

Original Research Article

INCIDENCE OF DIFFICULT INTUBATION IN TMJ ANKYLOSIS PATIENTS IN UNIVERSITY SETTING.

ABSTRACT :

INTRODUCTION : Ankylosis of the temporomandibular joint (TMJ) is a loss of joint movement caused by a fusion of the mandibular condyle with the base of the skull. Prolonged ankylosis of the temporomandibular joint, is a major concern to the anaesthetist due to the narrow airway, which poses a challenge during intubation. Although TMJ ankylosis is well known risk factors of difficult airway management, the techniques used are dependent on the expertise of the concerned anesthesiologists. Intubating a patient with temporomandibular joint ankylosis is always a challenge. The aim of this study was to determine the incidence of difficult intubation in TMJ ankylosis patients

AIM OF THE STUDY: The aim of the present study was to evaluate the incidence of difficult intubation in TMJ ankylosis patients.

MATERIALS AND METHODS: Retrospective analysis of all the cases (patients underwent TMJ ankylosis surgery) was retrieved among the overall data of patients visiting Saveetha Dental College. The data was entered in Excel Spreadsheets. And the collected data was analysed using SPSS software version 19. Chi square test was used to statistically evaluate the results.

RESULTS: In the present study carried out, it was observed that the incidence of difficult intubation in TMJ ankylosis surgery in the age group of 5-18 years was found to be higher than

the other age groups. Intubation is difficult in children. The results obtained in the chi square test was statistically significant ($p < 0.005$).

CONCLUSION: It can be concluded from the present small sampled retrospective study, nasal intubation and fiberoptic intubation were the most frequent mode of intubation done in TMJ ankylosis surgery. Out of which, intubation difficulty was higher in the paediatric age group 5-18 years.

KEYWORDS: Difficult intubation, fiberoptic intubation, tracheostomy, nasal intubation, innovative technique

INTRODUCTION:

Ankylosis of the temporomandibular joint (TMJ) causes a partial or complete inability to open the mouth. TMJ ankylosis is still very common in India. It can be seen in children as young as 2 years old and as old as 60 years old. (1) TMJ ankylosis is caused by trauma or infection. The resulting sequelae include facial asymmetry, malocclusion, anaemia, and starvation. Increased airway blockage is also a result. (2) Airway blockage is caused by structural encroachment on the oropharyngeal and hypopharyngeal lumens, low intrapharyngeal pressure, and oropharyngeal muscle hypotonicity. All of these anatomical abnormalities make ventilation, intubation, and extubation problematic. (3) Surgical treatment is always used. The operations performed include condylectomy, gap arthroplasty, interposition arthroplasty, and artificial joint replacement. (4) In order to avoid complications associated with oral intubation, nasal intubation is generally used during maxillofacial surgery to ensure airway patency. (4,5) In such individuals, a deformed airway is common, and airway control is usually maintained through scheduled awake fiberoptic intubation. (6) Although awake fiberoptic intubation is the procedure of choice in complicated airway procedures, it requires expertise and experience to be deemed the safest method. (7)(8) Another option for maintaining airway patency is a tracheostomy. (9) Tracheotomy, on the other hand, leaves a scar. (9) Tracheostomy is an invasive procedure with a post-operative morbidity and so it was reserved for emergencies. (10)(11) The direct vocal cord vision is difficult due to the inability to open the mouth, and hence surgery for temporomandibular joint (TMJ) ankylosis falls under the category of difficult intubation. (12) The pharyngeal passage is narrowed in TMJ ankylosis patients due to severe trismus, mandibular hypoplasia with unequal growth of two

halves of the mandible, and reduced mandibular space with pseudo macroglossia in a confined space.(13)Thus incidence of difficult intubation in TMJ ankylosis patients is assessed to determine the prevalence.

Our team has extensive knowledge and research experience that has translate into high quality publications(14),(15),(16),(17),(18–27) (28),(29–31).(32,33)

MATERIALS AND METHODS :

The present study is a retrospective study carried out in a hospital setting under a specific population predominantly South Indian population. It is a single centred study with a small sample size. It was carried out under Institutional Review Board approval. In this study, data of the patients were collected by complete analysis of the data of patients between June 2020 to June 2021 from a patient management software (DIAS). Data including patients name, age, gender, surgical procedure in patients with TMJ ankylosis who underwent surgery were collected. And for further analysis the collected data was cross verified by another examiner. The collected data was tabulated using Excel Spreadsheets and the data was analysed using SPSS software version 19. The statistical study used in the study was Chi square test with p value less than 0.005 and confidence interval of 95%.

RESULTS AND DISCUSSION :

In the present study, it was found that (58.33 %) of the male population and (41.67 %) of the female population were involved in the study. Age groups of 5-18 years were found to be (68.18 %) , age groups of 19-50 years were found to be (13.64 %) and age groups of 51-80 years were found to be (18.18 %).

It was found in the incidence of difficulty in intubation of TMJ ankylosis surgery that prevalence of nasal intubation was (33.33 %) prevalence of tracheostomy was found to be (25 %) and

prevalence of fiberoptic intubation was found to be (41.67 %) in the study among the patient population.

In correlation between the gender and the difficult intubation procedures it was observed that most frequent intubation done were fiberoptic intubation (37.50 %) in male population and nasal intubation (29.17%) in female population. The results obtained in the chi square test were statistically significant ($p < 0.005$).

In the present study the incidence of difficult intubation in TMJ ankylosis surgery in the age group of 5-18 years was found to be higher than the other age groups. Intubation is difficult in children. Because of their restricted mouth opening and limited lower jaw protrusion, children with TMJ ankylosis are likely to have difficulty intubating. Mask ventilation is also challenging due to mandibular hypoplasia and asymmetrical growth of the two parts of the jaw. TMJ ankylosis in children in impoverished nations manifests later in life with a substantially limited mouth opening. The traditional approach of intubation with direct laryngoscopy is usually not possible by this time. The literature mentions several airway management techniques such as tracheostomy, blind nasal intubation, and fiberoptic intubation. To reduce the risk of injury to the patient, the anesthesiologist should carefully assess the patient's airway, identify any potential difficulties, develop a plan with the lowest risk of injury, and have a backup plan ready. However, based on the experience and facilities available, each anesthesiology department should develop standards or algorithms that are unique to their institution. In this study, we have discussed our experience of difficult intubation in TMJ ankylosis patients.

CONCLUSION:

It can be concluded from the present small sampled retrospective study, nasal intubation and fiberoptic intubation were the most frequent difficult intubation done in TMJ ankylosis surgery. Out of which, intubation difficulty was higher in the paediatric age group 5-18 years.

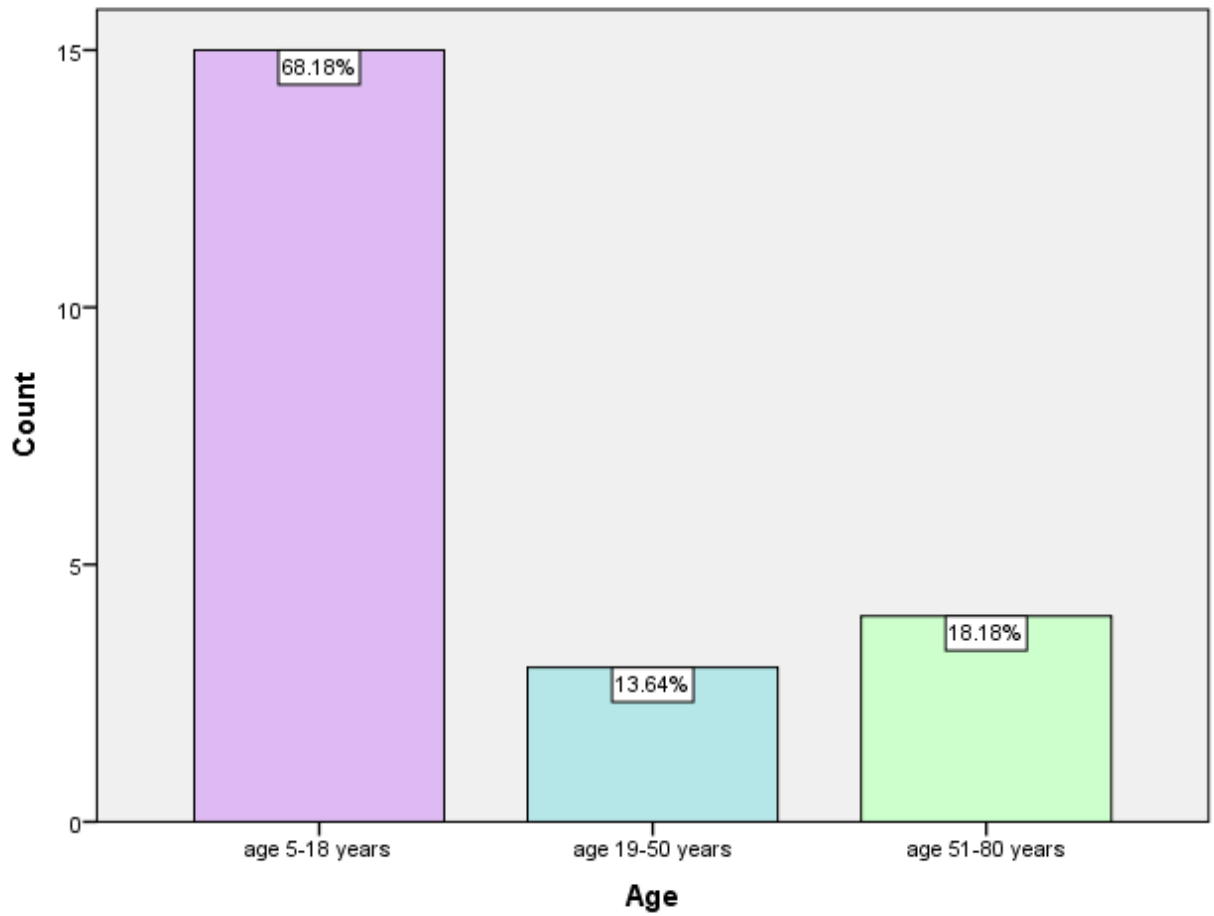


FIGURE 1 : Bar chart depicting the age groups involved in the study, age groups of 5-18 years were found to be (68.18 %), age groups of 19-50 years were found to be (13.64 %) and age groups of 51-80 years were found to be (18.18 %).

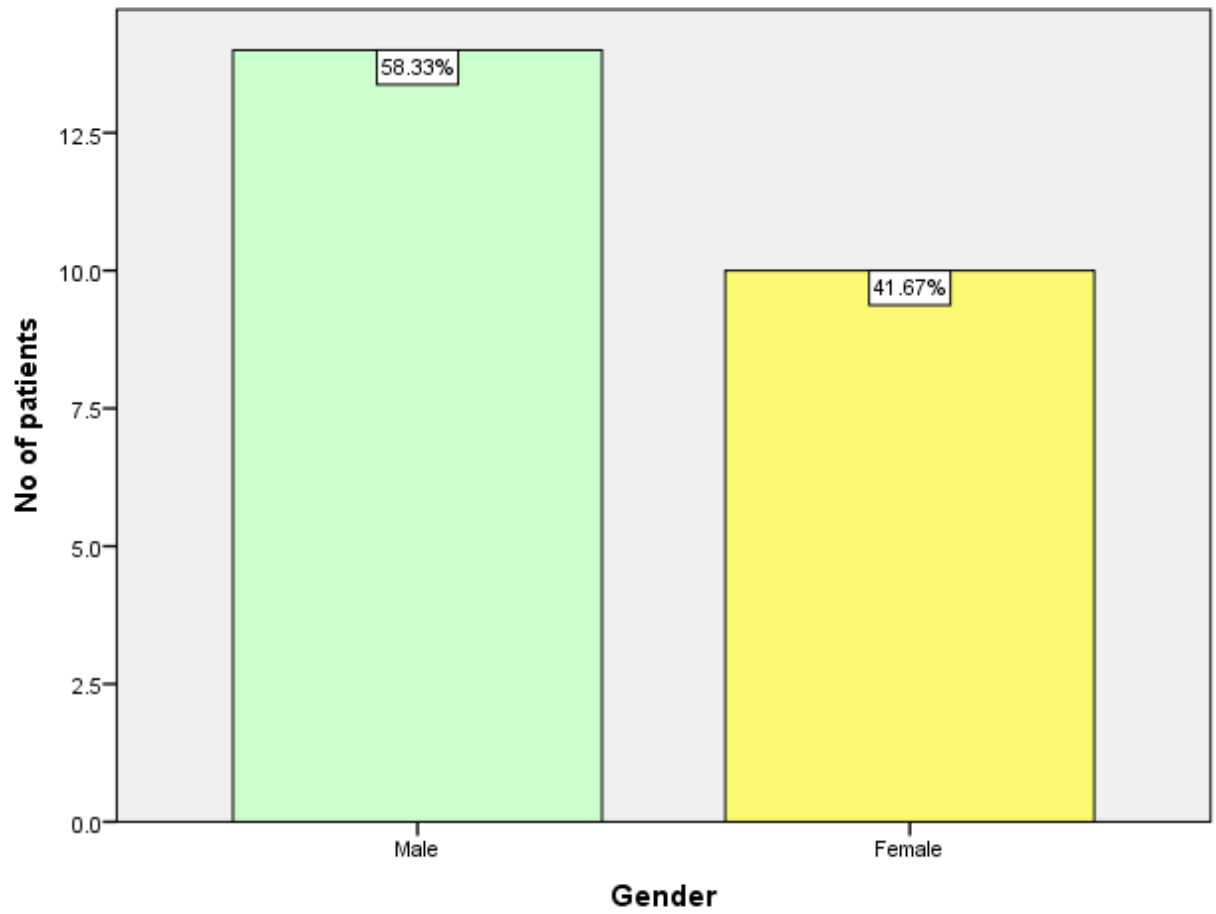


FIGURE 2 : Bar chart showing that (58.33 %) of the male population and (41.67 %) of the female population were involved in the study.

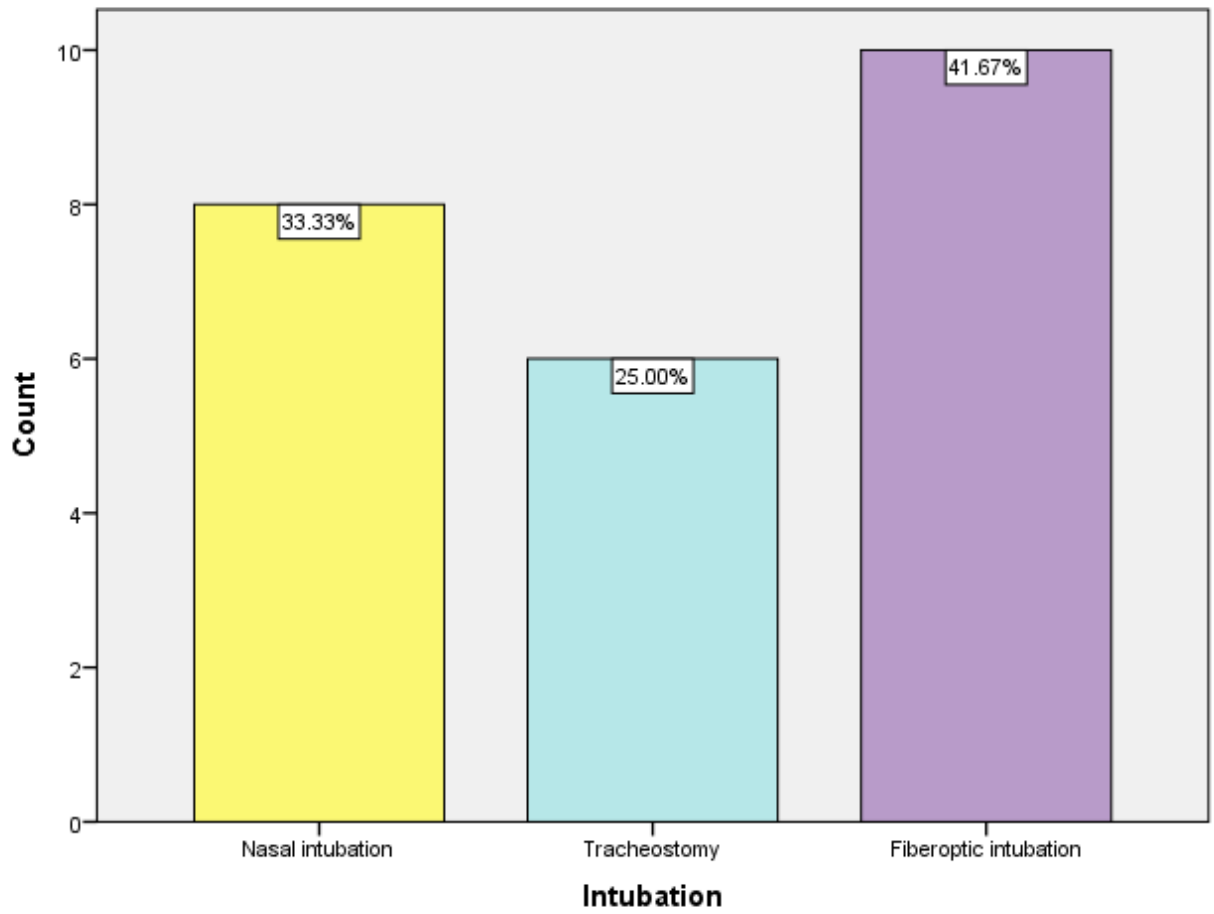


FIGURE 3 : Bar chart showing incidence of difficulty in intubation of TMJ ankylosis surgery that prevalence of nasal intubation was (33.33 %) prevalence of tracheostomy was found to be (25%) and prevalence of fiberoptic intubation was found to be (41.67 %) in the study.

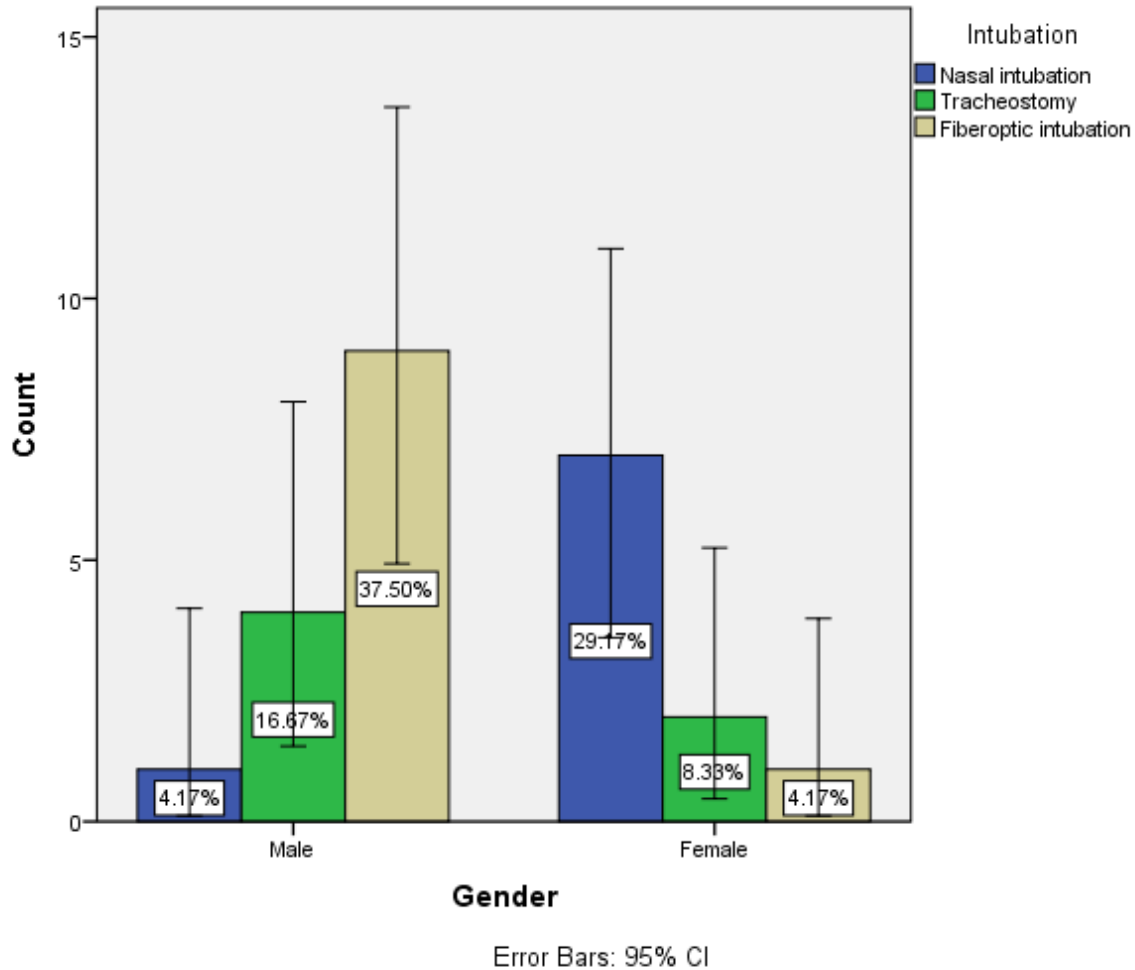


FIGURE 4 : Bar chart depicting correlation between the gender and the incidence of difficult intubation procedures it was observed that most frequent intubation done was fiberoptic intubation (37.50 %) in male population and nasal intubation (29.17 %) in female population. The results obtained in the chi square test were statistically significant. Pearson chi square = 11.211, df=2, p=0.004.

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