

## Original Article

### Analysis in Variation in Ridge Morphology in Edentulous Adults

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#### ABSTRACT:

**Background:** Severely atrophied ridges are a more common finding with the mandibular residual ridges than the maxilla. The present study was conducted to analyze variation in ridge morphology in edentulous adults. **Materials & Methods:** The present study was conducted in the department of Prosthodontics on 125 patients with edentulous mandibular ridges. General information such as name, age, gender etc. was recorded. All patients were carefully examined for types of mandibular ridges. **Results:** Age group 20-40 years comprised of 4 males and 3 females, 40-60 years had 12 males and 11 females, 60-80 years had 14 males and 16 females and >80 years had 30 males and 35 females. The difference was non-significant ( $P > 0.05$ ). Type I ridge was seen in 12 males and 13 females, type II in 14 males and 16 females, III in 20 males and 14 females and type IV in 14 males and 18 females. The difference was non-significant ( $P > 0.05$ ). **Conclusion:** Mandibular edentulism leads to difficulty in eating and speaking. Type III ridges were most commonly seen.

**Key words:** Edentulism, Mandibular, Ridges

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#### INTRODUCTION

Edentulism can be due to various reasons such as periodontal break down, secondary to osteoporosis etc. With the loss of teeth, the function of the jaws is hampered. Severe ridge atrophy results in increased inter-arch space, unstable and non retentive dentures with inability to withstand the masticatory forces.<sup>1</sup> Treatment of atrophied ridges is a clinical challenge faced by dental professionals worldwide as severely resorbed ridges present difficulty in fabrication of an adequate prosthesis. Severely atrophied ridges are a more common finding with the mandibular residual ridges than the maxilla. This is because the mandible resorbs at a faster rate than the maxilla.<sup>2</sup>

Four categories are defined, ranging from Class I to Class IV, with Class I representing an uncomplicated clinical situation and a Class IV patient representing the most

complex and higher-risk situation. Each class is differentiated by specific diagnostic criteria. Complete edentulism defines as follows the physical state of the jaws following removal of all erupted teeth and the condition of the supporting structures available for reconstructive or replacement therapies.<sup>3</sup>

Mandibular ridges are classified as type I (most favorable) with residual bone height of 21mm or greater measured at the least vertical height of the mandible. Type II residual bone height of 16 to 20 mm measured at the least vertical height of the mandible. Type III residual alveolar bone height of 11 to 15mm measured at the least vertical height of the mandible. Type IV with residual vertical bone height of 10 mm or less measured at the least vertical height of the mandible.<sup>4</sup> The present study was conducted to analyze variation in ridge morphology in edentulous adults.

**MATERIALS & METHODS**

The present study was conducted in the department of Prosthodontics. It comprised of 125 patients with edentulous mandibular ridges. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study.

General information such as name, age, gender etc. was recorded. All patients were carefully examined for types of mandibular ridges. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

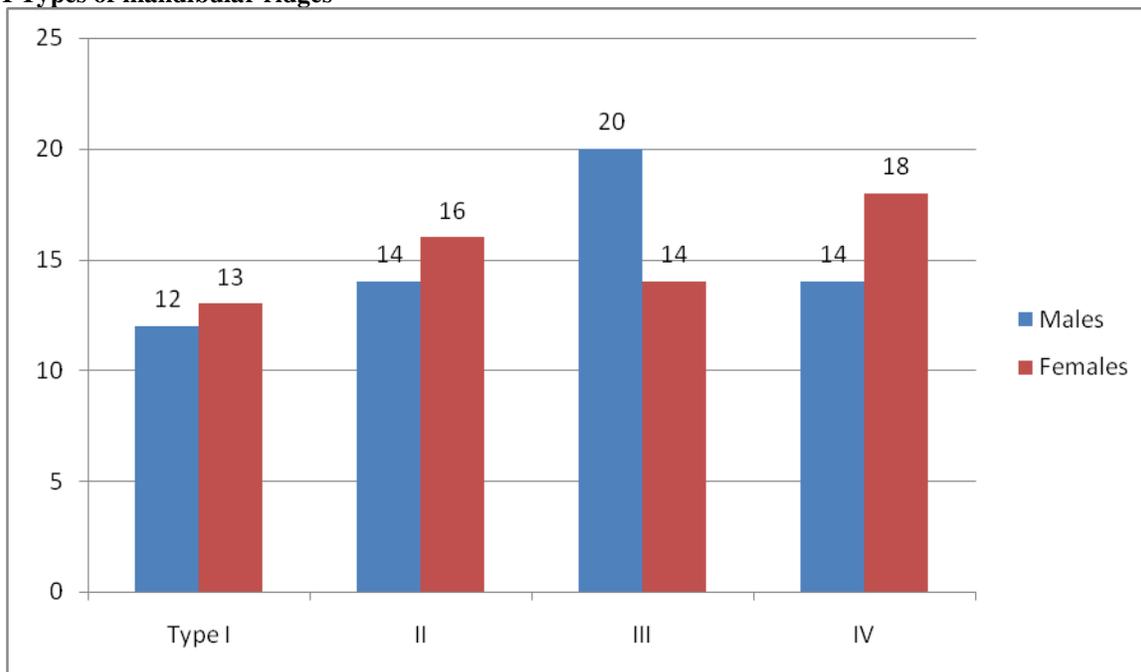
**RESULTS**

**Table I Age & gender wise distribution of patients**

Age group (years)	Males	Females	P value
20-40	4	3	0.1
40-60	12	11	0.2
60-80	14	16	0.1
>80	30	35	0.5

Table I shows that age group 20-40 years comprised of 4 males and 3 females, 40-60 years had 12 males and 11 females, 60-80 years had 14 males and 16 females and >80 years had 30 males and 35 females. The difference was non- significant (P> 0.05).

**Graph I Types of mandibular ridges**



Type I ridge was seen in 12 males and 13 females, type II in 14 males and 16 females, III in 20 males and 14 females and type IV in 14 males and 18 females. The difference was non- significant (P> 0.05).

**DISCUSSION**

Edentulism is the state of having lost all of one’s natural teeth. Monitoring the occurrence of an oral “end state” such as edentulism is important because it is an indicator of both population health and the functioning and adequacy of a country's oral health care system. The 2010 Global Burden of Disease Study results shows a steady decline in age-standardized population DALY rates for edentulism, from 144/100,000 in 1990 to 89/100,000.<sup>5</sup> An even more recent review Kossioni revealed that data on the oral health of community-dwelling people are scarce in many parts of the world, particularly in Africa, Asia and South America, and direct comparisons are not always possible due to methodological variations.<sup>6</sup> Studies show that edentulism is closely associated with socioeconomic factors and is more prevalent in poor populations and in women. In 2003, the ratio of edentulism was 6 times higher in low-income than in higher income Canadian families.

Other factors contributing to the prevalence of complete tooth loss are age, education, access to dental care, dentist/population ratios, and insurance coverage. Most edentate people are elders who wear complete dentures in one or both jaws. Studies have demonstrated that denture wearing continues to increase due to the increase in the aging population; a large number of people still depend on removable dentures for oral function.<sup>7</sup>

In present study, we observed that age group 20-40 years comprised of 4 males and 3 females, 40-60 years had 12 males and 11 females, 60-80 years had 14 males and 16 females and >80 years had 30 males and 35 females. This is in agreement with Sharma et al.<sup>8</sup>

The number of teeth has been chosen as a key determinant of oral function and oral health status. Several studies using different methodologies have demonstrated that an important indicator for masticatory efficiency is the number of functional tooth units. According to a systematic review evaluating the relationship between oral function and dentition, tooth numbers below a minimum of 20 teeth, with nine to 10 pairs of contacting units, are associated with impaired masticatory efficiency, performance, and masticatory ability.<sup>9</sup>

We observed that Type I ridge was seen in 12 males and 13 females, type II in 14 males and 16 females, III in 20 males and 14 females and type IV in 14 males and 18 females. This is similar to Alvin et al.<sup>10</sup> Bone loss is an ongoing process following tooth loss, affecting the mandible four times more than the maxilla. Edentulism was found to have a significant effect on residual ridge resorption, which leads to a reduction in the height of alveolar bone and the size of the denture bearing area. This reduction affects face height and facial appearance, which are altered following total tooth loss. The loss of alveolar bone height and width also leads to substantial changes in the soft-tissue profile, such as protrusion of the mandibular lip and chin.<sup>11</sup>

## CONCLUSION

Mandibular edentulism leads to difficulty in eating and speaking. Type III ridges were most commonly seen.

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