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ORIGINAL ARTICLE

RATIO OF PATIENTS HEIGHT TO THYROMENTAL DISTANCE (RHTMD) COMPARED TO THYROMENTAL DISTANCE FOR PREDICTION OF DIFFICULT INTUBATION

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ABSTRACT: BACKGROUND AND RATIONALE: Preoperative evaluation is important in the detection of patients at risk for difficult tracheal intubation. Thyromental distance (TMD) is often used for these purposes, but its value as an indicator for difficult intubation is questionable, as it varies with patient size and body proportions. The purpose of the present study was to evaluate and compare the accuracies of the Ratio of Patient's Height to TMD (ratio of height to TMD=RHTMD), with TMD and Modified Mallampati classification (MP) in the prediction of difficult tracheal intubation. **OBJECTIVE:** This study is an attempt in finding an airway index by making simple measurements to anticipate difficult airway and compare RHTMD with TMD and MP classification for predicting difficult airway. **METHODS:** 170 apparently normal ASA I & II patients who were undergoing elective surgeries under General Anaesthesia (GA) were included in the study. The MP, TMD and RHTMD were determined in each patient preoperatively and Cormack – Lehane (CL) grading was assessed during laryngoscopy. TMD ≤6.5cm, RHTMD >25 and MP class III & IV were considered difficult intubation; these values were compared with CL grading. CL grade III & IV were considered as difficult intubation. The optimal predictive value was chosen using a receiver operating characteristic (ROC) curve. The areas under the ROC curves (AUC) of TMD and RHTMD were compared to determine the performance of the different predictive tests used. The sensitivity, specificity, and positive and negative predictive values of each of the predictive tests were calculated according to standard formulae. **RESULTS:** Difficult intubation occurred in 6 out of 170 patients (3.5%) in the study. The sensitivity of Modified Mallampati classification was 33.3% and specificity was 90.8%. The test has a positive predictive value of 11.7%, negative predictive value of 97.3% and overall accuracy of 88.8%. The sensitivity of TMD was 33.3% and specificity was 79.2%. The test has a positive predictive value of 5.5%, negative predictive value of 97% and overall accuracy of 77.6%. The sensitivity of RHTMD was 83.3% and specificity was 97.5%. The test has a positive predictive value of 55.5%, negative predictive value of 99.3% and overall accuracy of 97%. In our study the Area Under Curve (AUC) of RHTMD was 0.87, it is significantly higher than TMD (0.184) and MP test (0.726), indicating a more accurate prediction of RHTMD.A p value was calculated based on AUC, it shows that RHTMD had a higher and significantly better predictive value than MP classification and TMD with p value of 0.028. **CONCLUSION:** The Ratio of Height to Thyromental Distance has a better predictive value than Thyromental Distance and Modified mallampati classification. Ratio of Height to Thyromental Distance may represent a useful means of achieving a faster, simpler and more accurate predictor of difficult airway.

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KEYWORDS: Difficult airway; Modified mallampati classification; Thyromental distance; Ratio of Height to Thyromental distance; Cormack & Lehane grading.

INTRODUCTION: Failure in managing airway is the most significant cause of mortality and morbidity in anaesthetised patients.[1] Incidence of difficult intubation is 5.8% in patients undergoing surgery; however it still accounts for significant proportion of adverse anaesthetic outcomes in clinical practice.[2]

The single largest source of unfavourable outcome in the ASA (American Society of Anaesthesiologists) closed claim study was for adverse respiratory episodes which accounted for 34% liability claims, of which difficult tracheal intubation was the culprit in 50%.[3] So, preoperative evaluation is important in the detection of patients at risk for difficult airway management.

Although, many advances have been made and many methods have been used to overcome unanticipated difficult airway (difficult laryngoscopic intubation), the existing bedside tests such as:

- Patil's measurement of Thyromental distance (TMD),[4]
- Modified Mallampati classification,[5]

Wilson scoring system[6] have been shown in various studies to have high false positive rates, which detracts from their usefulness.

So, there is a need for a test, which is quick and easy to perform, which is highly sensitive (so that majority of difficult cases can be identified) and highly specific (so that false positive rate will be low when the test is used routinely).

However, one of the tests proposed to predict difficult airway, Thyromental Distance (TMD), varies with patient's size. TMD has been adjusted for patients height for predicting difficult airway.[7,8,9] We in our prospective study try to evaluate the capability of the Ratio Of Patients Height To Thyromental Distance (RHTMD) for predicting ease of difficult intubation.

AIMS AND OBJECTIVES: The study is an attempt to find an airway index by making simple measurements to anticipate a difficult airway. This study is an attempt to compare Ratio of Patients Height to Thyromental Distance (RHTMD), Thyromental Distance and Modified Mallampati classification for predicting difficult intubation.

MATERIALS AND METHODS: The study was conducted at Shadan Institute of Medical Sciences Hyderabad. The Institutional review board (ethical committee) approval was obtained before proceeding with the study. Written informed consent of patients was obtained before including the patient in the study. The study was a prospective clinical study.

The first 210 consecutive cases coming to the Hospital during the study period satisfying the inclusion and exclusion criteria was included in the study.

Sample Size: Sample size was calculated using the following formula.

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Formula:

$$n = \frac{t^2 \times p(1-p)}{m^2}$$

n = required sample size.
t = confidence level at 95% (standard value of 1.96).
p = estimated prevalence of difficult intubation = 5.8%[10] = 0.058.
m = margin of error at 5% (standard value of 0.05) = 0.05.
Sample size = {1.96 x 0.058(1-0.058)}/0.0025 = 83.956 rounded to 85.

Since we want to compare two methods, a sample size of 210 cases was included in the study.

Inclusion Criteria:

- All patients aged above 18 of either sex.
- Patients belonging to as a (american society of anaesthesiologist) grade i and ii physical status.
- Patients undergoing elective surgery under general anaesthesia with endotracheal intubation.

Exclusion Criteria:

- Pregnant patients.
- Patients with mouth opening <3cm.
- Obese patients with body mass index >30.
- Patients coming for emergency surgery.
- Patients with midline neck swellings.
- Allergies or contraindications for any drugs used in the study.

Pre-operative Evaluation: Detailed examination and routine investigations including laboratory tests complete blood count, haemoglobin, serum biochemistry profile and urine analysis, Electrocardiogram, Chest X-ray was taken when indicated.

Pre anaesthetic Visit: Thyromental distance was measured as straight distance between the thyroid notch and the lower border of mental prominence, with the head fully extended and the mouth closed, using a rigid ruler. The distance was rounded to the nearest 0.5cm.

Height of patient was measured in centimetres with the patient standing straight by side of wall, with heel touching wall and will be rounded to nearest 1cm. Ratio of Height To Thyromental Distance calculated accordingly. Modified Mallampati classification was assessed along with this.

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Figure 1: Measurement of TMD on left and measurement of height on the right

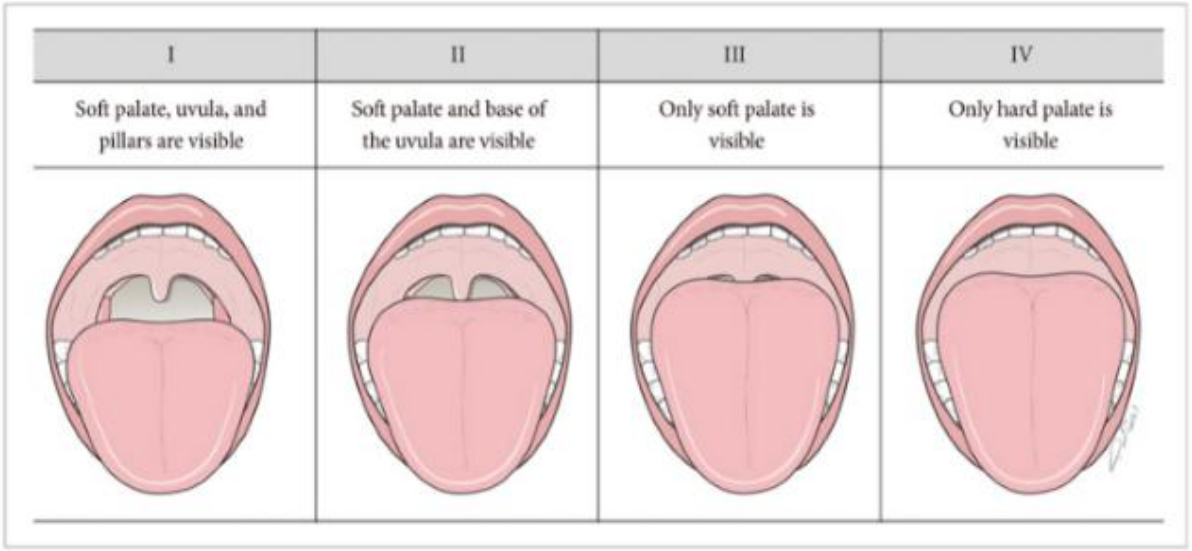

Figure 2: Modified Mallampati classification

Class I: Uvula, faucial pillars & soft palate visible.
Class II: Faucial pillars & soft palate visible.
Class III: Only soft palate visible.
Class IV: Only hard palate visible.

INTRAOPERATIVE: After pre-oxygenation for 3 minutes, all patients were induced using Propofol 2 mg/kg and paralysed using Suxamethonium 1.5 mg/kg to facilitate good Orotracheal intubation.

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Laryngoscopy was performed after one minute. The head placed in sniffing position on a head ring or pillow and a Macintosh blade number 3 was used by a conventionally trained anaesthesiologist.

Glottic visualisation was assessed by using modified Cormack and Lehane classification without external laryngeal manipulation. This classification involves 4 grades of glottic visualisation:

Grade I: Full glottic exposure.

Grade II: Only posterior commissure of the glottis seen.

Grade III: Only epiglottis seen.

Grade IV: No view of larynx.

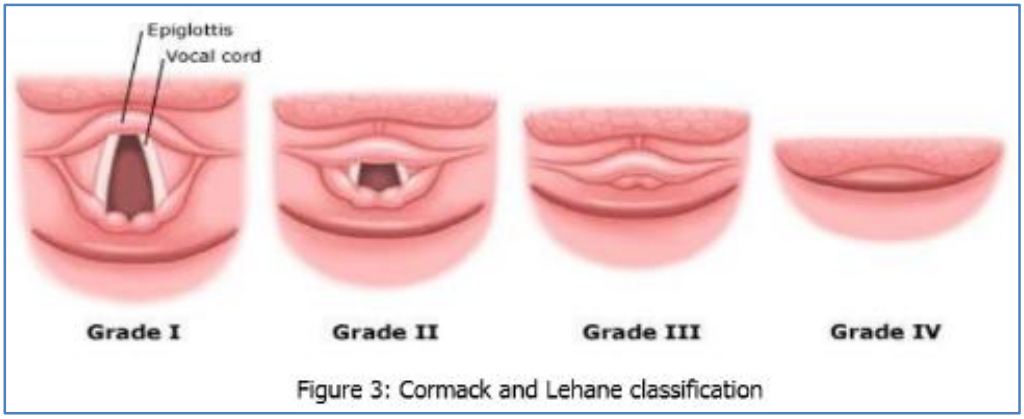

Figure 3: Cormack and Lehane classification

External laryngeal pressure (Backward upward rightward pressure) if required was permitted after evaluation for insertion of an endotracheal tube. We were able to intubate all patients using external pressure.

Cormack and Lehane grades 3 and 4 were defined as difficult intubation in this study.

The preoperative assessment data and laryngoscope findings were used together to evaluate the accuracy of test RHTMD in predicting difficult intubation. In this study, a cut off value of ≥25 for RHTMD[8] and ≤6.5cm for TMD[9] was taken to predict difficult airway.

The sensitivity, specificity and positive and negative predictive values of each test calculated according to standard formula.

RESULTS: The Chi-square test was used for statistical analysis of variables.

Gender:

	Frequency	**Percent**
Male	112	53.33%
Female	98	46.67%
Total	**210**	**100%**

Table 1: Gender Distribution

The study done on 210 patients included 112 male (51.7%) and 98 female (48.3%) patients as shown in table 1.

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ASA:

	Frequency	Percent
I	150	71.49
II	60	28.51
Total	**210**	**100.0%**

Table 2: Distribution of ASA in study population

Out of 210 patients, 150 patients (71.49%) belonged to ASA I; 60 patients (28.51%) patients belonged to ASA II and all the patients were fit for General Anaesthesia with endotracheal intubation as shown in table 2.

Age Group:

Age in Years	Frequency	Percent
<25	42	20
26-35	39	18.5
36-45	49	23.5
46-55	50	23.8
56-65	27	12.8
>65	3	14
Total	**210**	**100.0**

Table 2: Age Distribution

The study also covers wide age group from above 18 years to greater than 80 years. Nearly 60% of the study population was in the 25-55 years age group as shown in table 3.

MODIFIED MALLAMPATI CLASSIFICATION:

Modified Mallampati classification	Frequency	Percent
I	107	50.96
II	76	36.19
III	27	12.85
IV	0	0
Total	**210**	**100.0%**

Table 4: Distribution of Modified Mallampati Class in the Study Population

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Airway assessment with Modified Mallampati classification (MP) showed that 107 patients (50.96%) had MP class I; 76 patients (36.19%) had MP class II; 27 patients (12.85%) belonged to MP class III as shown in table 4.

THYROMENTAL DISTANCE:

TMD	Frequency	Percent
≤6.5	51	24.28
>6.5	159	75.72
Total	**210**	**100%**

Table 5: Distribution of Thyromental Distance in the Study Population

The measurement of thyromental distance revealed that 159 patients (75.72%) had a thyromental distance >6.5cm, while 51 patients (24.28%) had a thyromental distance ≤6.5cm as shown in table 5.

RATIO OF HEIGHT TO THYROMENTAL DISTANCE:

RHTMD	Frequency	Percent
<25	199	94.76
≥25	11	5.24
Total	**210**	**100.0**

Table 6: Distribution of Ratio of Height to Thyromental Distance in the Study Population

On calculating ratio of height to thyromental distance, we observed that 199 patients (94.76%) had RHTMD <25, while 11 (5.24%) patients had RHTMD ≥25 as shown in table 6.

CORMACK and LEHANE GRADING:

Cormack And Lehane Grading	Frequency	Percent
I	169	80.47
II	31	14.77
III	10	4.76
IV	0	0
Total	**210**	**100.0%**

Table 7: Distribution of Cormack and Lehane Grading in the Study Population

The Cormack-Lehane (CL) grading showed that 169 (80.47%) patients had a CL grade I, 31 (14.77%) patients had a CL grade II, 10(4.76%) patients had a CL grade III as shown in table 7.

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Modified Mallampati Classification v/s Cormack & Lehane Grading:

		CL grading						TOTAL	
		I		II		III			
MP	I	97	89.13%	12	9.7826%	1	1.09%	110	100%
		58.993%		36%		16.667%			
	II	55	77.049%	17	18.033%	5	4.92%	77	100%
		33.813%		44%		50%			
	III	12	58.824%	8	29.412%	3	11.8%	23	100%
		7.1942%		20%		33.333%			
TOTAL		**164**		**37**		**9**		**210**	
		100%		**100%**		**100%**			

Table 8: Distribution and Correlation by the Modified Mallampati Class with Cormack & Lehane Grade in Prediction of Difficult Intubation

According to table number 8 (89.13%) patients had MP class I, while 139(81.8%) patients had CL grade I. 47(33.8%) patients had MP class II, while 25(14.7%) patients had CL grade II. 17(10%) patients had MP class III, while 6(3.5%) patients had CL grade III Thyromental distance v/s Cormack Lehane Grading.

		CL grading						**TOTAL**	
		I		**II**		**III**			
TMD	≤6.5	27	58.6%	15	32.6%	4	8.8%	46	100%
		16.4%		41.6%		40%			
	>6.5	137	83.6%	21	12.8%	6	3.6%	164	100%
		83.6%		58.4%		60%			
TOTAL		**164**		**36**		**10**		**210**	
		100%		**100%**		**100%**			

Table 9: Distribution and Correlation by Thyromental Distance with Cormack & 1 Lehane Grade in Prediction of Difficult Intubation

According to table 9 out of 164 patients with TMD of >6.5cm, 137 patients had CL grade I, while 6 patients had CL grade II and 4 patients had CL grade III. Out of 46 patients with TMD ≤6.5cm, 27 patients had CL grade I, while 15 patients had CL grade II and 4 patients had CL grade III. Out of the 46 patients predicted to be difficult intubation with a TMD ≤6.5cm, 42 were

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easy intubations as they had a CL grade I or II. Thus, the high degree of false positivity of this test exposed.

Ratio of Height to Thyromental Distance v/s Cormack Lehane Grading:

		CL grading						TOTAL	
		I		II		III			
RHTMD	<25	167	86%	27	13.7%	2	0.3%	196	100%
		98.8%		84.3%		22.2%			
	≥25	2	14%	5	35.7%	7	50%	14	100%
		1.2%		15.7%		77.8%			
TOTAL		**169**		**32**		**9**		**210**	
		100	**100%**		**100%**		**100%**		

Table 10: Distribution and Correlation by Ratio of Height to Thyromental Distance with Cormack & Lehane Grade in Prediction of Difficult Intubation

According to table 10, out of 196 patients with RHTMD of <25, 167 patients had CL grade I, while 27 patients had CL grade II and 2 patient had CL grade III. Out of 14 patients with RHTMD of ≥25, 2 patients had CL grade I, while 5 patients had CL grade II and 7 patients had CL grade III. Out of 14 patients predicted to be difficult intubation with RHTMD of ≥25, 4 were easy intubations as they had a CL grade I or II.

Crosstab:

			CL Grade		Total
			Difficult	**Easy**	
RHTMD	≥25(Difficult)	Count	8	6	14
	< 25 (Easy)	Count	2	194	196
Total		**Count**	**10**	**200**	**210**

Table 11: Distribution and Correlation by Ratio of Height to Thyromental Distance with Cormack & Lehane Grade in Prediction of Difficult Intubation(CROSS TAB)

CL grade I & II considered as easy intubation, CL grade III & IV considered as difficult intubation. RHTMD ≥25 was considered as difficult intubation, RHTMD <25 considered as easy intubation in the table 11.

The sensitivity of RHTMD was 57.14 % and specificity was 98.9%. The test has a positive predictive value of 80%, negative predictive value of 98.9% and overall accuracy of 96.19%.These values were derived from table 11.

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			CL Grade		Total
			Difficulte	Easy	
MP	Difficult	Count	6	20	26
	Easy	Count	5	179	184
Total		**Count**	**11**	**199**	**210**

Table 12: Distribution and Correlation by Modified Mallampati Classification with Cormack & Lehane Grade in Prediction of Difficult Intubation (CROSS TAB)

CL grade I & II considered as easy intubation, CL grade III & IV considered as difficult intubation. MP class I and II considered as easy intubation, MP class III and IV considered as difficult intubation in the table 12.

The sensitivity of Modified Mallampati test was 23.0 % and specificity was 97.2%. The test has a positive predictive value of 54.54%, negative predictive value of 89% and overall accuracy of 88%. These values are derived from table 12.

			CL Grade		Total
			Difficulte	Easy	
TMD	≤6.5 (Difficult)	Count	4	41	45
	> 6.5 (Easy)	Count	6	159	165
Total		**Count**	**10**	**200**	**210**

Table 13: Distribution and Correlation by Thyromental Distance with Cormack & Lehane Grade in Prediction of Difficult Intubation(CROSS TAB)

CL grade I & II considered as easy intubation, CL grade III &IV considered as difficult intubation. TMD ≤6.5 cm was considered as difficult intubation, TMD >6.5 considered as easy intubation in the table 14.

The sensitivity of TMD was 8.8% and specificity was 96.9%. The test has a positive predictive value of 40%, negative predictive value of 79.5% and overall accuracy of 77.6%. These values were derived from table 13.

	MP	TMD	RHTMD
Sensitivity	23.07	8.8	57.14
Specificity	97.23	96.9	98.9
Positive predictive value	54.54	40	80
Negative predictive value	89.94	79.5	98.97
Accuracy	88	96.19	77.61

Table 14: Comparison of Statistical tools of Different tests in Predicting Difficult Intubation

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RHTMD has better sensitivity, specificity, positive predictive value, negative predictive value and accuracy compared to TMD and MP as shown in table 15.

RHTMD	.577
MP	.237
TMD	.090

Table 15: Area under the Curve (AUC)

p value =0.028.

The Area under Curve (AUC) of RHTMD was 0.577, it is significantly higher than TMD (0.090) and MP classification (0.237), indicating a more accurate prediction of RHTMD as shown in table 15.

DISCUSSION: In earlier days anaesthesia was induced by anaesthetic vapours given through a face mask. Due to inability to maintain a patent airway, adequate depth of anaesthesia, its associated complications, and anaesthetic practice by securing the airway by an endotracheal tube was devised. The significance of difficult or failed tracheal intubation is well recognized as a major cause of morbidity and mortality in anaesthetic practice as per ASA closed claim study. The need to predict potentially difficult tracheal intubation has received more importance but with limited success.

Unanticipated difficult intubation is a risk to patient's life and a challenge to the skill of the anaesthesiologist. Many anatomical and pathological variables have been identified, and have been suggested to be useful in anticipating a difficult airway. These factors have limitations because of wide variations in the incidence of difficult intubation, inter-observer variability and inadequate statistical power of the currently measured variables.

From the studies of patil et al[4] rose et al,[11] shiga et al,[2] mukesh titupati,[12] Wilson et al 6 there is no test which can be considered foolproof to predict a difficult intubation. So, there is a need for a test, which is quick and easy to perform, which is highly sensitive (so that majority of difficult cases can be identified) and highly specific (so that false positive rate will be low when the test is used routinely). Any test devised should be easy to perform and interpret at the bedside.

The RHTMD was introduced to allow for the individual's body proportion, which are not allowed for in the use of the TMD. Identical TMD measurements in a woman with a height of 160 cm and a 190 cm man would be expected to be associated with quite different jaw proportions in relation to the surrounding structures. The length of the neck and mandible as well as the volume of the tongue and soft tissue may vary with the size and proportion of the body.[8]

In our study, study population consisted of 210 ASA Grade I and II patients with apparently normal airway who underwent surgical procedures under general anaesthesia.

In our study, the prediction of difficult intubation was done by MP, TMD, RHTMD during preoperative assessment and correlating it to Cormack-Lehane Laryngoscopy grading at intubation.MP Class III and IV, TMD≤6.5 cm, RHTMD≥25 and CL grade III and IV was

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considered as difficult intubation. Among these CL grading was considered as gold standard, other tests were compared with this. In our study, according to table number 8, incidence of difficult intubation was 4.2%. 9 patients out of 210 patients had difficulty in intubation according to CL Grading. Shiga et al[2] (2005) performed a meta-analysis to systematically determine the diagnostic accuracy of bedside tests for predicting difficult intubation in patients with no airway pathology. The overall incidence of difficult intubation was 5.8%. The results of our study were comparable with this study. In our study, out of the 3 tests that were used as predictors of difficult intubation by Cormack Lehane grading, the prediction of difficult intubation by Modified Mallampati test (MP) and actual direct laryngoscopy grading of Cormack-Lehane (CL) were compared. According to table number 8 & graph number 8, 110(52.3%) patients had MP class I, while 164 (78.09%) patients had CL grade I. 77(36.66%) patients had MP class II, while 37(17.6%) patients had CL grade II. 23 (11%) patients had MP class III, while 9(4.2%) patients had CL grade III. according to table 9.

The sensitivity of Modified Mallampati test was 23.07% and specificity was 97.28%. The test has a positive predictive value of 54.54%, negative predictive value of 89.94 % and overall accuracy of 88%.

Iohom et al[13] conducted a study in predicting difficult airway by using Mallampati classification, Thyromental distance and sternomental distance. They found the sensitivity of Mallampati classification to be 43% and specificity to be 93%.

Oates et al[14] (1991) compared two methods of predicting difficult laryngoscopy prospectively. Mallampati class and Wilson risk-scoring were determined before operation and laryngeal view graded in 575 patients. They found the sensitivity of Mallampati to be 42% and specificity to be 84%.

In our study, we had lower sensitivity but higher specificity as compared to above studies.

In our study, according to table 9 and graph 9, out of 164 patients with TMD of >6.5cm, 137 patients had CL grade I, while 13 patients had CL grade II and 6 patients had CL grade III. Out of 46 patients with TMD ≤6.5cm, 27 patients had CL grade I, while 15 patients had CL grade II and 4 patients had CL grade III. Out of the 46 patients predicted to be difficult intubation with a TMD ≤6.5cm, 42 were easy intubations as they had a CL grade I or II. Thus, the high degree of false positivity of this test exposed.

The sensitivity of TMD was 8.8% and specificity was 96.9%. The test has a positive predictive value of 40 %, negative predictive value of 79.5% and overall accuracy of 77.6%.

Tse et al[15] (1995) evaluated one or more anatomic features of the head namely, Modified Mallampati classification, thyromental distance and head extension in various combinations, for prediction of difficult intubation. They found sensitivity and specificity of TMD were 33% and 80% respectively.

Iohom et al[13] conducted a study in predicting difficult airway by using Mallampati classification, Thyromental distance and Sternomental distance. They found the sensitivity of Thyromental distance to be 45%and specificity to be 95%. The results of our study are comparable to the values obtained in the above mentioned studies. In our study, according to table 10 and graph 10, out of 196 patients with RHTMD of <25, 167 patients had CL grade I, while 27 patients had CL grade II and 2 patient had CL grade III. Out of 14 patients with RHTMD

of ≥25, 2 patients had CL grade I, while 5 patients had CL grade II and 7 patients had CL grade III. Out of 14 patients predicted to be difficult intubation with RHTMD of ≥25, 7 were easy intubations as they had a CL grade I or II.

The sensitivity of RHTMD was 57.14 % and specificity was 98.97%. The test has a positive predictive value of 80 %, negative predictive value of 98.97 % and overall accuracy of 96.19%.

Krobbuaban et al[8] (2005), conducted a study to compare the predictive value of the ratio of height to thyromental distance and thyromental distance. They found the sensitivity and specificity of RHTMD as 83% and 65% respectively.

Schmitt et al[7] (2002) evaluated 270 patients preoperatively using the thyromental distance (TMD) and ratio of patient's height to thyromental distance (RHTMD).They found the sensitivity and specificity of RHTMD as 81% and 90% respectively.

In our study, we had higher sensitivity and specificity compared to above mentioned studies.

According to table number 15, RHTMD has higher sensitivity, specificity, better positive predictive value, negative predictive value and accuracy compared to TMD and MP.

We used the analysis of ROC curves to assess and compare the overall performance of the predictive tests. This methodology is widely used to evaluate the performance of diagnostic tests.

In our study, according to table 15 and graph 11, the Area under Curve (AUC) of RHTMD was 0.577, it is significantly higher than TMD (0.090) and MP classification (0.237), indicating a more accurate prediction of RHTMD.A p value was calculated based on AUC, it shows that RHTMD had a higher and significantly better predictive value than MP classification and TMD with p value of 0.028.

Schmitt et al[7] (2002) evaluated 270 patients preoperatively using the thyromental distance (TMD) and ratio of patient's height to thyromental distance (RHTMD). Their study showed AUC for RHTMD and TMD as 0.861 and 0.812. The AUC of the RHTMD was significantly greater than AUC of TMD with p value of 0.007.

Krobbuaban et al[8] (2005), conducted a study to compare the predictive value of the height ratio and thyromental distance.The study showed AUC for RHTMD and TMD 0.76 and 0.27.

The results in our study are comparable to the above mentioned studies.

The results clearly demonstrated that the RHTMD has a higher predictive value compared to MP and TMD. This result is not unexpected since the RHTMD takes individual proportions into account. The ease of calculation using routinely measured vital parameters (weight and height) and less time consuming bedside measurements (TMD) makes it a handy tool for prediction of difficult airway.

CONCLUSION: This study highlights the importance of a new, simple, yet very useful and important test involving measurement of external anatomic structures in predicting a difficult intubation. The specificity and sensitivity of Ratio of Patient's Height to Thyromental Distance outperformed Thyromental Distance and Modified Mallampati classification. Ratio of Patients Height to Thyromental Distance was the only test which had a specificity of 98.97%, sensitivity of 57.14% and accuracy of 96.19% in this study.

As seen in the earlier studies Ratio of Patients height to Thyromental distance was superior to Modified Mallampati test and Thyromental Distance in this study. The trend of changing over to Ratio of Patients height to Thyromental Distance as better predictor has been proven once again and is recommendable. Modified Mallampati classification has its own significance as a sole predictor of difficult airway due to soft tissue structure. So, the Ratio of Patients Height to Thyromental Distance as an additional tool can be very useful as both soft tissue and bony factors of difficult airway are equally addressed.

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