

Evaluation of Efficiency of Retracting Armamentariums in Oral and Maxillofacial Surgery: An Original Research

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Abstract

Introduction: Hence in the present study we aim to evaluate of efficiency of retracting armamentariums in oral and maxillofacial surgery.

Material and methods: We compared Austin Tissue Retractor, Kocher-Langenbeck Retractor, Tessier Retractor, Catania Retractor, Hargis Retractor. We included 100 Maxillofacial cases & 100 minor oral surgery cases operated by 20 different oral and maxillofacial surgeons for our study. A questionnaire was distributed to the surgeons for the evaluation of the various parameters of the retractors considered in our study. The responses were scores and compared for the two types of the surgical procedures performed. The obtained scores were noted and compared for the retractors. P<0.05 was considered as significant.

Results: The maximum score was seen for the Kocher-Langenbeck Retractor for the maxillofacial surgeries and the Austin Tissue Retractor for the minor oral surgeries.

Conclusion: From our study we can conclude that the Kocher-Langenbeck Retractor was the most preferred and gives best retraction in maxillofacial surgery cases & Austin Tissue Retractor is most preferred and gives best retraction in Oral surgery cases.

Key words: Retractors, Oral and Maxillofacial Surgery, Kocher-Langenbeck Retractor, Austin Tissue Retaractor.

Introduction

A retractor is a surgical instrument used to separate the edges of a surgical incision or wound, or to hold back underlying organs and tissues so that body parts under the incision may be accessed.¹ During the dissection/inspection, a surgeon needs an exposure best as possible while inflicting a minimum of trauma to the surrounding tissue. The handles of the retractor may be hook-shaped, notched, or ring-shaped to give the holder a firm grip without tiring.² The blades of the retractors are at a right angle to the shaft. The blades can be smooth, raked, or hooked. They can be hand-held retractors. The handheld retractors require an assistant to hold them but the self-retaining ones don't once they are adjusted in position. The correct method of using a hand-held retractor is that it must be held by its handle properly so as to produce maximum exposure of the surgical area, maximum leverage, and steady retraction.³⁻⁶ Handheld retractors that are commonly used in maxillofacial surgery include Anterior Condyle, Austin Tissue, Ostectomy, Bayer, Catania, Donovan, Hargis, Henahan, Joseph, Kocher-Langenbeck, Levasseur-Merrill, ramus, Oringer Lip, Sewall, Tessier and Tongue and Cheek Retractors.⁴ There has been no data till date available for the various types of the retracting armamentariums in oral and maxillofacial surgery. Hence we aim for the evaluation of efficiency of retracting armamentariums in oral and maxillofacial surgery.

Material and methods

In the present study we compared Austin Tissue Retaractor, Kocher-Langenbeck Retractor, Tessier Retractor, Catania Retractor, Hargis Retractor. We included 100 Maxillofacial cases & 100 minor oral surgery cases operated by 20 different oral and maxillofacial surgeons for our study. Equal distribution of cases was done among all the surgeons to remove the bias in the study. The questionnaire was distributed to the surgeons for the evaluation of the various parameters of the retractors considered in our study. **Table 1** The responses were scores and compared for the two types of the surgical procedures performed. The obtained scores were noted and compared for the retractors. $P < 0.05$ was considered as significant.

Table 1: The Questionnaire distributed to the surgeons for the evaluation of the retractors.

S.no	Questionnaire	Totally disagree (1)	Somewhat disagree (2)	Somewhat agree (3)	Totally agree (4)
1.	Comfort ability				
2.	Ease of use				
3.	Provides sound grip				
4.	Functionality				
5.	Adequate retraction				

6.	Adequate suction				
7.	Adequate visualization				
8.	Type of the retraction used				

Results

It was observed in our study that the maximum score was seen for the Kocher-Langenbeck Retractor for the maxillofacial surgeries. **Table 2** We also observed in our study that the maximum score was seen for the Austin Tissue Retractor for the minor oral surgeries. **Table 3** On comparison of the various retractors we observed that there was a significant difference among the Kocher-Langenbeck, Austin Tissue Retractor and other retractors for the various surgical procedures. **Table 4**

Table 2: Comparison of the scores for the various retractors in the maxillofacial surgeries.

S.no	Questionnaire	Austin Tissue Retractor	Kocher-Langenbeck Retractor	Tessier Retractor	Catania Retractor	Hargis Retractor	p
1.	Comfort ability	5	5	1	2	1	0.01
2.	Ease of use	6	6	2	3	1	
3.	Provides sound grip	1	3	1	5	3	
4.	Functionality	5	6	1	2	3	
5.	Adequate retraction	2	1	1	2	2	
6.	Adequate suction	3	3	2	3	2	
7.	Adequate visualization	3	1	2	3	3	

Table 3: Comparison of the scores for the various retractors in the minor oral surgeries.

S.no	Questionnaire	Austin Tissue Retractor	Kocher-Langenbeck Retractor	Tessier Retractor	Catania Retractor	Hargis Retractor	p
1.	Comfort ability	5	5	1	2	1	0.01
2.	Ease of use	6	6	2	3	1	
3.	Provides sound grip	1	3	1	5	3	
4.	Functionality	5	6	1	2	3	
5.	Adequate	2	1	1	2	2	

	retraction						
6.	Adequate suction	3	3	2	3	2	
7.	Adequate visualization	3	1	2	3	3	

Table 4: Comparison of the scores for the various retractors.

S.no	Questionnaire	P value	P value	P value	P value	P value
1.	Austin Tissue Retractor	-	0.01	0.01	0.01	0.01
2.	Kocher-Langenbeck Retractor	0.01	-	0.04	0.05	0.01
3.	Tessier Retractor	0.01	0.03	-	0.06	0.01
4.	Catania Retractor	0.03	0.01	0.14	-	0.25
5.	Hargis Retractor	0.01	0.01	0.075	0.08	-

Discussion

A retractor is a surgical instrument that is used to hold back underlying organs and tissues, so that body parts under the incision may be accessed without any fear of damage to the organs lying at the above levels.⁷Surgical retractors have a wide variety and retractors come under various shapes, sizes and strength. There are various retractors used in the surgical specialties. The choice of the retractor changes based on the type of the surgery performed. There have been many commercially available retractors.⁸⁻¹⁰This leads to considerable confusion among the surgeons for the selection of the retractor. There is no literature to our knowledge for evaluating the retractors particularly in the oral and maxillofacial surgeries. Hence we evaluated the efficiency of retracting armamentariums in oral and maxillofacial surgery. In the present study we compared Austin Tissue Retractor, Kocher-Langenbeck Retractor, Tessier Retractor, Catania Retractor, Hargis Retractor. We included 100 Maxillofacial cases & 100 minor oral surgery cases operated by 20 different oral and maxillofacial surgeons for our study. Equal distribution of cases was done among all the surgeons to remove the bias in the study. The questionnaire was distributed to the surgeons for the evaluation of the various parameters of the retractors considered in our study. We observed that the maximum score was seen for the Kocher-Langenbeck Retractor for the maxillofacial surgeries. We also observed in our study that the maximum score was seen for the Austin Tissue Retractor for the minor oral surgeries. On comparison of the various retractors we observed that there was a significant difference among the Kocher-Langenbeck, Austin Tissue Retractor and other retractors for the various surgical procedures. Kocher-Langenbeck retractor is a handheld retractor is used in general surgeries, oral surgeries and orthopaedic surgeries to retract, expose or hold back tissue, muscle, organs or bone. Unique, fenestrated handle has a circular grip as well as an elongated tear shaped grip that allows it to be handled in a number of different ways. It is made of the finest German stainless

steel for years of demanding use. It has a Surgical grade to provide the highest level of craftsmanship.^{10,11} Austin Retractor without handle, used to hold mucoperiosteal flaps, cheeks, lips and tongue away from the surgical area. Austin Retractor is Lightweight Retractor, Easy to hold, Better Grip, High Durability.^{10,11} There were few limitations in our study. The surgeries were not specified. There might have been a bias for the preference of the retractor by the surgeon as these are commonly used.

Conclusion

Kocher-Langenbeck Retractor is most preferred and gives best retraction in maxillofacial surgery cases & Austin Tissue Retractor is most preferred and gives best retraction in Oral surgery cases. Further studies are advised for various other types of the retractors for various types of the oral major and minor oral surgeries.

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