

**POST TRAUMATIC SEPTORHINOPLASTY – OUR EXPERIENCE****M.K Rajasekar<sup>1</sup>, M. Shanmugapriya<sup>2</sup>**<sup>1</sup>Head, Department of ENT, Sree Balaji Medical College Hospital, Chrompet<sup>2</sup>Post Graduate, Department of ENT, Sree Balaji Medical College Hospital, Chrompet**Abstract**

**Introduction-** Septorhinoplasty remains one of the most technically challenging procedures in facial plastic surgery. **Methodology-** This prospective study was conducted in Department of ENT, Sree Balaji Medical College Hospital, among patients presented with history of trauma fracture in nose with symptoms of nasal obstruction, snoring and headache. Nasal Obstructive Symptoms Evaluation score and Rhinoplasty Outcome Evaluation score was the major outcome. **Results-** The mean age of the patients was 35.2±9.2 years 65% of patients were male. RTA is the major cause. The major clinical feature is nasal obstruction in 90% and snoring in 70% of patients, followed by frontal headache in 55% of patients. **Conclusion-** This type of surgery is effective in improving the appearance and function of traumatized nose.

**Keywords-**Septorhinoplasty, Nasal Obstruction, Rhinoplasty**Introduction**

Septorhinoplasty remains one of the most technically challenging procedures in facial plastic surgery. It is among the most popular cosmetic procedures performed worldwide. Post traumatic rhinoplasty is sometimes carried out for cosmetic reasons. It can restore the shape or symmetry of the nose if the bones or cartilage have been visibly displaced. However, rhinoplasty after an injury can also help to address blockages, breathing problems, snoring or other functional issues. Thus septorhinoplasty has done to relieve nasal obstructions and thus improves quality of life and second it gives better cosmetic appearance by giving better nasal shape. So we here we as ENT surgeons we correct both anatomy and physiology of the nose. All three in one setting that is shape, physiology and function of nose. External approach –here incision is made outside the skin columellar incision. Internal approach –here no incision on the outside skin hence closed rhinoplasty.

Aim of the study was to analyse the outcome of post traumatic septorhinoplasty, by using Nasal Obstructive Symptoms Evaluation (NOSE) score and ROE (Rhinoplasty Outcome Evaluation) score.

**Methodology**

This prospective study was conducted in Department of ENT, Sree Balaji Medical College Hospital, among patients presented with history of trauma fracture in nose with symptoms of nasal obstruction, snoring and headache. Sample size has been scientifically estimated using G Power V 3.1 Software which yielded a minimum sample size of 20.

Subjects who are willing to give their consent, Individuals with history of trauma fracture in nose with symptoms of nasal obstruction, snoring and headache were included in the study while developmental deformities, external deformities of nose were excluded. Nasal

Obstructive Symptoms Evaluation score and Rhinoplasty Outcome Evaluation score was the major outcome.

### Steps Of Septorhinoplasty

- Incision - A transcollumellar incision in a form of inverted v to minimize the scar post operatively.
- A skin flap is elevated using sharp scissors to expose the nasal tip and lower lateral cartilage.
- Fibrous tissue between the two lateral cartilage is separated to expose the caudal end of septum perichondrial incision made to elevate mucoperichondrial flap.
- The deviated nasal septum is corrected.
- Closing the incision

### Statistical analysis

Analyses were performed using a personal computer with SPSS version 22. A significant relationship was assumed to exist if the P value was found to be  $<0.05$ . Data were analyzed using paired sample t test .

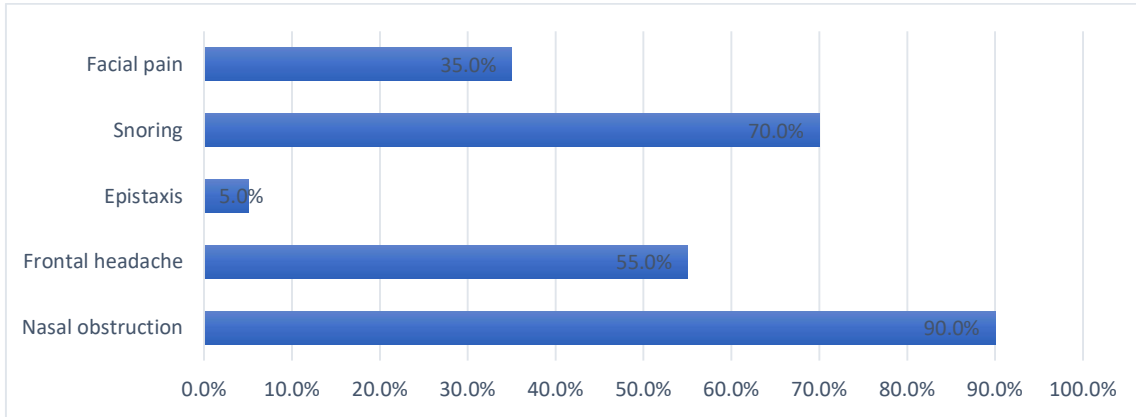
### Results

In this study 20 patients underwent post traumatic septorhinoplasty were included. The mean age of the patients was  $35.2 \pm 9.2$  years 65% of patients were male. RTA is the major cause. The major clinical feature is nasal obstruction in 90% and snoring in 70% of patients, followed by frontal headache in 55% of patients.

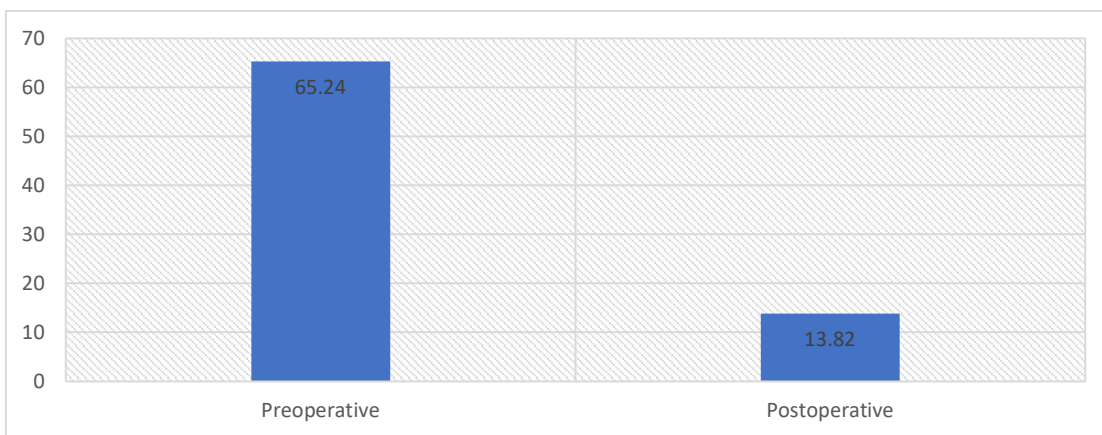
**Table 1. Characteristics of patients who received rhinoplasty after nasal bone fracture**

Characteristic	No. (%)
Sex	
Male	12 ()
Female	8 ()
Nasal bone fracture type	
I	8 ()
IIb	4 ()
IIIh	3 ()
III	5 ()

**Figure 1- Clinical Feature**

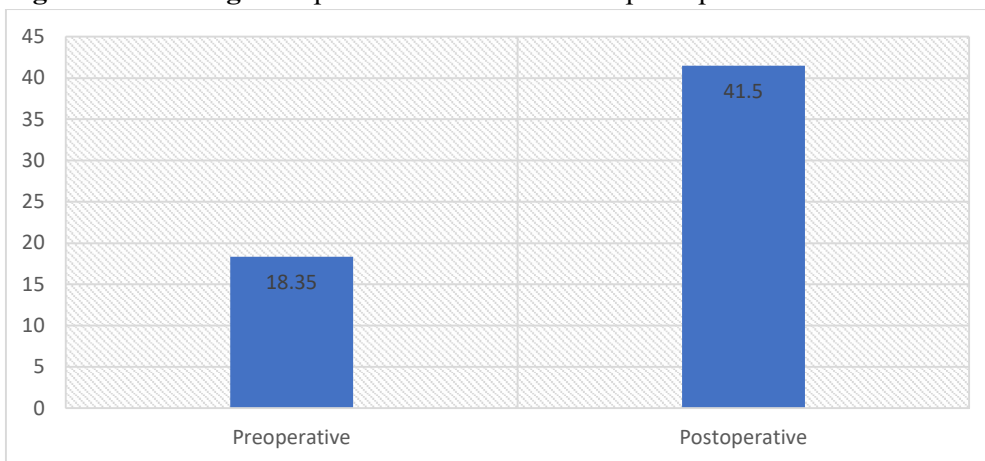


**Figure 2- Showing Pre-operative ROE score and post operative ROE score**



Pre-operative ROE score was  $18.35 \pm 4.12$  and post operative NOSE score was  $41.5 \pm 5.12$ . There is a statistically significant difference in post-operative ROE score,  $p < 0.0001$

**Figure 3- Showing Pre-operative NOSE score and post operative NOSE score**



Pre-operative NOSE score was  $65.24 \pm 12.91$  and post operative NOSE score was  $13.82 \pm 7.65$ . There is a statistically significant difference in post-operative NOSE score,  $p < 0.0001$



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9

Table 2. Analysis of rhinoplasty procedures and surgical outcomes

Rhinoplasty method							VAS		
Fracture type	Dorsal augmentation		Dorsal reinforcement			Tip surgery	Osteotomy	Surgeon	Patient
	Implant	Onlay	SEG	Spreader	ECS				
I	14 (77.8)	12 (66.7)	6 (33.3)	2 (11.1)	4(22.2)	18 (100)	0	7.72±1.18	8.11±0.76
II	9 (81.8)	8 (72.7)	4 (36.4)	9 (81.8)*	2(18.2)	11 (100)	11 (100)*	7.36±1.50	7.82±0.75
III	12 (75)	13 (81.3)	3 (18.8)	3 (18.8)	12(75)*	12 (75)	0	7.69±0.70	8±0.73
Total	-	-	-	-	-	-	-	7.62±1.11	8±0.74
P-value	0.916	0.630	0.529	<0.001	0.002	0.972	<0.001	0.683	0.627

Values are presented as number (%) or mean±standard deviation.

VAS, visual analogue scale; Onlay, onlay graft; SEG, septal extension graft; Spreader, spreader graft; ECS, extracorporeal septoplasty.

\*Statistically significant (P <0.05).

**Discussion**

Post traumatic rhinoplasty uses similar techniques to a cosmetic nose job, but the procedure will need to be adapted according to the effects of the injury. Restoring the shape and function of the nose following an injury can be a very complex procedure. Some corrections can be performed soon after the injury, but in more serious cases it may be necessary to wait six months or more before surgery can be attempted. Post traumatic rhinoplasty can be the best treatment option for correcting cosmetic and functional issues after a nose injury. The operation will cause some swelling, redness and bruising and there is a risk of other temporary side effects such as nosebleeds and numbness. A small number of patients will experience more serious complications, such as infections, alterations to the sense of smell, or allergic reactions to the anaesthetic.

On the other hand, a recent study successfully performed immediate reduction and rhinoplasty after a nasal bone fracture and indicated a surgeons’ mean VAS score of 7.14, which was similar to the results of our present study.<sup>11</sup> An open approach allows more accurate assessment and reduction of the fractured nasal bone and septum. Moreover, the patient’s desire for cosmetic rhinoplasty can

be fulfilled through a diligent surgery, which also reduces the time and cost associated with secondary surgery.

Type II was defined in the present study as a favorable fracture, which is similar to an osteotomy performed during rhinoplasty. In rhinoplasty, osteotomy is performed to correct the broad base of the nose, deviated nose, or open roof deformity caused by nasal hump resection. When a fracture similar to osteotomy occurs in patients with a naturally flat or hump nose, correction of the nasal bone fracture is performed concomitantly with rhinoplasty, via osteotomy on the unaffected side.<sup>12</sup>

Type III was comminuted fracture, which often requires open reduction and internal fixation. For this, internal fixation with a microplate is done after open sky incision, but the surgical outcome may not be satisfactory due to visible scarring, or the skin above the microplate being prominent or palpable. Although such deformity can be reduced by closed reduction, followed by rhinoplasty as a secondary procedure, the prolonged period of treatment and hospitalization, increases the treatment costs. In general, changes in the rate of bone resorption, adhesion to nearby tissues, and stiffening of the supporting base are expected in the acute phase of a nasal bone fracture; hence, there is reluctance for concomitant fracture reduction and cosmetic surgery. In contrast, there are studies that recommend rhinoplasty using an open approach for elaborate, functional reconstruction of comminuted nasal bone fracture while the present study showed successful surgical outcomes by performing augmentation surgery after reconstruction of the caudal septum when the radix was intact.

We found that spreader graft and osteotomy were the most commonly used technique in type II fractures, and extracorporeal septoplasty was most commonly used in type III fracture with the differences being statistically significant. Although these results may have no clinical meaning, considering the fact that choosing which surgical techniques to implement are sometimes decided during septorhinoplasty, data may help explaining to the patients about the procedures that they may receive.<sup>13</sup>

## Conclusion

Since nasal fractures are the most common fractures in the adult facial skeleton, many patients who suffer mid-face trauma also suffer from nasal deformity/deviation and nasal airflow impedance. Each component of functional and post-traumatic rhinoplasty has been studied independently. By appropriately addressing the key regions of the nasal complex, including the septum, internal nasal valves, and inferior turbinates, the majority of patients will have no subjective complaints of difficulty breathing from their nose, following a post-traumatic rhinoplasty. Hence it is concluded that this type of surgery is effective in improving the appearance and function of traumatized nose.

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