

DEGREE OF DIFFICULTY IN CARVING OF DIFFERENT TOOTH IN TOOTH MORPHOLOGY

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Abstract: Tooth morphology has been taught at several institutes for better understanding and to provide favourable, comfortable and adequate treatment for the patients. The Knowledge of tooth anatomy is essential for practicing the various dental specialties. All dental schools must have a discipline responsible for teaching dental anatomy in their curriculum, in which theoretical content is conveyed to students and later reproduced by them in dental carving wax. Thus, the aim of this study was to cognise the degree of difficulty in carving different teeth in tooth morphology acquired from the undergraduate students of Saveetha dental college. In total 200 undergraduates participated in the survey. They were given a softcopy of questionnaires to be filled that consisted of 26 questions. It was sent through the help of an app named "schoology" which is used by the students enrolled in Saveetha dental college. 87% of the students involved in this study were right handed and rest were left. In accordance to the student's opinion, carving of the labial and the proximal aspect of the incisors were the easiest when compared with the other aspects and features of incisors and 60% of the participants declared that the most difficult was the carving of the molar furcations as this part tends to frequent breakage of the wax on even the slightest of pressure. Within the limits of this study, the right handed participants had comfortable and better adaptation and dexterity towards the process of tooth carving with the easiest part to carve being the labial and proximal aspect of incisors and the most difficult aspect to be carved was the furcations of the molars. A greater understanding of student learning difficulties for each tooth structure will be valued and noticed through this survey to provide an alternative and minimize the difficulties of students.

Keywords: Tooth morphology, Incisors, Canines, Molars, Wax

INTRODUCTION

Dentist is the doctor who is specialised in the diagnosis, prevention and treatment of diseases and conditions in oral cavity. To be a recognised dentist it is necessary to acquire both fundamental theory and practice skills. However, a great challenge for every dental student is the carving of different tooth in tooth morphology which falls under the practice skills. This is one of the major component in the life of dentistry.

Dental morphology aims at teaching various complex aspects of both the denture, but the practical skill leans more towards the permanent dentition, in order to make the students well versed in their clinical activities. The conventional contrivance of teaching the tooth morphology (practices) is by carving of each teeth out of wax block. At the early stage of learning, every student faces issues which hinders the construction of tooth. The hindrance is mainly due to the lack of spatial vision. Thus to avoid this issue the practical training has been done by comparing the tooth's anatomical shape to geometric figures.

In 1940, wheeler was the one who first sited this method of dental sculpture and later it was improved by other authors. This method included the geometric shapes to be carved as the students find it difficult to replicate the tooth shape otherwise.

The aim of this study was to cognise the degree of difficulty in carving of different tooth in tooth morphology acquired from the undergraduate students of Saveetha dental college.

MATERIALS AND METHODS

The subject of this study were the undergraduate students enrolled in Saveetha dental college. The subject was mainly focalised around the first and second year dental students as they will have a better understanding and memory of the degree of difficulty in carving of different tooth in tooth morphology. In total the sample size was 200.

They were given a softcopy of questionnaire to be filled that consisted of 26 questions. It was sent through the help of an app named "schoology" which is used by the students enrolled in Saveetha dental college. It required only about 15 to 20 mins to fill the questionnaire. The students were first asked to report whether they are right handed or left handed and then they had to fill the degree of difficulty in carving of different tooth in tooth morphology based on the options provided to them that is whether it's easy, difficult or extremely difficult. This filled survey form was then sent back to me in my mail id. Few questionnaire were also given in hand to the students to be filled.

By means of this questionnaire, the relevance of degree of difficulty in carving of different tooth was obtained. This questionnaire provided a detailed study of the difficulty in carving of every tooth as it included questions that were related to every aspects and landmarks of every teeth.

RESULT

A total of 100 students participated in this questionnaire based study. The denouement was calculated in percentages and a comparative study was conducted. 87% of the students involved in this study were right handed and rest were left. According to the survey, it has been noticed that the right handed students felt the entire procedure of carving to be simpler when compared to the

left handed. In student’s opinion, carving of the labial and the proximal aspect of the incisors were the easiest when compared with the other aspects and features of incisors (fig1), as the entire 100 has marked the easy option for this. 84% of the students have said that the easiest part to be carved in a canine is its root (fig 2), whereas 16% has selected the difficult option as mentioned in table 1. The Buccal aspect of the premolars are elected to be the easiest by 72% when compared to other aspects (fig3). Whereas, the most difficult part to be carved in premolars are the marginal ridges and triangular fossa, as the third option was opted by 12% and 8% respectively. In carving of a maxillary molar, the cusps (52%), triangular fossa (60%), marginal fossa (60%), oblique ridge (48%), grooves (44%) on the occlusal aspect and furcations (64%), curvature (48%) on the root are the difficult part to be carved when compared to others. A considerable number of students (60%) have selected the carving of furcation of the root to be extremely difficult and 72% as the lingual aspect to be the easiest as mentioned in table 2.

Table 1: carving of incisors and canine

FEATURES	INCISORS			CANINES		
	EASY	DIFFICULT	EXTREMELY DIFFICULT	EASY	DIFFICULT	EXTREMELY DIFFICULT
LABIAL ASPECT	100%	0%	0%	40%	52%	8%
PROXIMAL SURFACE	100%	0%	0%	60%	36%	4%
CINGULUM	64%	32%	4%	56%	40%	4%
LINGUAL FOSSA	80%	16%	4%	60%	36%	4%
INCISAL EDGES	88%	12%	0%	—	—	—
ROOT	80%	16%	4%	96%	16%	8%

Fig 1: carving of incisors

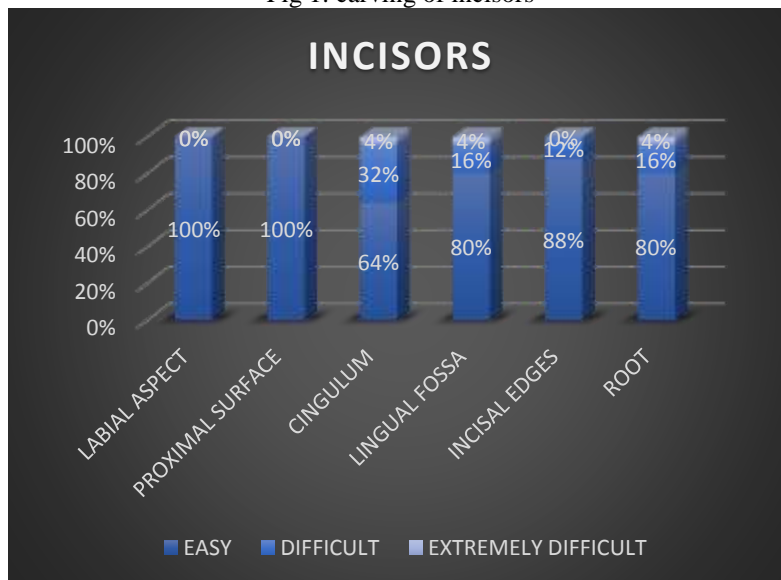


Fig 2: carving of canines

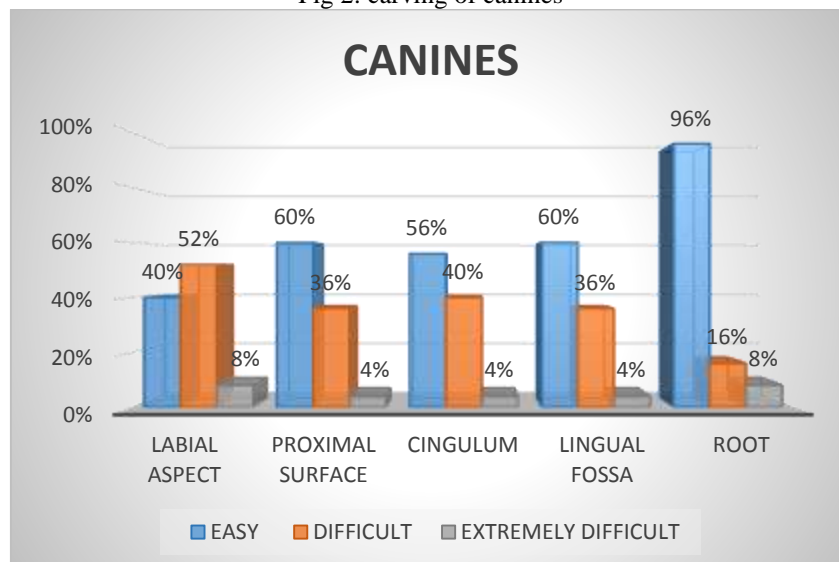


Fig 3: carvings premolars

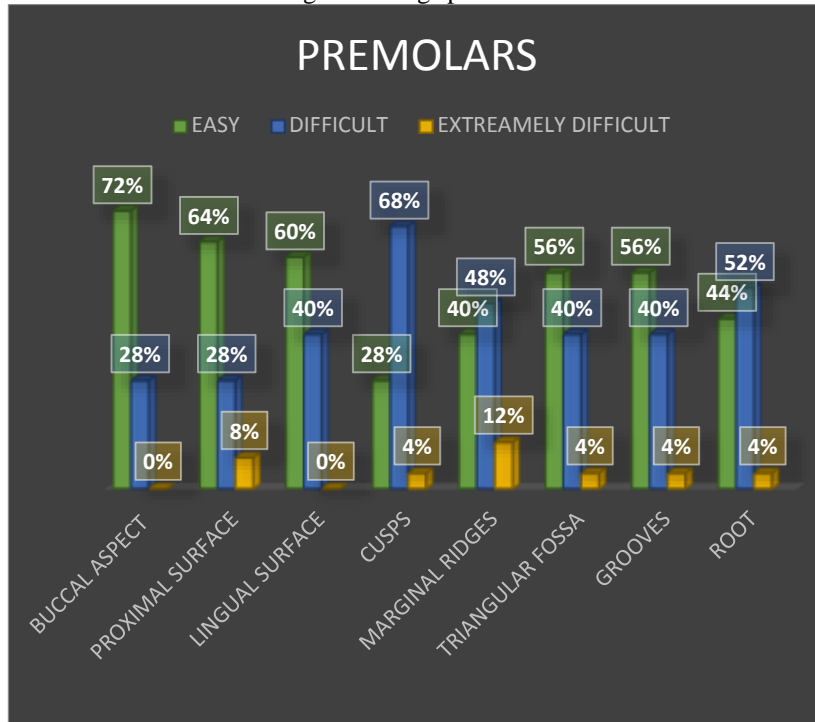


Table 2: carving of maxillary and mandibular molars

	MANDIBULAR MOLARS			MAXILLARY MOLAR		
	EASY	DIFFICULT	EXTREMELY DIFFICULT	EASY	DIFFICULT	EXTREMELY DIFFICULT
BUCCAL ASPECT	60%	36%	4%	68%	32%	0%
PROXIMAL ASPECT	56%	40%	4%	68%	32%	0%
LINGUAL ASPECT	72%	24%	4%	60%	40%	0%
CUSPS	16%	68%	16%	32%	52%	16%
TRIANGULAR FOSSA	44%	52%	4%	36%	60%	4%
CENTRAL FOSSA	28%	60%	12%	–	–	–
MARGINAL RIDGE	44%	52%	4%	40%	60%	0%
OBLIQUE RIDGE	–	–	–	48%	48%	4%
GROOVES	56%	32%	12%	52%	44%	4%
FURCATION	48%	32%	60%	12%	64%	24%
CURVATURE	32%	44%	24%	44%	48%	8%

DISCUSSION

Tooth morphology is a major component for a dentist in his daily dental practice. For every procedure that is done, it is necessary to know the tooth morphology to provide the patient with appropriate structure of each tooth which in turn helps to acquire proper occlusion and appearance. For a successful dentist theoretical study of dental anatomy alone is not sufficient, it is essential for every dentist to acquire practical knowledge of tooth structure. Hence the study of tooth morphology has become mandatory in every dental school. It has been traditionally delivered through lectures and practical sessions that involves carving tooth models with wax cubes. Tooth carving sessions aim at introducing manual skills by learning tooth morphology at an early part of the dental course.

The training in their study of carving has improved their preclinical performance and has showed that both amalgam and composite restorations could be done quickly and accurately using the art of sculpture which has been learned during the tooth carving session.

Carving in our college starts in the first year of BDS so that students get well versed in it and acquires more knowledge about the tooth morphology to provide their patients with better satisfaction. The students of four year graduate dental course in many colleges are provided with an alternative for carving as they are tightly scheduled. The alternative is to use other applications of carving to recreate tooth morphology in parts in which tooth models have a component removed and students are asked to replace the missing landmarks with wax. This is beneficial for manual dexterity and does not consume much of their time.

Carving a tooth by its exact measurement is not as easy as it is thought to be, hence with the help of this study the difficulties are known, which will help as to create an alternate way or method to do the same in a much simpler manner with less consumption of time too.

CONCLUSION

A greater understanding of student learning difficulties for each tooth structure will be valued and noticed through this survey to provide an alternate and minimize the difficulties of students.

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