ABSTRACT

PURPOSE: The purpose of the study was to evaluate the pattern of lingual split line when performing a bilateral sagittal split osteotomy (BSSRO) with different osteotomy methods.

MATERIALS AND METHOD:

A total of 15 dry cadaveric mandible was taken for the study. The classical Obwegeser and Dalpont technique in left side and additional inferior border osteotomy cut in right side of BSSRO was compared based on modified lingual split scale. The maximum torque force that was needed to split the mandible was recorded and the fracture pattern was observed. Similar osteotomies were performed in 15 fresh goat mandible (sacrificed for food) which acted as control group.

RESULTS:

The cadaveric dry mandible recorded an average torque of 12.6 ±2.4 Nm (SD: 0.32) with a maximum of 16.0 Nm and a minimum of 8.0 Nm in left side. 80% of the mandible were Type I fracture pattern and 20% had Type III fracture pattern. In contrast with the modified BSSRO technique with an additional inferior border osteotomy required a maximal torque of 12.0 N and a minimal torque of 5.0 with an average required torque of 8.7 ± 2.1 N on the right side of the mandible. 93% of the cases split by Type II fracture pattern in the modified BSSRO technique.

In Goat Mandible Obwegeser Dal Pont recorded an average torque of 16.5 N ± 2.8 N (Range 21 N to 12 N) and modified BSSRO technique in right side recorded an average torque of 9.2 N ± 2.9 N (Range 6N to 18 N). In
Obwegeser Dal Pont technique 80% of the mandible split by type I fracture pattern and 100% the hemi-mandibles split by Type II fracture pattern.

CONCLUSION:

The new technique resulted in predictable splitting of the mandible along the lower border away from the mandibular canal (Type II) and also decreased the force needed to complete the osteotomy by 31 percent when compared to the Obwegeser and Dal-Pont BSSRO technique.

KEYWORDS: Bilateral Sagittal Split Osteotomy, Cadaveric Mandible, Modified Lingual Split Scale, Inferior Alveolar Nerve.