthopedics as a treatment option in Class III growing patients

Sofija Carceva Shalja, Kiro Papakoca, Sandra Atanasova, Mihajlo Petrovski

Background: Developing Class III Malocclusion in most of the cases affects dentofacial appearance. Skeletal Class III Maloclussion is a anomaly, mostly related with abnormal growth of the craniofacial complex, mostly genetically expressed, and in most of the cases, being more emphasized by the end of the treatment. Therefore, the management of the treatment of this skeletal anomaly as far as today remains as a great challenge of the orthodontic professionals. The limited ability to affect the mandibular growth and the flexibility in the maxilla growth affection, have led to the well established treatment protocols with impact to the mild or moderate Class III, which being forwarded to the maxillar protraction paradigm.

Aim: The purpose in this study was to determine the changes in the facial appearances in treated Class III patients with Face mask orthopedic treatment and untreated Class III patients.

**Material and method:** Material and methods
The sample consisted of 49 patients (boys and girls) who had a Class III Malocclusion with an anterior crossbite and a component of maxillary deficiency. 28 of them were treated with protraction Face mask- Delair mask (petit tipe), and the other 21 were presenting the control group consisted of untreated Class III Patients. In treated group pretreatment and posttreatment cephalometric radiographs from 28 patients(15 males and 13 females) were analyzed and compared with the results of cephalometric analyzes in untreated group(observation period of 1 year). The evaluation of the facial profile was one of the most important items in our differential diagnosis. Flat or concave profiles, retrusive maxillas, and prominent mandibles were included.
The maxillary protraction was performed through a Delaire facial mask, using elastics with a force delivering of about 350 gm per side. In some patients with posterior cross bite,before proctacting maxilla, rapid maxillary expansion appliance was used, and it was activated every day until achiving corection of the bite posteriorly. Two radiographs were evaluated, the first was taken before the begining of the treatment, the second was taken immediately after face mask therapy. The treatment time varied as a result of patients compliance, severity of the problem and individual response of the patient to treatment. Treatment was discontinued when positive overjet was achieved and no more changes were noted after 3 months. Mean treatement time was 11 months.

третирана група	просек	±Ст.Дев	разлика	±Ст.Дев	t	p
SNA пред	80.25000	1.332291				
SNA после третман	82.00000	1.414214	-1.75000	0.758288	-5.65301	0.002406
SN пред	67.41667	1.685724				
SN после третман	67.88333	1.772475	-0.466667	0.208248	-2.40000	0.622123
Co-A пред	79.33333	1.632993				
Co-A после третман	81.16667	1.471960	-1.83333	0.408248	-11.0000	0.000108
FH-NA пред	90.50000	1.378405				
FH-NA по третман	90.75000	1.254990	-0.250000	0.418330	-1.46385	0.203111
Контролна група						
SNA пред	80.00000	1.581139				
SNA после	80.50000	1.322876	-0.500000	0.500000	-2.23607	0.089009
SN пред	68.20000	1.788854				
SN после	68.60000	2.103568	-0.400000	0.418330	-2.13809	0.099301
Co-A пред	79.40000	1.140175				
Co-A после	79.80000	1.036822	-0.400000	0.418330	-2.13809	0.099301
FH-NA пред	90.40000	1.673320				
FH-NA по	90.60000	1.635543	-0.200000	0.273861	-1.63299	0.177808

третирана група	просек	±Ст.Дев	разлика	±Ст.Дев	t	p
SNB пред	77.62500	2.083095				
SNB после третман	77.68750	1.556954	-0.062500	0.979705	-0.180439	0.861921
Co-Gn пред	112.2500	2.815772				
Co-Gn после третман	117.0000	3.207135	-4.75000	3.058945	-4.39205	0.003187
Xi-Pm пред	70.18750	2.389523				
Xi-Pm после третман	72.81250	2.419231	-2.62500	0.582482	-4.4581	0.03576
Go-Me пред	68.93750	1.953705				
Go-Me по третман	70.37500	2.263846	-1.43750	1.208231	-5.04707	0.0488
FH-NPg пред	90.37500	2.735351				
FH-NPg по третман	90.31250	3.172848	0.062500	0.623212	0.283654	0.784882
Контролна група						
SNB пред	77.75000	1.942936				
SNB после	81.50000	1.516575	-3.75000	0.758288	-12.1136	0.000068
Co-Gn пред	111.6667	3.894440				
Co-Gn после	118.0000	2.097618	-6.33333	1.888562	-8.21442	0.000435
Xi-Pm пред	69.83333	2.926887				
Xi-Pm после	71.75000	2.678619	-1.91667	0.664580	-4.8717	0.049000
Go-Me пред	68.66667	2.960856				
Go-Me по	70.66667	3.027650	-2.00000	1.095445	-8.94427	0.028740
FH-NPg пред	89.50000	2.792848				
FH-NPg по	89.58333	3.137143	-0.083333	0.584523	-0.349215	0.741154

третирана група	просек	±Ст.Дев	разлика	±Ст.Дев	t	p
ANB пред	1.312500	1.279997				
ANB после третман	2.937500	1.590990	-1.62500	1.217433	-3.77532	0.036935
WITS пред	-3.75000	1.535299				
WITS после	-2.73750	1.635270	-1.01250	0.651235	-5.70042	0.020735
CoA/CoGn пред	0.717500	0.008864				
CoA/CoGn после	1.262500	0.350703	-0.545000	0.350917	-4.39275	0.053185
NPg-A пред	29.43750	2.597217				
NPg-A по третман	31.12500	2.083095	-1.68750	1.869635	-4.06571	0.041775
NsSnPgs пред	177.0000	2.203893				
NsSnPgs по третман	175.1250	2.748376	1.87500	1.726888	17.81189	0.048000
Контролна група						
ANB пред	0.83333	1.505545				
ANB после	-2.25000	1.254990	3.083333	0.584523	12.92096	0.000049
WITS пред	-3.25000	1.214496				
WITS после	-5.75000	1.573213	2.500000	1.264911	4.841229	0.004710
CoA/CoGn пред	0.713333	0.022509				
CoA/CoGn после	0.506667	0.158198	0.206667	0.154488	3.276802	0.022032
NPg-A пред	29.33333	3.076795				
NPg-A по	27.33333	3.400980	2.00	0.948683	3.00	0.037865
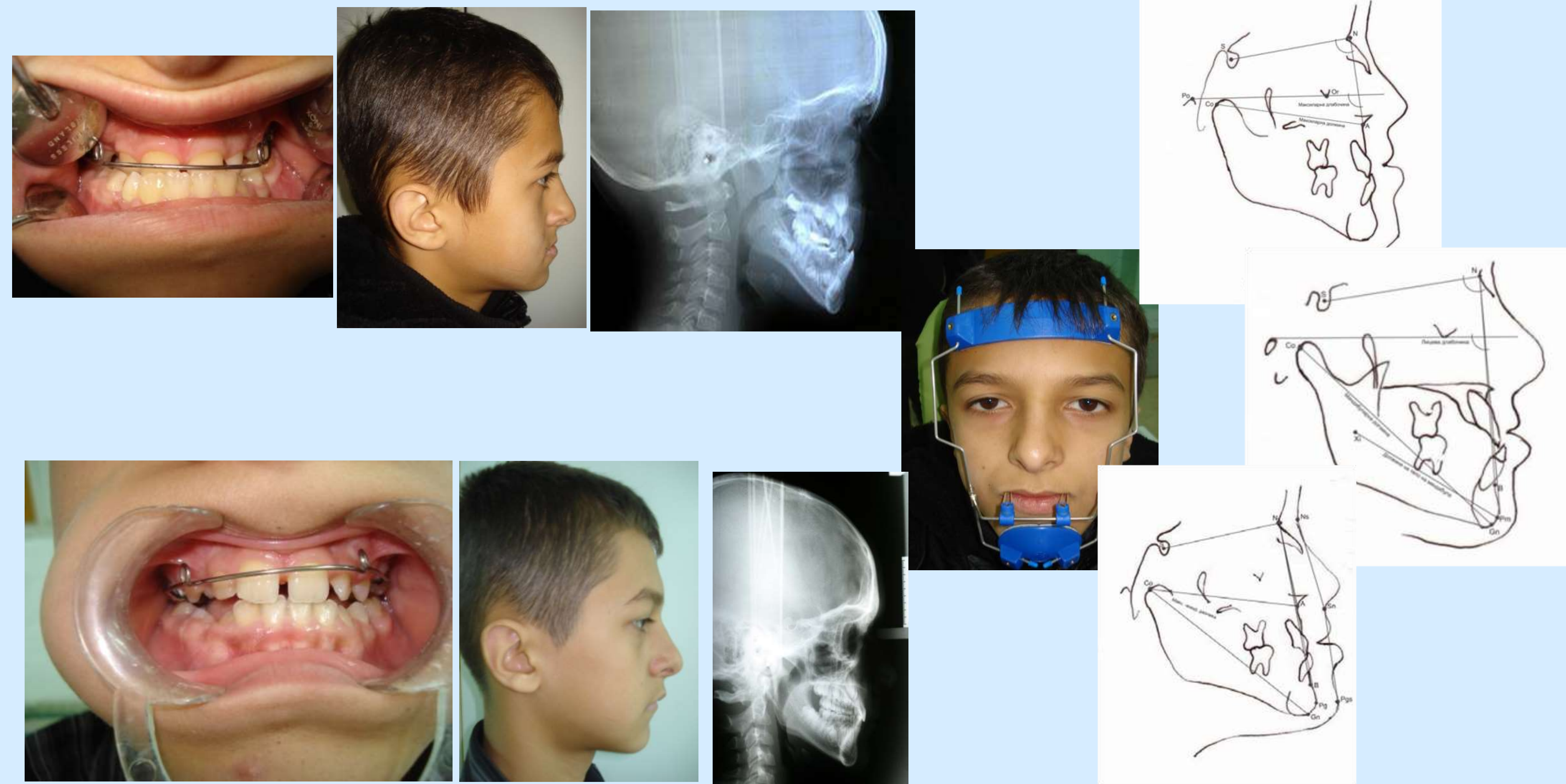
In conclusion, the results from this study showed that concave facial profile in Class III patients can be improved after maxillary protraction therapy which is very important in the teenage period of life for building self confidence and normal socializing in the community.
Based on our findings we can concluded that in Class III patients there is a big motivation for orthodontic treatment because their dentofacial appearance deviates from sociocultural norms. Therefore an important objective of accepting maxillary protraction treatment in Class III malocclusion is providing nonsurgical alternative in the treatment and improving the physico-social wellbeing and appearance of the patients, especially during their teenage years