

開咬咬合의 頭部放射線學的 研究

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A ROENTGENOCEPHALOMETRIC STUDY OF THE OPEN-BITE

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Abstract

The author studied the open-bite of Hellman dental age IIIC groups of Korean children on the roentgenocephalometry.

The subjects consisted of 45 males and 45 females with normal occlusion and acceptable profile.

The major conclusions may be listed as follows:

1. This study was summerized in the form of tables, mean, standard deviation, minium and maximum for 35 angular, linear and ratio measurements.
2. Charts of standard deviation from the mesurements were made for the clinicial application.

I. 緒 論

齒科 矯正學 分野에 頭部放射線寫眞이 利用된 以後 顔面頭蓋의 形態學的 研究에 活用되어 왔음은 周知의 事實이며 診斷 및 治療計劃 樹立에 많은 도움을 주었다 그러나 지금까지의 不正咬合에 關한 研究는 顎骨 前後方 關係의 異狀에 關한 것이 大部分으로 顎顔面 垂直關係의 異狀으로 볼 수 있는 開咬咬合에 關한 研究는 Schudy⁸⁻¹⁰⁾, Creekmore¹⁾, Straub¹¹⁻¹³⁾, Subtelny¹⁴⁾, Kamiyama⁶⁾, Kim¹⁵⁾, 徐¹⁹⁾, 石川·遠藤¹⁸⁾, 姜²⁰⁾, 等の 報告가 있다.

本大學 矯正科에서는 頭部放射線寫眞을 臨床診斷에 活用に 왔는데 主로 Downs²⁻⁵⁾, Graber⁹⁾ 等の 分析法으로 個個의 不正咬合 狀態를 어느정도 把握할 수는 있으나 開咬咬合 狀態는 上記의 分析法만으로는 未備한

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 - 1) 研究資料
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點이 많으므로 著者は 開咬咬合에 適合한 分析法的 必要를 느끼 齒科矯正學에 도움이 될 수 있는 韓國人兒童의 基準直를 測定報告하는 바이다.

II. 研究資料 및 方法

1) 研究資料: 本研究에 利用된 資料는 正常咬合을 保有한 少年 少女 各各 45名의 頭部放射線寫眞을 使用했다.

對象의 平均年齡은 少年 12歲 6個月이며 少女 12歲 9個月이었다.

2) 頭部放射線寫眞은 間接法으로 透寫圖를 作成하고 다음과 같은 35項目을 採擇計測하였다(그림 1, 2).

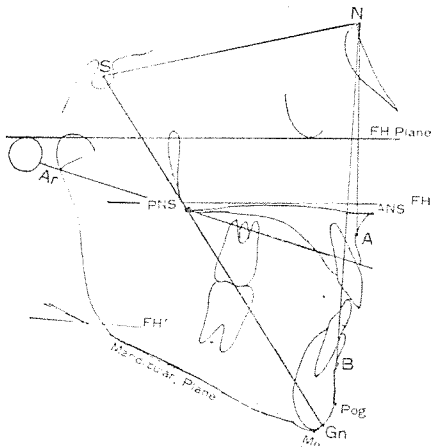


圖 1 角度的計測部位

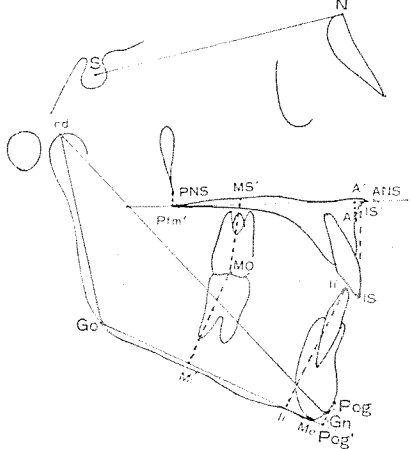


圖 2 길이計測部位

角度計測項目(12項目)

Facial angle

SNA

SNB

Y-axis(FH)

mandibular plane angle

Gonial angle

FH to ANS-PNS

FH to Ar-Go

U-1 to FH plane

U-1 to SN plane

L-1 to mandibular plane

길이計測項目(12項目)

比率(11項目)

N-S

N-S/N-Me

N-Me

N-ANS/N-Me

N-ANS

N-ANS/ANS-Me

ANS-Me

A'-P m'/N-S

A'-Ptm'

pog'-Go/N-S

Is-Is'

Cd-Go/N-Me

Mo-Ms'

A'-Pt m'/Pog'-Go

Gn-cd

Is-Is'/Ii-Ii'

pog'-Go

cd-Go

Ii-Ii'

Mo-Mi'

III. 研究成績

設定한 35項目에 對한 計測을 施行하였으며 그 成績은 男女 各各에 對한 角度計測(Table I), 길이計測(Table II), 比率(Table III)로 要約하였다.

이 計測值을 性別로 살펴보면 角度計測에 Ar-PNS to ANS-PNS는 男女 各各 18.41, 20.85로 女子가 男子보다 2°정도가 크고 U-1 to F-H plane는 男女 各各 112.21, 115.53로 女子가 男子보다 3°정도가 크다.

길이計測에서는 N-Me은 男女 各各 119.03, 115.99로 男子가 4°정도 크고 ANS-Me는 67.37, 65.22로 男子가 2°정도 크다.

그의 計測值에서 男女의 性差는 僅少하였다.

IV. 總括 및 考按

開咬咬合인 不正咬合을 診斷하기 위하여 正常咬合을 保有한 서울市內 學童中 男女 各各 45名의 頭部放射線寫眞에서 35項目의 角度, 길이 및 比率 計測을 施行하고 全項目에 걸쳐서 角度, 길이, 比率에 關한 正常咬合群의 標準偏差圖表를 作成하였다(Table IV. V. VI.).

Table I. 角度計測値의 平均 및 標準偏差

	Male				Female			
	Mean	S. D.	Max.	Min.	Mean	S. D.	Max.	Mini.
Facial angle	77.54	3.59	83.6	70.7	78.50	2.66	84.8	71.6
SNA	80.50	3.70	88.3	72.9	81.89	3.54	91.4	74.6
SNB	76.91	6.11	84.8	70.1	78.06	2.61	84.7	71.6
Y-axis (FH)	63.49	2.80	68.1	57.4	62.33	3.31	71.5	57.1
Mandibular Plane	27.70	4.32	35.0	17.8	26.70	6.55	44.4	9.4
Gonial angle	123.10	5.65	139.0	115.0	123.97	6.31	137.9	112.0
FH to ANS-PNS	0.47	2.57	8.2	-5.8	0.54	3.66	8.0	-6.5
Ar-PNS to ANS-PNS	18.41	6.22	32.1	11.0	20.85	5.65	31.9	12.1
FH to Ar-Gn	84.28	3.93	92.4	78.4	82.95	5.04	91.0	63.4
U-I to FH plane	112.21	4.74	123.7	101.3	115.58	4.68	125.2	103.9
U-to SN plane	104.03	5.25	117.6	93.8	106.37	4.22	114.0	95.2
L-I to Mandibular	97.02	5.55	105.8	86.5	94.68	6.46	105.4	80.5

Table II. 길이計測値의 平均 및 標準偏差

	Male				Female			
	Mean	S. D.	Max.	Mini.	Mean	S. D.	Max.	Mini.
N-S	65.47	3.22	73.3	60.2	64.54	2.46	69.7	60.2
N-Me	119.03	4.91	131.0	113.0	115.99	5.57	130.8	107.4
N-ANS	54.04	2.44	58.4	48.7	53.11	3.09	60.0	47.9
ANS-Me	67.37	4.46	74.6	61.4	65.22	3.87	77.3	57.9
A' -Ptm'	45.87	5.26	53.0	39.6	45.52	2.98	51.7	39.2
Is-Is'	28.17	5.23	36.4	23.4	27.83	2.20	35.4	23.2
Mo-Ms'	21.05	1.87	25.0	18.0	20.72	1.42	26.6	17.5
Gn-Cd	108.96	5.66	119.2	99.9	108.92	5.08	121.0	98.6
Pog' -Go	71.89	4.00	79.8	64.2	71.64	4.37	81.0	61.8
Cd-Go	54.19	3.20	62.0	49.3	53.83	3.81	59.7	43.3
Ii-Ii'	41.86	3.17	50.6	37.1	40.37	2.53	48.3	35.7
Mo-Mi'	31.70	2.39	35.4	27.1	30.53	2.14	35.0	25.3

高橋¹⁶⁾는 開咬咬合을 上下 齒列弓의 垂直關係異狀의 하나라고 했다.



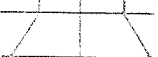


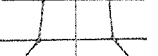
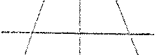

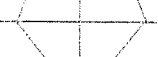
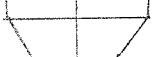
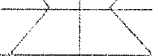
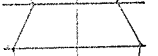

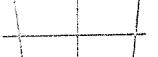
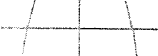

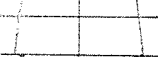
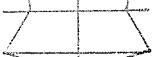
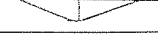
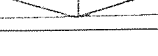
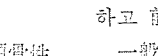
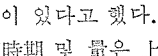

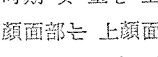
開咬咬合은 矯正臨床에서 治療가 어려운 症例群이다. 특히 그 症狀이 顎骨의 非正常 成長發育로 인한 形態異常인 mandibular prognathism, micrognathia, ma-

crogllossia 등 口腔周圍筋의 異常에 의해 惹起되는 경우는 通常적인 矯正治療의 手段으로 改善한다는 것은 거의 不可能에 가깝다. 開咬咬合의 原因은 齒列 顎骨 顔面頂蓋의 垂直方向에서 成長發育異常, 舌 및 咀嚼筋의 機能異常, thumb sucking, finger sucking, tongue

Table III. 顎, 顔面 各部位의 比率의 平均 및 標準偏差

	Male				Female			
	Mean	S. D.	Max.	Mini.	Mean	S. D.	Max.	Mini.
N-S/N-Me	55.03	2.46	60.82	50.31	55.71	2.42	59.74	48.57
N-ANS/N-Me	45.44	1.69	48.22	41.47	45.73	1.52	50.47	42.38
N-ANS/ANS-Me	80.53	5.76	90.17	70.41	81.43	5.04	96.38	70.50
A' -Ptm' /N-S	68.98	4.82	78.03	57.71	70.57	4.25	78.54	62.42
Pog' -Go/N-S	109.79	5.13	117.98	98.41	110.99	3.14	121.93	100.16
Cd-Go/N-Me	45.56	2.52	51.36	41.03	46.45	3.14	52.64	36.75
A' -Ptm' /Pog' -Go	62.83	4.16	71.34	52.95	63.63	3.70	72.71	55.08
Is-Is' /Ii-Ii'	69.14	4.33	76.94	60.69	68.91	4.02	78.82	90.91
Mo-Ms' /Mo-Mi'	66.75	5.83	80.98	56.30	98.09	5.20	82.01	58.72
Mo-Ms' /Is-Is'	73.01	6.38	86.95	63.59	74.76	6.22	89.65	59.88
Mo-Mi' /Ii-Ij'	75.72	4.02	81.59	66.51	75.64	3.51	82.16	66.93

Table VI. 角度에 對한 男女 平均 및 標準偏差圖表

	Male			Female		
	mean	S. D.		mean	S. D.	
Facial angle	77.54	3.59		78.50	2.66	
SNA	80.50	3.70		81.89	3.54	
SNB	76.91	6.11		78.06	2.61	
Y-axis(FH)	63.49	2.80		62.33	3.31	
Mn-plane angle	27.70	4.32		26.70	6.55	
Gonial Angle	123.10	5.65		123.97	6.31	
FH to ANS-PNS	0.47	2.57		0.54	3.66	
Ar-PNS to ANS	18.41	6.22		20.85	5.65	
FH to Ar-Go	84.28	3.93		82.95	5.04	
U-1 to FH	112.21	4.74		115.58	4.68	
U-1 to SN	104.03	5.25		106.37	4.22	
L-1 to Md. plane	97.02	5.55		94.68	6.46	

thrust 等の 惡習慣을 들 수 있다.

神山¹⁷⁾은 成人의 開咬咬合에 對해 齒槽性 및 顎骨性으로 나누었으며 特히 下顎의 形態異常에 起因한 것이 大部分이라고 했다.

上顎骨基底部(ANS-PNS)에 對해서는 Subtelny¹⁴⁾ Sassouni⁷⁻⁸⁾는 palatal plane의 後方部位가 下方傾斜를

하고 前齒部는 上方으로 열리는 傾向이 있다고 했다.

一般的으로 顎顔面頭蓋의 成長發育時期 및 量은 上顔面部와 下顔面에서 次異가 있으며 下顔面部는 上顔面部와 比해 느리게 나타나며 또한 顔面의 前部와 後部에 對해 서도 다르다.

Table V. 길이에 對한 男女 平均 및 標準偏差




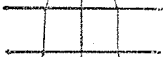
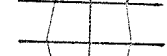
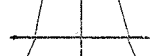

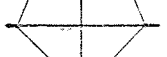
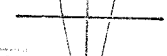
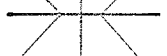
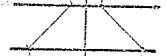


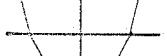

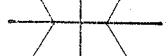
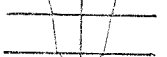
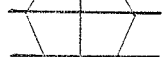
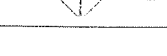






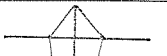




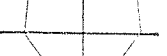



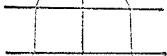

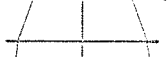
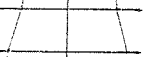

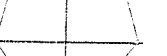
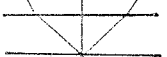
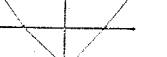


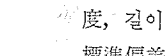
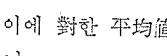
	Male			Female		
	mean	S. D.		mean	S. D.	
N-S	65.47	3.22		64.54	2.46	
N-Me	119.03	4.91		115.99	5.57	
N-ANS	54.04	2.44		53.11	3.09	
ANS-Me	67.37	4.46		65.22	3.82	
A'-Ptm'	45.87	5.26		45.52	2.98	
IS-IS'	28.17	5.23		27.83	2.20	
Mo-Ms'	21.05	1.87		20.72	1.42	
Gn-cd	108.96	5.66		108.09	5.08	
pog'-Go	71.89	4.00		71.64	4.37	
Cd-Go	54.19	3.20		53.83	3.81	
Ii-Ii'	41.86	3.17		40.37	2.53	
Mo-Mi'	31.70	2.39		30.53	2.14	

Table IV. 比率에 對한 男女 平均 및 標準偏差

	Male			Female		
	mean	S. D.		mean	S. D.	
N-S/N-Me	55.03	2.46		55.71	2.42	
N-ANS/N-Me	45.44	1.69		45.73	1.52	
N-ANS/ANS-Me	80.53	5.76		81.43	5.04	
A'-ptm'/N-S	68.98	4.82		70.57	4.25	
pog'-Go/N-S	109.79	5.13		110.99	3.14	
Cd-Go/N-Me	45.56	2.52		46.45	3.14	
A'-ptm'/pog'-Go	62.83	4.16		63.63	3.70	
Is-Is'/Ii-Ii'	69.14	4.33		68.91	4.02	
Mo-Ms'/Mo-Mo'	66.75	5.83		68.09	5.20	
Mo-Ms'/Is-Is'	73.01	6.38		74.76	6.22	
Mo-Mi'/Ii-Ii'	75.72	4.02		75.64	3.51	

V. 結 論

正常咬合을 保有한 少年 少女 各 45名 計 90名의 頭部放射線寫眞을 利用하여 開咬咬合分析에 35項目의 角

度, 길이, 比率 計測을 施行하였으며 이에 對한 平均値 標準偏差, 最大値, 最小値를 作成하였다.

實際 臨床에서 活用함에 있어 그 便宜를 圖謀키 爲하여 開咬咬合의 分析에 適合한 35個 項目을 角度, 길이 比率別로 標準偏差圖를 作成하였다.

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