

COMPARISON OF OUTCOMES BETWEEN HORIZONTAL INCISION VS VERTICAL INCISION IN PATIENTS TREATED FOR SEPTAL HEMATOMA.

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ABSTRACT

Introduction: Nasal septal hematoma is a medical condition in which blood accumulates within the septal space, between the cartilage and its perichondrium. Since the beginning, numerous methods of septoplasty have been described and if not carefully performed it may lead to deformities. It is important to understand the anatomy and consider the anterior nasal spine for a successful surgical operation. **Objective:** We aim to compare the two possible incisions; the horizontal and the vertical and observe the resulting outcome and complications in patients. **Material and Methods:** For the purpose of study, every patient diagnosed with septal hematoma in ENT Department of PMC Hospital during March 2018 to August 2018 was prospectively recorded. Subsequently the treatment, outcome and complications are evaluated sequentially. We used the Sino Nasal Outcome Test-22 (SNOT-22) Questionnaire pre-operatively and after 3 months following surgery to evaluate the outcomes of the two different procedures. Consented patients were recorded for comparison and data collected is then organized and examined using SPSS version 20. **Results:** Fifty-two (52) patients comprising 36 males (69% of total patients) and 16 females (31% of total patients) were registered in the study with a male to female ratio of 2:1. Resulting Complications in horizontal incision (Group-B) vs vertical incision (Group-A) were similar with Facial Cellulitis, Intracranial Infections at similar percentages while 31% had no complications in Group-A and 29% in Group-B i.e. overall 60% had no resulting post-operative complications. The Mean SNOT-22 scores decreased significantly from 46 pre-operatively to 18 in Group-A, and 45 to 18 in Group-B i.e. no significant difference was observed. **Conclusion:** We find no significant difference in both surgical methods with resulting complication and outcomes on SNOT-22 being very close and relative however for further accuracy more data and tools will be needed.

Key Words: Septal Hematoma, Vertical Incision, Horizontal Incision, Complications, SNOT-22 scores

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INTRODUCTION

Nose is the most frequently injured facial part which makes it disposed to most day to day accidents.¹ Therefore it's expected that septal hematoma will become a common problem, although septal hematomas are unusual yet majority of septal hematomas are followed by a nasal injury.^{2,3,4} Typically hematoma results from rupture of the mucoperichondrial blood vessels which in turn cause sub-mucoperichondrial hemorrhage and a clasping stress tears the sub-mucosal blood vessels.^{5,6,7} It has been witnessed that any loss of that caudal septal support can disturb the stability of nasal tip and cause functional and aesthetic problems.⁸ According to surveys, 15% incidence has been recorded in cases of nasal bone fractures thus showing a strong association.

In order to minimize the resulting life-threatening complications; Septal abscess, perforation, meningitis and saddle nose malformation, it is significant to diagnose and manage the injury timely. In diagnosis other frequently occurring clinical manifestations are blocking of nasal passages, mouth breathing, nasal pain, local fluctuation, nasal malformations, tenderness on palpation and reddish edema of septal mucosa.⁹ Nasal hematomas are treated in operation theatre by incision and drainage using local anesthesia. A vertical incision is given at the anterior edge of hematoma clot and blood is emptied and pressure bandage is done. There are probabilities of common complications including recurrence, abscess formation and meningitis etc. In some studies a horizontal incision is suggested at base of hematoma.

Our study is based on comparison of patients being treated with vertical incision vs horizontal incision. The patients will be treated with horizontal incision and vertical incision alternatively. Both groups of patients will be checked weekly for complications for 3 month. The outcome and complications of these patients will be compared. If the horizontal incision is associated with less complication we will encourage this incision to the patients in future so that we can benefit the patients from preventing them to develop post-operative complications.

MATERIAL AND METHODS

We conducted this study in ENT department of PMC Hospital between March 2018 to August 2018 and a total of 52 patients presenting with septal hematoma in this period were prospectively examined. For the purpose of comparative study, we divided the patients: Group A –Patients who underwent horizontal incision and Group-B –Patients who underwent vertical incision. Group A consisted of 24 and Group B consisted of 28 patients suffering from septal hematoma. We took written consent from all patients before the surgery .For the purpose of this study we excluded

- Patients with concha bulosa history of Sino-nasal trauma,
- Patients who underwent prior Sino-nasal surgery
- Patients with HIV infections
- Patients with unilateral sinusitis
- Patients suffering from diseases such as cystic fibrosis, immune deficiency and ciliary movement disorder
- Patients with chronic specific inflammatory diseases such as rhinoscleroma, T.B, syphilis

Most of our patients admitted directly to ENT department while some were referred from the emergency unit. We used the hospital admission sheet for basic details such as age and side of septum. We used the SNOTT-22 (Sino-Nasal Outcome Test-22) Questionnaire pre-operatively and 3 months post-surgery. The post-operative results were recorded using a follow-up team and

were given an average 3 months’ time for data collection and evaluation of socio-emotional outcomes on marking of 0 to 5.

The Procedure started after giving general anesthesia using laryngeal mask whereby the nose was thoroughly anesthetized by applying tetra Caine (10 mg/mL with adrenaline1%) topically using cotton wicks, and the septal mucosa was infiltrated on both sides of the septum using local anesthetic (0.5% bupivacaine with epinephrine 1:200,000).

RESULTS

Fifty-two (52) patients comprising 36 males (69% of total patients) and 16 females (31% of total patients) were registered in the study with a male to female ratio of 2:1. The peak age groups of incidences were ≤12 followed by 12-24 years of age. Patients undergoing vertical Incision were classified in Group-A; and the one going horizontal Incision was categorized in Group-B. Nearly all Patients had pre-operative clinical symptoms. Patients suffered from fever and nasal congestion (10%) in Group-A and 8 Patients (15%) in Group-B;3 patients had headache (6%) in Group-A and 2 patients (4%) in Group-B ; 4 Patients had Nose Pain (8%) in Group-A and 6 Patients (12%) in Group-B and Rhinorrhea was observed in 2 Patients (4%) in Group-A and 1 Patient (2%) in Group-B.

Septal Hematoma was observed 69% in Males as the etiology shows Falling 31%, Traffic Accidents 15% and 4% Sport incidents in Males vs Females with 13% of falling cases only

When follow up was taken one month after surgery around 77% of patients were happy with the outcome of the surgery, with no significant differences between the two surgical procedures while 23% had some reservations 6% in Group-A and 17% in Group B due to the resulting complications of nasal deformities, Meningitis and Intracranial Infections, cosmetic scars and cellulitis.

Age	Frequency	%
1–12	19	37%
12–24	16	31%
24-36	4	8%
36–48	8	15%
48–60	5	10%

Table-1 Age grouping of patients with septal hematoma/absces

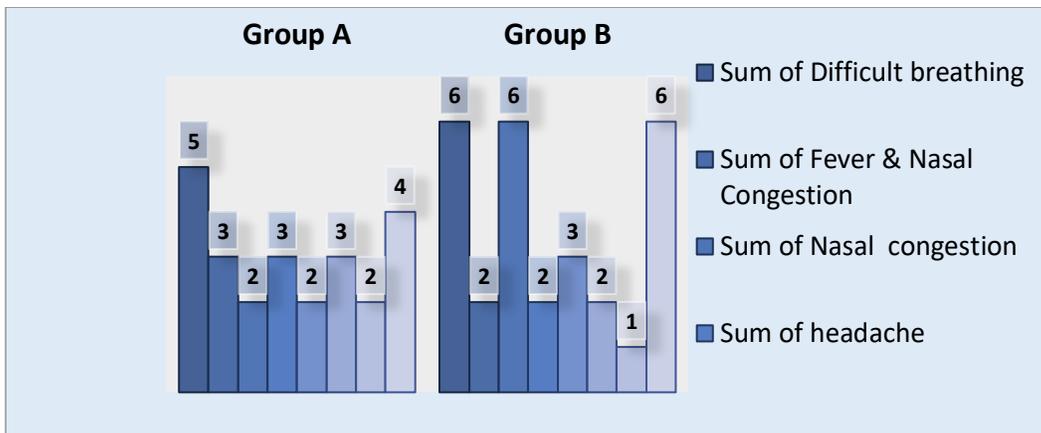


Figure-1 Presenting Clinical Features of Patients in Group-A and Group-B

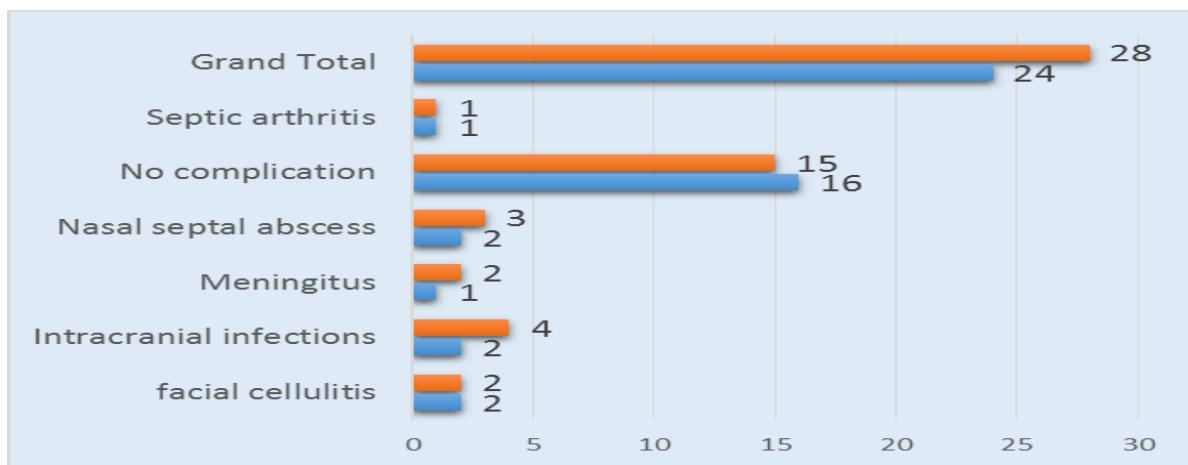


Figure-2 Complications in Septal Hematoma Patients in Group-A Vs Group-B

Outcomes	Group A	Group B
Able to resume daily routine	1	2
Aesthetic scars	0	1
Decreased Mortality	0	1
Improved breathing	9	8
No nasal pain	4	4
Facial Deformities	0	1
No recurrence	10	11
Total	24	28

Table-2 Outcomes of Group-A Vs Group-B

Discussion

As soon as the treating physician diagnosis a septal hematoma, he should immediately incise it with the help of a local anesthesia. In case of any mismanagement, septal hematoma can develop into severe situations. We found that the peak number of incidents of Septal Hematoma was found in age groups $e \leq 12$ followed by 12-24 years of age.¹⁰ Similar records were obtained which confirmed that hematoma formation is more frequent in school-aged boys.¹¹ In our study we found that majority of cases were males i.e. constituting 69% of total population of 52 due to the aggressive activities they are involved in day to day activities.¹² Waheed Et al found male participants (68.1% of total patients) which were double the size of females participants; ratio of M: F = 2:1¹³. Similar finding were recorded with 65.2% attributed to trauma.¹⁴ The males vs female ratio is more: falling 31% vs 13%, Traffic Accidents 15% vs 6% and Sport 15% vs

2%. Earlier several methods have been used to treat septal hematoma.

Our study intended to compare the two surgical methods and evaluate the effectiveness of one over the other however we observe that the most common clinical symptom presented by patients was nasal congestion 25% with no notable difference in both the groups as Group-A 10% vs 12% in Group-B.^{15,16,17,18}

Usually complications include infections occurring in the initial stages and some structural nasal malformations and maxillary growth due to cartilage destruction.^{19,20} However in our report we observe single case of nasal deformity in Group-B²¹ and other complications observed were Facial Cellulitis and Intracranial Infections in equal percentages in both groups, Meningitis 2% in Group-A and 4% in Group-B, Septal Abscess in 4% of Group-A and 6% in Group-B, Septic Arthritis resulted in 2% of Group-A and 2% of Group-B²² however 29% had no complications in Group-A and 15% in Group-B

i.e. overall 44% had no resulting post-operative complications. In another study conducted on 16 pediatric patients of septal hematoma resulted in 2 cases of nasal growth.^{23, 24, 25}

On the contrary when matched with our study above, the patients who underwent septal surgery, showed notable improvement in the symptoms in both groups with mean scores of 46 pre-operatively to 18 post-operatively in Group-A (with a difference of only 28) and 45 pre-operatively to 18 post-operatively in Group-B (with a difference of only 27). Largely the results of SNOT- 22 in both Group-A and Group-B were similar and we don't find any significant difference in horizontal vs vertical incision of septal hematoma patients. This proves that both incisions are equally effective technique and can be carried out as per surgeon's choice however for further accuracy we would need more detailed surveys and sensitivity tests.

Conclusion

We conclude that Nasal septal hematoma are more frequent in children than in adults and falling came out to be the most common etiology in males than in females. Thus the arguments as to which technique of surgery is better and effective funnels down to both being equally good. However horizontal incision Group-A has lesser nasal deformities and aesthetic scars compare to vertical Incision Group-B. Moreover for further accuracy we would need more detailed surveys conducted with longer follow-ups and sensitivity tests. Also the long term outcome cannot be assessed due to unavailability of data on patient's compliance.

ETHICS APPROVAL: The ERC gave ethical review approval

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin

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CONFLICT OF INTEREST: No competing interest declared.

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