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ASSESSMENT OF POWERED (MICRO DEBRIDER) INSTRUMENTS IN ENDOSCOPIC SINUS SURGERY

Otorhinolaryngology

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ABSTRACT

Background: Endoscopic Sinus Surgery (ESS) is the surgical practice of alternative for Sinonasal Polyposis (SP). Blood loss throughout Endoscopic Sinus Surgery be able to stop the flow of surgical procedure. The normal instruments grip and rip diseased tissues along with regular tissues causing amplified intra operative bleeding important to decreased visibility and therefore less accurate surgery. Microdebriders be extensively worn now a day in Endoscopic Sinus Surgery. This study is made to assess the advantages of microdebrider in Endoscopic Sinus Surgery in terms of blood loss throughout surgery, visibility of the field during surgery, duration of surgery and post operative healing. Methods: This is a potential study done in GEMS hospital, Srikakulam, over a period of October 2017 to September 2018. Patients who were diagnosed as sinonasal polyposis and underwent endoscopic sinus surgical procedure with microdebrider were taken into study and the outcome were documented and analyzed in terms of blood loss during surgery, visibility throughout surgery, time interval of surgery and post operative healing. **Results:** Out of 30 patients, majority of the patients had an average blood loss of 180 ml and preoperative visibility of grade 2 and standard duration of surgery of 60 minutes. the majority of the patients had grade A post operative healing **Conclusions:** The use of microdebrider leads to contented surgical procedure and decreased rate of intra-operative complications and likely instrument in the practical endoscopic sinus surgery for the management of sinonasal polyposis

KEYWORDS

Microdebrider, Endoscopy, Sinus, Surgery, Nasal polyposis

INTRODUCTION

Nasal polyps are round, soft, semi-translucent, pale or yellow glistening swellings that initiate from several regions of the nasal mucosa or paranasal sinuses. They are the major frequent mass lesions encountered in the nose. Polyp growth has been associated to chronic allergy, autonomic, inflammation, genetic predisposition and nervous system dysfunction. Polyps are typically bilateral and are found in the maxillary, ethmoid and sphenoid regions, even though they can initiate from several part of the nasal mucosa or paranasal sinuses.1 with at present available FESS instruments, surgeons frequently uncover to facilitate they cannot do the specific and frail surgical procedure demanded by the practical loom. As a result, the target of meticulous cutting, a close to bloodless field, unimpaired vision and constant taking away of resected tissue ruins subtle. The instruments worn consequently are "grabbing" tools that clutch and tear ordinary tissues along with the diseased tissues. This grab and tear approach predisposes to increased bleeding, which is the arch enemy of the surgeon, because it leads to decreased visibility, the cornerstone of complications. The lack of constant suction at the effective site is a practical restriction that compounds the strain of the surgeon and increases intrinsic risk for the patient.2 however the fundamental concepts of the newer instruments have altered awfully modest. At present accessible FESS instruments, surgeons frequently find that they do little short of the specific and frail surgical procedure demanded by the useful loom. Consequently, the goals of meticulous cutting, a near bloodless field, unimpaired vision, and continuous removal of resected tissue remains elusive. The instruments used so far tend to strip the mucosa from the underlying bone. This approach predisposes to increased bleeding, which is the archenemy of the surgeon, because it leads to decreased visibility, the cornerstone of complications. The lack of permanent suction at the operational site is a practical drawback that compounds the pressure for the surgeon and increases the inherent risk for the patient. Awareness was therefore directed towards laser. However interest for the laser in endoscopic sinus surgery has waned suitable to amplified post op scaring and necrosis. The microdebrider facilitates preservation of mucosa and vital structures by resecting only unhealthy, disruptive tissue with awfully partial blood loss4. Concurrently incessant suction at the operational site is a distinct advantage of this instrument, which helps to defeat the well predictable difficulty of blood pooling that increases the prospective for effective morbidity5.

METHOD

This study was carried out in a Great Eastern Medical College and Hospital Ragolu, Srikakulam on 30 patients over a period of October 2017 to September 2018. All cases of Sino nasal Polyposis between the ages of 14-60 years planned for endoscopic sinus surgery. Nasal endoscopic surgeries for pathologies like skull base lesions, pituitary surgeries and chronic dacryocystitis and tumors6, below 14 year above 60 years and patient not willing for the study were excluded. The overall number was 30 patients. 30 degree Hopkins rigid Endoscope 1st pass, 2nd pass and 3rd pass were done. Middle meatus was examined in all patients and the polyps were graded as follows polyps present, I - polyps confined to middle meatus, II polyps beyond middle meatus (reaching inferior turbinate or medial to middle turbinate), III - polyps almost or completely obstructing nasal cavity. tomography of the paranasal sinuses were done for all the patients who had nasal polyps in DNE. The opacification and extension of concerned sinuses be eminent. After receiving informed written consent the study group were given oral antibiotics for two weeks and oral steroid 30mg prednisolone for 10 days pre operatively. estimation of blood loss throughout surgical procedure was intended by subtracting saline irrigation from the quantity of blood collected in the suction apparatus. The time period of surgery was intended after intubation from the time of infiltration up to the time of anterior nasal packing. The surgical field visibility was graded by Boezaart Vandermerwe grading.

RESULT

In this study out of thirty patients, 17(56.6%) and 13(43.4%) were females. The age distribution study is between 14 years and 60 years. In the age group of 14-20 years there are 4 patients out of 3 are males and 1 are females. This age group comprises 14% of the study population. In the age group of 21 there are 8 patients out of whom 6 are males and 2 females. This age group comprises 26% of the study population. In the age group of 16 patients out of whom 6 are males and 8 are females. This age group comprises 43% of the study population. In the age group of 41-50 years there are 3 patients out of whom 2 are males and 1 female. This age group comprises 10% of the study population. In the age group of 51-60 years there is only one patient who is a female comprising 2% of study population. Out of 30 patients in the study, 6 had Grade 1 polyps, 17 had Grade 2 polyps and 7 had Grade 3 polyps. Blood loss was assessed. And detailed were in table1 It is found that most of the patients had blood loss around 170-200ml.The average blood loss was 180ml.

Table1: Determination blood loss in patients

S.No.	Blood Loss in ml	No. of Patients
1	210	3

2	200	6
3	190	5
4	180	7
5	170	4
6	160	2
7	155	2
8	150	1

Blood loss according to the grades of polyps is shown in table the 30 patients in this study, 9 patients were operated in a time period of 80 minutes, 8 were operated in 70 minutes, 5 were operated in operated in 90 minutes, 2 were operated in 50 minutes, 3 were operated in 100 minutes, 2 were operated in 120 minutes, and another one in 140 minutes. The average duration of the surgery was 60 minutes. Operative visibility was graded according to vandermerwe grading.table2

Table 2: Determination of time period in patients

S.NO.	Time period in minutes	No. of Patients
1	140	1
2	120	2
3	100	3
4	90	5
5	80	8
6	70	9
7	50	2

Of the 30 patients, 24 patients (80%) were operated with a field visibility of Grade 2, 4 patients (13.3%) were operated with a field visibility of Grade 1, 2 (6.7%) were operated with Grade 3 visibility and no case had Grade 4 visibility. Out of 30 patients, 22 (73.3%) had Grade A post-operative healing, 5 (18.4%) had Grade B post operative healing and 3 (8.3%) had Grade operative healing.

DISCUSSION

FESS insists improvement more than conservative surgical procedure permitting a healthier analysis of the surgical field. It allows accurate and during consent of pathology and is related with less barrier and lower recurrence rates.(8) confirmation of efficiency of FESS comes from a chain of RCT's. By means of the stable developing surgical techniques of FESS, newer and additional classy instruments are frequently being introduced in this field. With the beginning of mechanical instrument like microdebrider, mostly in patients with polyposis surgical apparatus are undergoing vary in invention. It is a distinguished information and is being known by the majority budding sinus surgeons that microdebrider provides bloodless surgical field, decreases intra-operative time and is related with minor crusting, synechiae and ostial reocclusion.7 though, support of long-term benefits by means of microdebrider is missing or is not of sufficient stature. In our study, we attempt to contribute to same. Diverse parameters like, pre operative preparation, duration of surgery, per operative bleeding, visibility of field throughout surgery and post operative complications8 were assessed and compared widely. Prior to elective surgery for inflammatory disease, infection be supposed to be minimized if feasible, to decrease intra operative bleeding8, 9. Time of surgical procedure was in addition not distorted in those 8 cases compared to the cases that had preoperative preparation. In this study the improvement of microdebrider was deliberate in relative to the duration of surgery10. Time of surgery was extensively reduced in our study group with the common duration of 60 minutes. By means of microdebrider in endoscopic sinus surgery has extensively reduced the blood loss during the surgical procedure11. The clotted blood might stick on to injured mucous membrane and can generate middle meatal scarring. Middle meatus collapse is a failure12. It prevents assessment of the frontal, ethmoid, and maxillary sinuses, may block them important to recurrent or persistent disease. The reason of middle meatus collapse is a damaged middle turbinate. Middle turbinate fracture and exclusion of too much middle turbinate basal lamella posteriorly result in the collapse13. In this study of 30 patients, most of the people had fine post-operative healing. the majority of the cases present was no synechiae or crusts. In approximately all cases, there was no middle meatal collapse. Bernstein JM et al and co-workers14 established better practical outcome in FESS when mucosa was preserved. Slack R, and Bates G 15 compared the outcome using the regular FESS procedure and powered shavers. Considerably decreased blood loss, reduced synechiae formation, a reduced ostial occlusion rate, and faster healing occurred in the shaver.

CONCLUSION

The use of powered soft tissue shavers or microdebriders in endoscopic sinus surgery offers considerable advantages more than the use of usual instrumentation. Better safety, enhanced outcome and decreased blood loss are major advantages by the utility of this instrumentation. It be able to make available the surgeon with the means to carry out more accurate and proficient surgery.

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