



Postoperative Complications of Conventional Polypectomy Versus Endoscopic Sinus Surgery

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Authors' contributions

This work was carried out in collaboration among all authors. Authors AAS and MLM were involved in conception of idea and study design. Author AAL did data collection and performed bench work. Author NA performed the statistical analysis. Authors SY and FAS managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Objective: To compare the postoperative complications of conventional polypectomy versus Endoscopic sinus surgery.

Study Design: This is cross sectional study.

Setting: Study carried out at E.N.T department, Tertiary care hospital from April 2019 - March 2020.

Materials & Methods: 52 out of which 32 were male and 20 were female. Benign nasal polyps within 14 yrs to 80 years from emergency and out- patient department both were included in our study. Only recurrent and neoplastic lesions were not inclusive of this study. Postoperatively the patient was prescribed with oral antibiotics, nasal decongestants and nasal douche with normal saline, followed by local steroids after 1.5 months. The post operative evaluation (both endoscopic and clinical) was done at 2 weeks, 6 weeks and 3 months post operatively and data was recorded. Statistical package for social sciences (SPSS) software version 20.0.

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Results: A total of 52 patients were recruited for the study with age ranging from 18 to 40 years. The mean age was 24.65± SD 4.12. There were 32 (61.53%) males and 20 (38.46%) female patients. Two weeks were observed postoperative complications. The intranasal complications after simple intranasal polypectomy i.e. bleeding (SIP 8(30.76%) Versus ESS 5(19.23%)), crusting (SIP 10(38.46%) Versus ESS 6(23.07%)), Synechiae formation (SIP 3(11.53%) Versus ESS 1(3.84%)), recurrence 0% were observed. At upto 6th weeks observed the intranasal complications after simple intranasal polypectomy i.e. bleeding (SIP 5(19.23%) Versus ESS 2(7.69%)), crusting (SIP 6(23.07%) Versus ESS 2(7.69%)), Synechiae formation (SIP 2(7.69%) Versus ESS 1(3.84%)), recurrence 0% were observed. Three months were observed the intranasal complications after simple intranasal polypectomy i.e. bleeding (SIP 1(3.84%) Versus ESS 0%), crusting (SIP 0% Versus ESS 0%), Synechiae formation (SIP 4(15.38%) Versus ESS 3(11.53%)), recurrence 3(11.53%) were observed only in simple intranasal polypectomy group. While the intraorbital and intracranial complications were not observed.

Conclusion: We would like to conclude our study in favor of ESS to be superior to other intranasal polypectomy procedures in terms of post operative complications.

Keywords: Nasal polyps; simple intra-nasal polypectomy; endoscopic sinus surgery.

1. INTRODUCTION

Nasal polyps may arise from the mucosa of nose or paranasal sinuses and are reported as benign, pale, shiny oblongated mucosal out pouches. Nasal polyps can arise from anywhere throughout the nose and sinuses but usually are seen in ethmoid sinus and the middle meatus. Nasal Polyps still give us a long debate over its etiology but allergy, genetic factors, chronic inflammation and few of autonomic nervous system (ANS) disorders are on the top of the list. [1] fungal culture is also a part of nasal polyposis etiology debate for last few years [2]. A total of 4% prevalence in general among adults above twenty years and pediatric population below 10 years is reported with gender predominance of male :female as 2:1 [3]. cystic fibrosis in pediatric population while asthma and chronic bronchitis are usually found as associations to nasal polyposis [4] Nasal polyps can be unilateral or bilateral manifesting themselves with the symptoms of anosmia, rhinorrhea, hyposmia and nasal obstruction.[5]. CT scan and MRI are the modalities being used to confirm the preoperative diagnosis and histopathology is required to rule out the benign or malignant variant.[6] The treatment options for nasal polyps include both medical and surgical treatment. Medical treatment has a mainstay of steroids and keeping the patients under observation while Surgical treatment is further elaborated as avulsion polypectomy, microdebridement technique and functional endoscopic sinus surgery (FESS).[7] The Functional endoscopic sinus surgery (FESS) is a minimally invasive procedure requiring an endoscope for ventilation improvement drainage

for removing the polyp.[7-8] FESS is being used for not less than 10 years and is used as per the surgical expertise of the surgeon and the severity of the polyposis. FESS is considered superior to the conventional operative methods being used because of good exposure of operative field and with added advantage of significantly low re- appearance rate.[9]. In spite of multiple treatment options no single treatment either medical or surgical has been stamped out to be gold standard, patients still have to bear prolonged medical treatment and no single surgical procedure has proven to be enough making patients fall again with same problem leading to re-operations [10].

2. MATERIALS AND METHODS

This is a cross sectional study was conducted at E.N.T department, Liaquat University of Medical and Health Sciences Jamshoro, from April 2019 - March 2020. The total numbers of patients was 52 out of which 32 were male and 20 were female. We collected data on pre design proforma. The patients with benign nasal polyps within 14 years to 80 years from emergency and out-patient department both were included in our study. Only recurrent and neoplastic lesions were not inclusive of this study.

We followed the proper treatment pathway starting with history, proper clinical examination and radiological examination (CT scan), medical treatment followed by the surgical plan under general anesthesia. Postoperatively the patient was prescribed with oral antibiotics, nasal decongestants and nasal douche with normal saline, followed by local steroids after 1.5 months. The post operative evaluation (both

endoscopic and clinical) was done at 2 weeks, 6 weeks and 3 months post operatively and data was recorded. Statistical package for social sciences (SPSS) software version 20.0 was used to analyze the data, numerical data (e.g age) by descriptive statistics by computing means and standard deviation and categorical variables (e.g gender and symptoms) were calculated as percentages and frequencies before and after the operation. The total complication analysis was done by Chi-square Test.

3. RESULTS

A total of 52 patients were recruited for the study with age ranging from 18 to 40 years. The mean age was 24.65± SD 4.12. There were 32 (61.53%) males and 20 (38.46%) female patients.(Table 1) The clinical features of the nasal polyp were observed associated symptoms were nasal obstruction (SIP 84.61% VS ESS 76.92%), Nasal discharge (mucoid/purulent) (SIP 61.53% vs ESS 65.38%), Hyposmia/Anosmia (SIP 53.84% vs ESS 42.30%), Headache (SIP 46.12% vs ESS 57.69%), Facial pain (SIP 15.38% vs ESS 11.53%) (Table 1).

3.1 Postoperative Complications were observed until 2nd Weeks

The intranasal complications after simple intranasal polypectomy i.e. bleeding (SIP 8(30.76%) Versus ESS 5(19.23%)), crusting (SIP 10(38.46%) Versus ESS 6(23.07%)), Synechia formation (SIP 3(11.53%) Versus ESS 1(3.84%)), recurrence 0% were observed. While the intraorbital complications i.e. orbital swelling (SIP 5(19.23%) Versus ESS 0% were observed but intracranial complications were not observed.

3.2 Postoperative Complications were observed until 6th Weeks

The intranasal complications after simple intranasal polypectomy i.e. bleeding (SIP 5(19.23%) Versus ESS 2(7.69%)), crusting (SIP 6(23.07%) Versus ESS 2(7.69%)), Synechia formation (SIP 2(7.69%) Versus ESS 1(3.84%)), recurrence 0% were observed. While the intraorbital complications i.e. orbital swelling (SIP 1(3.84%) Versus ESS 0% were observed but intracranial complications were not observed.

3.3 Postoperative Complications were observed until 3months

The intranasal complications after simple intranasal polypectomy i.e. bleeding (SIP

1(3.84%) Versus ESS 0%), crusting (SIP 0% Versus ESS 0%), Synechia formation (SIP 4(15.38%) Versus ESS 3(11.53%)), recurrence 3(11.53%) were observed only in simple intranasal polypectomy group. While the intraorbital and intracranial complications were not observed.

4. DISCUSSION

Nasal polyps prevailing in almost 4% of the general population and making them suffer from constant /on and off rhinorrhea, anosmia, hyposmia and nasal obstruction leads the ENT surgeons for betterment of the treatment techniques and sharing their experiences regarding the treatment modalities already being used , modifying them or hunting for new ones.[11]. Despite undergoing the knife for nasal polyposis most of the patients suffer the post operative complications including bleeding , crusting Synechia formation ,recurrence and orbital swelling.[12] The surgical techniques have been evolved with the passage of time and the advent of FESS has made nasal polyp surgery more interesting and it stands tall as a mainstay of treatment for nasal polyps among other techniques.[13] In our study we have tried to compare the results of post-operative complications after the conventional surgery and the functional endoscopic sinus surgery. Post operative bleeding is the first thing to be expected in the patients who went through any operative procedure for nasal polyps and in our study it is reported as 19.23% , 7.69% and 0% post-FESS as compared to 13.76% , 19.23% and 3.84% at 2 wks, 6 wks and 3 months post operatively which itself speaks in favor of FESS, also supported by some other studies showing less chances of post operative bleeding in case of FESS.[14] According to prior studies the recurrence rate is reported as 10-15% depending upon the severity of the disease irrespective to the surgical procedure [15]. This is in contrary to the results of our study which showed that the recurrence rate of the polyposis was 0% at 2 weeks, 6 weeks and 3 months after functional endoscopic sinus surgery (FESS) irrespective to the severity of polyposis. But some other studies do support the results of our study reporting the recurrence as 28% and 35% after FESS and intranasal polypectomy respectively.[16] Although FESS rarely manifest with grave complications but we still have to counsel the patient with possible grave consequences like injury to internal carotid artery, loss of vision, leakage of CSF.[17] In total 78% to 88%

Table 1. Demographic variable

| Variable | Simple intranasal polypectomy N=26 | | Endoscopic sinus surgery N=26 | |
|-------------------------------------|------------------------------------|------------|-------------------------------|------------|
| | No | Percentage | No | Percentage |
| Gender | | | | |
| • Male | 15 | 57.69% | 17 | 65.38% |
| • Female | 11 | 42.30% | 9 | 34.61% |
| Clinical features | | | | |
| • Nasal obstruction | 22 | 84.61% | 20 | 76.92% |
| • Nasal discharge (mucoid/purulent) | 16 | 61.53% | 17 | 65.38% |
| • Hyposmia/Anosmia | 14 | 53.84% | 11 | 42.30% |
| • Headache | 12 | 46.15% | 15 | 57.69% |
| • Facial pain | 4 | 15.38% | 3 | 11.53% |

Table 2. Postoperative complications

| Complications | Durations | | | | | |
|---------------------|---------------|-----------|--------------|----------|---------------|-----------|
| | Up to 2 weeks | | Upto 6 weeks | | Upto 3 months | |
| | SIP | ESS | SIP | ESS | SIP | ESS |
| Bleeding | 8(30.76%) | 5(19.23%) | 5(19.23%) | 2(7.69%) | 1(3.84%) | 0(0%) |
| Crusting | 10(38.46%) | 6(23.07%) | 6(23.07%) | 2(7.69%) | 0(0%) | 0(0%) |
| Synechiae formation | 3(11.53%) | 1(3.84%) | 2(7.69%) | 1(3.84%) | 4(15.38%) | 3(11.53%) |
| Recurrence | 0(0%) | 0(0%) | 0(0%) | 0(0%) | 3(11.53%) | 0(0%) |
| Orbital swelling | 5(19.23%) | 0(0%) | 1(3.84%) | 0(0%) | 0(0%) | 0(0%) |

Sip: Simple intranasal polypectomy, ess: endoscopic sinus surgery

symptomatic betterment was reported by the patients post-FESS compared to the conventional intranasal polypectomy as 43 to 58% in some studies along with the prescription of post operative intranasal steroids. [18] Post operative normal saline nasal wash(douche) is very much needed in order to avoid the crusting and synechia. [19] According to our study the crusting and synechia formation is reported as less and continuing to decrease at 2 wks, 6 weeks and 3 months post operatively in FESS as compared to the patients with intranasal polypectomy. Moreover extensive surgery and vigorous manipulation of the tissues may also lead to the formation of crust and adhesions according to some studies but still reported the post operative crusting and synechia formation to be 30% and 11% in case of intranasal polypectomy and FESS respectively.[20] The post operative intraorbital swelling is also one of the complications we compared and observed 0% of it at all the 3 follow ups including 2 weeks, 6 weeks and 3 months in the patients who went through FESS. Some studies report the equal ratio of post operative intra orbital swelling irrespective to the procedure of choice.[21,22]. Furthermore, we encourage the surgeons to report their experience regarding the postoperative complications of procedures used for intranasal polyposis treatment to support the further advancement of the field [23].

5. CONCLUSIONS

We would like to conclude our study in favor of FESS to be superior to other intranasal polypectomy procedures in terms of post operative complications as we observed lesser post operative bleeding, crusting, synechia formation and recurrence rate in patients who went through FESS as compared to conventional intranasal polypectomy.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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