Operator's dental stool positioning and its impact on the surgical removal of impacted mandibular third molars-A questionnaire based case control pilot study

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ABSTRACT

Conventional operator position has been followed for many years in routine maxillofacial surgery for surgical removal of mandibular 3rd molar. Henceforth, this study will determine whether the modification in operator stool position will improve the ergonomics as well as comfort of the surgeon to assess the variability in chair position which will increase the comfort of the operating surgeon for mandibular 3rd molar removal and to prove whether this is more convenient than the conventional operators chair position. Surgical removal of impacted mandibular 3rd molar of various types of impacted mandibular third molar (mesioangular, distoangular, horizontal,vertical) on the left and the right side of mandible are operated with the surgeons dental stool position on the same and the opposite side(which is the modification done in this study). A set of questionnaire was given to the operator to assess the ease and the comfort zone of the operator. From the above study it can be concluded that by positioning the operators chair on the same as that of the impacted tooth to be surgically removed i.e., by positioning the operator's stool on the right side for right 3rd molar extraction and left side for an impacted left molar extraction offers better visualisation, ease in access, increased precision, decreased fatigue, better instrument handling.

Keywords: Impaction; operator's chair position; extraction; patient position; surgical tooth removal.

INTRODUCTION

A tooth that has failed to erupt to the occlusal plane with reference to the adjacent tooth is referred to as an impacted tooth and requires surgical removal. Impacted molars are invariably surgically removed and this surgical extraction of impacted mandibular third molars is a common practice in the field of oral and maxillofacial surgery (1). With time, as the surgeon attains skill and experience impactions are performed in an atraumatic way and will start appearing as a case of a normal extraction. The ease with which impacted molar extractions are done depends upon the eruption until the occlusal plane and bone coverage. Several literature with definitive guidelines are formulated regarding third molar surgeries (2-7).

Morphology of the roots and its relation to the inferior alveolar nerve also determines the level of difficulty of extraction of the third molar. As the difficulty level increases, the stress and strain on the muscles of the surgeons muscles also increases. On a long run, this decrease the productivity of the surgeon. For a long and a healthy practice of the dentist, ergonomics is very important.

Any person can tolerate stress only to a certain level and this tendency to tolerate decreases with age. The same concept applies to all dentist. This is why ergonomics and chair position are very important for a long and healthy life style for a dental surgeon. A study conducted by Cristina Pirvu *et al.,* on rule of ergonomics in dentistry insist about the deleterious effect of orthostatic position, which will often lead to long term musculoskeletal disorder, finally attributing to horrendous professional life (8).

The health of a dental surgeon is very important to deliver best dental service for his or her patients. Improper dental stool positions tend to cause stress and strain on the muscles and decrease the longevity of the practice of a dentist as dentistry is one such field that requires proper ergonomics to be followed. This is why the need to reinforce proper chair positioning during dental treatment is very essential. This study is being conducted to find out if the positioning of the surgeon in the same side of the tooth to be surgically removed plays any role in decreasing the stress, better visualisation and thereby on the long run increasing the productivity of the surgeons.

The aim of this feasibility study is to find out which side of positing dental stool would be ergonomically offering better comfort to an operating dental surgeon for performing surgical removal of impacted third molar.

MATERIALS AND METHODS

Study design

This feasibility study is an online questionnaire based study done in survey planet. The study is conducted at Saveetha Dental College and Hospitals after obtaining approval from the research committee. It is a questionnaire-based study with a set of 10 questions. The questionnaire was given to 50 oral and maxillofacial surgeons (residents and faculty) to assess their views on the operations position during surgical removal of impacted 3rd molar.

Inclusion criteria

Oral and maxillofacial surgeons (residents and faculty).

Exclusion criteria

All other fields in dentistry.

Study procedure

The surgeons were asked to perform right side surgical tooth removal of impacted mandibular third molar by positioning the operators stool on the right side and for a left sided impacted mandibular third molar by positioning on the left side for a right handed individual(which is the modification done in this study). The surgeons were then asked to take up a survey in survey planet, which consisted of 10 questions. The questions assessed the ease of performing surgical removal, visual access, stress, working time, instrument handling associated with performing surgical removal of impacted mandibular third molar on the same side (routine dental stool position) as well as opposite sided dental stool position (modified dental stool position).

Statistical analysis

The results were obtained using online survey tool namely Survey planet® in terms of percentage for each question and an overall view of the surgeons in regards with the extraction of surgical removal of impacted mandibular third molar by positioning the operating stool on the same side of the tooth to be removed were being assessed.

RESULTS

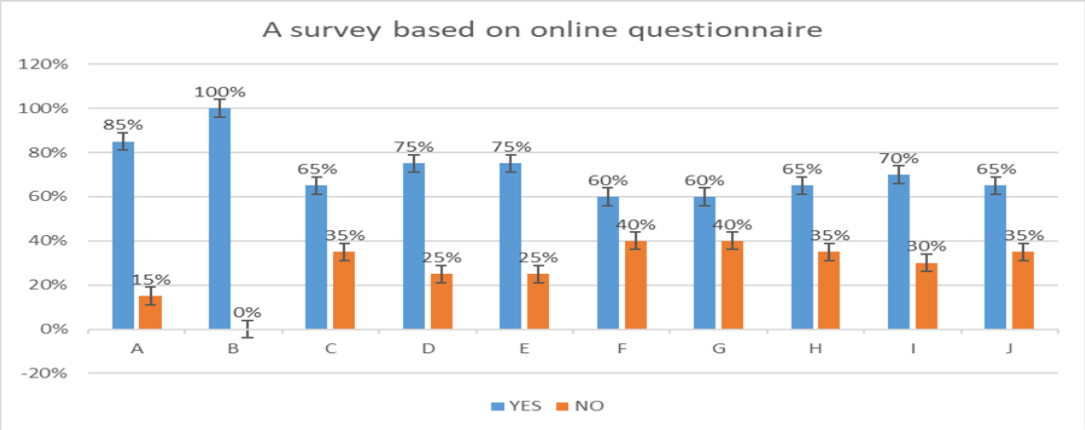

Fig. 1: Graph describing the various questions posted in the survey and the response given by each participants in the survey. **A-** No. of surgical removal of impacted mandibular 3rd molar; **B-** Right sided dental stool position preference for right or left impacted mandibular 3rd molar; **C-** Left sided dental stool position preference for right or left impacted mandibular 3rd molar; **D-** Better in visualizing during operating with sided dental stool position preference for right or left impacted mandibular 3rd molar; **E-** Easy in access during operating with sided dental stool position preference for right or left impacted mandibular 3rd molar; **F-** increase in surgical precision; G- decrease in fatigue; **H-** better instrument handling; **I-** decrease in work time; **J-** recommend or suggest this modification of dental stool position to colleagues.

From the results, it is understood that 85% of them do at least one impacted surgical mandibular 3rd molar removal in a day. All the surgeons prefer the surgical removal of right side molar by positioning the operators stool on the right side and 65% prefer extracting the left side molar by positioning the operators stool on the left side. 75% feel there is better visualisation, ease in access, decrease in fatigue, and said they would recommend their associates too to perform impacted extractions by positioning the operators stool on the same side as that of the tooth to be removed. 70% of the surgeons feel their working time is reduced, with increase in precision and 65% feel instrument handling is better while performing extractions by positioning the operators stool on the same side as that of the tooth to be removed.

DISCUSSION

Extraction is an art and when done in a traumatic way with little pain becomes a bliss for the patient. This art of extraction develops over time with skill and experience of the dentist. Surgical tooth removal or trans alveolar extraction is usually indicated for impacted teeth which are inappropriate anatomical position. Ergonomics in dentistry is essential to prevent musculoskeletal disorders to have a long and healthy practice. When such skeletal disorders occurs due to work, it is called as work related musculoskeletal disorder and is estimated approximately (29.5%) to be the major reason for early retirement of a dentist (8, 9).

Ample literature are available on various aspect of surgical removal of mandibular third molar starting from difficulty index assessment, various surgical technique to post-operative complication involved in surgical removal of mandibular third molar (10-12). Surprisingly none of articles have had stressed on role of operator stool positing during third molar surgery and its implication on outcome of surgery. Henceforth the present pilot study will serve as a new guideline for a novice and senior maxillofacial surgeon in performing a better mandibular third molar surgery in future.

It is generally a rule of thumb that right and left sided impacted mandibular third molar surgical removal are routinely done by positioning dental stool on the right side for surgical tooth removal of impacted third molar.

An innovative idea of modifying conventional dental stool position was done by positioning the operator's stool on the right side for surgical removal of impacted right mandibular third molar and positioning the dental stool on the left side of the patient (1 O'clock position) for a removal of impacted mandibular third molar. At the end of surgical procedure with modified stool position 70% of participant of this study felt changing dental stool positioning especially for surgical removal of impacted left third molar, with dental stool placed on left side of patient or the dental chair (where the conventional stool position is often right side universally except for a left hand operator) was found beneficial in aspect of surgical outcome and ergonomics.

CONCLUSION

From the above small sampled feasibility study it can be concluded that altered dental stool positioning during surgical removal of impacted mandibular third molar offers better visualisation, ease in access, increased precision, decreased fatigue, better instrument handling. Further a large sample sized randomized control trail will be necessary to generalise the outcome of this study.

CONFLICT OF INTEREST: None

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