BACKGROUND

Changes in the shape/size of the sella turcica are usually completed by the time a person is 12 years old (2). The sella turcica is a small bowl shaped fossa formed in the sphenoid bone. There are two anterior and two posterior bony projections known as the anterior and posterior clinoid processes that extend over the fossa (3). There are numerous variations of this basic bony structure (2). The ligaments that extend from the anterior to the posterior clinoid processes are known as the interclinoid ligaments, and sometimes these become calcified (7).

Several studies have looked at the presence/absence of this calcification, known as sella turcica bridging, to determine if it relates to orthodontic malocclusions/anomalies (4). The normal occurrence of this bridging is presented in the literature as a range from 3-13 percent (1). Although this is the range of bridging in a “normal” population, orthodontic research has shown percentages of up to 18 percent in patients with orthodontic malocclusions (6). One study used only patients with palatally displaced canines and congenitally missing mandibular 2nd premolars to determine if bridging was more prevalent in these orthodontic patients (1). There conclusion was that 4 per cent of patients with no dental anomalies showed bridging, whereas those with anomalies had an 18 percent incidence of bridging (1). Another study looked at whether patients treated by surgical-orthodontic versus orthodontic means had higher rates of bridging (3). Here again the group requiring surgical intervention to correct the orthodontic malocclusion showed a 16.7 percent incidence of bridging compared to 7.3 percent for those treated with orthodontics alone. A third study assessed whether or not a higher incidence of bridging was found in class I or III orthodontic patients. The finding of this study was that bridging occurred in 5 per cent of the class I patients and 18 per cent of the class III patients (6).

PURPOSE AND HYPOTHESIS

The purpose of these studies has been to try and show that there is a developing correlation between sella turcica bridging and difficult orthodontic issues that require intervention to successfully treat. All studies that have been reported so far have not looked at a Hispanic population and they have only considered patients with class I or III orthodontic classifications. This study will build on or disprove the argument that sella turcica bridging and dental anomalies/malocclusions are related. The ultimate outcome of knowing that sella turcica bridging is directly related to dental/orthodontic problems is that clinicians can start to use lateral cephalometric films for early diagnosis and treatment of these problems. The hypothesis to be tested is that sella turcica bridging in orthodontic patients with class III Angle classification have a higher incidence of sella turcica bridging than class I and II patients in a Hispanic population.

RESULTS

From the 118 subjects that had lateral cephalometric films analyzed 41 had class I malocclusion, 41 had class II malocclusion, and 35 had class III malocclusion. Out of the 41 class I patients 4 had bridging. Out of the 41 class II patients 9 had bridging, and out of the 35 class III patients 13 had bridging. Table 1 shows the break down of each Angle class and the percentage of bridging to non-bridging.

<table>
<thead>
<tr>
<th>Class</th>
<th>Bridging</th>
<th>No Bridging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>9.9%</td>
<td>90.1%</td>
</tr>
<tr>
<td>Class II</td>
<td>2.9%</td>
<td>97%</td>
</tr>
<tr>
<td>Class III</td>
<td>3.7%</td>
<td>96.3%</td>
</tr>
</tbody>
</table>

CONCLUSIONS

In conclusion this study showed that it was in agreement with previous studies that looked at sella turcica bridging in class III patients. The class III patient category showed an 3.7% incidence of bridging whereas class I and II patients had a 0.9% and 2.0% incidence, respectively. This data helps support the hypothesis that class III patients indeed have a higher rate of bridging than other malocclusions. This study served to show that Hispanics do not differ in the occurrence of bridging from Caucasians as compared to previous research. This data will serve to further strengthen the idea that early detection of bridging can lead to early intervention and treatment of difficult dental malocclusions.

BIBLIOGRAPHY


MATERIALS AND METHODS

Patients were randomly selected from the orthodontic patient pool at St. Barnabas Hospital and Union Community Health Center. There was no specification to gender. The primary specification was that all subjects had to be of Hispanic ethnicity. Other criteria included an age range of the subjects from 14-28 years of age. All patients had to have current digital lateral cephalometric films.