ABSTRACT:

Background:

Identification of skeletal remains is of paramount importance in medico-legal investigations. Skeletal components which are often investigated for gender determination are the skull and pelvis with the mandible being a practical element to analyze gender variation in the fragmented bones. Presence of a dense layer of compact bone makes it very durable and well preserved than any other bone. When skeleton sex determination is considered, metric analyses on the radiographs are often found to be of superior value owing to their objectivity, accuracy and reproducibility.

Aims and objectives:

1. To measure the various morphometric parameters of the mandible in digital panoramic radiographs, determine variations in the morphometric parameters of the mandible, based on gender.

2. To correlate these findings in gender determination.

3. To find out which are the most reliable parameters in gender determination.

Materials and methods:

A retrospective study was conducted using panoramic radiographs of 100 males and 100 females, which were taken using Orthophos XG machine 64 KV, 8mA and 14.1 seconds). Twelve parameters such as maximum ramus breadth, minimum ramus breadth, condylar height, projective height of ramus, coronoid height, height of mandible, superior margin of mental foramen to inferior border, inferior margin of mental foramen to inferior border, superior margin
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of mental foramen to alveolar crest, gonial angle, antegonial angle and antegonial depth were measured on both sides on digital panoramic radiographs. Measurements were made using mouse driven methods and anatomical landmarks. Statistical analysis was done.

**Results:**

There was significant difference in these parameters with p value < 0.05

**Conclusion:**

This study shows strong evidence that mandibular measurements using panoramic radiographs were reliable for gender determination and the projective height of the ramus is the most significant of all the parameters, which may be used for gender determination using the mandible.

**Key words:**

Mandible, Sexual dimorphism, Panoramic radiographs.