

## Use of Nasal Septal Splint with Clip in Septoplasty: A Retrospective Study

### ABSTRACT

**Background and Aim:** Nasal pack is used for the control of bleeding and to prevent post-operative complications in septoplasties. An alternative to nasal packing is a nasal septal splint with clip which can be used postoperatively in septoplasties. Hence, we are doing a retrospective observational study of the septoplasties cases performed in our institute using splint with clip postoperatively and assessing post-operative signs, symptoms, and complications. **Case Description:** The study involves 40 patients aged between 21 years and 47 years who were having deviated nasal septum and underwent septoplasty between November 2017 and November 2019 in the Department of ENT, ESIC Model Hospital, Guwahati, after taking inclusion and exclusion criteria. Postoperatively, symptoms such as headache, dysphagia, sleep disturbance, epiphora, and bleeding were assessed. During nasal septal splint and clip removal, pain and bleeding were assessed. Post-operative complications such as hematoma, synechiae, and septal perforation were noted. **Conclusion:** It was observed that patients had less post-operative symptoms, less pain, and bleeding following splint and clip removal and lesser post-operative complications. **Clinical Significance:** Nasal splint with clip may be used as a safe alternative to nasal packing.

**Key words:** Clip, Deviated nasal septum, Septal splint, Septoplasty

### INTRODUCTION

Septoplasty is a routine ENT surgery which is advocated in patients suffering from nasal obstruction and having deviated nasal septum. Postoperatively, we put a nasal pack so as to take care of bleeding, septal hematoma, and adhesion formation.<sup>[1]</sup> However, we see that lot of patients complain of pain and bleeding while removal of pack<sup>[2]</sup> and also respiratory discomfort when the pack is there *in situ*. Many techniques such as through and through suturing have come out as an alternative to packing.<sup>[3]</sup> A septal quilting suture appears to be an effective method by which post-operative bleeding and hematoma can be prevented while avoiding morbidity of packing.<sup>[1,4]</sup> However, then, the method is meticulous and time consuming and carries rare risk of stitch abscess. Some authors have achieved success with application of intraseptal fibrin glue.<sup>[5]</sup>

Many centers are using nasal splints with clips as an alternative to packing. Salinger and Cohen first described intranasal splints in 1955.<sup>[6]</sup> A wide variety of septal splints is available which are made of silastic sheets, silicon, or dental utility wax plates.<sup>[7]</sup>

We are retrospectively introspecting into the septoplasty cases performed in our institute using nasal septal splint with clip postoperatively between November 2017 and November 2019 from the case records.

### METHODS

It is a retrospective observational study which includes 40 patients aged from 21 years to 47 years who underwent

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septoplasty from November 2017 to November 2019 using nasal septal splint with clip postoperatively.

#### Inclusion criteria

Patients suffering from nasal obstruction and having deviated nasal septum aged above 18 years were included in our study.

#### Exclusion criteria

Patients having comorbid conditions such as diabetes and cardiovascular problems, altered coagulation profile, and those having allergic rhinosinusitis were excluded from the study.

#### Nasal septal splints with clip description

In nasal septal clip method (nasal septal splint with clip) [Figure 1], postoperatively, the splint was gently inserted by passing the splint through the nostrils and then along the

floor of the nasal cavity and then to pass medial to middle and inferior turbinate to approximate both the flaps on both the sides. A thread is passed into the holes in the splint and tied in front of the columella. The septal clip is introduced over the splint so that equal pressure is maintained on both sides of nasal septal flaps and septum remains in correct position.

All patients were given postoperatively antibiotics, nasal drops, and analgesics and subjective symptoms such as headache, epiphora, dysphagia, disturbance of sleep, and bleeding were noted and tabulated. Splint with clip was removed after 48 h and pain and bleeding were noted. In the follow-up period, we take a note of synechiae, septal hematoma, and septal perforation. All these findings were recorded in the case sheet of the patient.

## RESULTS

In our study, with regard to post-operative subjective symptoms using nasal septal splint with clip, epiphora was noted in 20% of patients followed by headache (17.5%), sleep disturbance (15%), dysphagia (12.5%) and nasal bleeding (5%). Pain was noted in 12.5% and bleeding in 10% of the patients following nasal septal splint and clip removal. On follow up synechiae was noted in 5% of the patients and septal hematoma in 2.5% of the patients.

## DISCUSSION

Septum is stabilized following septoplasty by conventionally using nasal packs (anterior nasal packing). Nayak *et al.* have described medicated packs such as ribbon gauze, finger stall packs, polyvinyl acetate sponge (Merocel), cellulose sponges, and carboxymethylcellulose, balloon tamponade.<sup>[8]</sup> Other methods of stabilizing the septum



Figure 1: Nasal septal splint and clip

include splints<sup>[9]</sup> clips,<sup>[10]</sup> there are recommendations of various materials including cotton tape, gauze, paraffin gauze, Telfa, Merocel, sponges, and silicone nasal splints for this purpose.<sup>[11]</sup> In septoplasties, the mucoperichondrial and mucoperiosteal flap layer on both sides of the midline cartilaginous septum are elevated, and the deviated portion of the cartilage or bone is removed. Then, the flaps are placed back together in the midline. Packs are placed on either side of the septum, to splint the septum in new position, compress the mucous membrane layers together, thus promoting adhesion between the same, thereby preventing blood clots in between them. Cartilage gets its blood supply and nutrition from its perichondrium so leftover cartilage has to be in contact with the perichondrium for its survival. A septal hematoma or abscess that separates the two mucous membrane layers can hamper nutrient flow to the remaining cartilage, thus the cartilage die off, leading to drooping of nasal tip. There were many disadvantages commonly encountered during anterior nasal packing such as compromised nasal breathing, dryness of mouth, nasal pain, nasal valve narrowing, occasional ear block sensation, vestibulitis, crusting, synechiae, headache, watering from eyes, irritation of throat, difficulty in swallowing, hypoxia, and hypoxemia in patients with obstructive sleep apnea syndrome.<sup>[12]</sup> A rare complication of nasal packing is toxic shock syndrome.<sup>[8]</sup> Tight packing may even lead to septal perforation, adversely affects mucosal ciliary activity, and

Table 1: Post-operative subjective symptoms using nasal septal splint with clip

Post-operative symptoms	Nasal septal splint with clip	
	Number of patients	%
Headache	7	17.5
Dysphagia	5	12.5
Sleep disturbance	6	15
Nasal bleeding	2	5
Epiphora	8	20

Table 2: Signs and symptoms at nasal septal splint with clip removal

Signs and symptoms at nasal septal splint with clip removal	Nasal septal splint with clip	
	Number of patients	%
Pain	5	12.5
Bleeding	4	10

Table 3: Follow-up findings

Follow-up findings	Nasal septal splint with clip	
	Number of patients	%
Septal hematoma	1	2.5
Synechiae	2	5
Septal perforation	0	0

**Table 4:** Similar studies related to post-operative subjective symptoms using nasal septal splint with clip

Post-operative symptoms	Nasal septal splint with clip (%)			
	Our study	Udgir <i>et al.</i> <sup>[13]</sup>	Veluswamy <i>et al.</i> <sup>[10]</sup>	Kurle <i>et al.</i> <sup>[14]</sup>
Headache	17.5	20	15	18
Dysphagia	12.5	0	5	10
Sleep disturbance	15	16		18
Bleeding	5	20	0	14
Epiphora	20	4		22

**Table 5:** Similar studies related to signs and symptoms at nasal septal splint with clip removal

Signs and symptoms at nasal septal splint with clip removal	Nasal septal splint with clip (%)			
	Our study	Udgir <i>et al.</i> <sup>[13]</sup>	Veluswamy <i>et al.</i> <sup>[10]</sup>	Kurle <i>et al.</i> <sup>[14]</sup>
Pain	12.5	8	Less pain	10
Bleeding	10	8	Less bleeding	10

**Table 6:** Similar studies related to follow up findings

Follow up	Nasal septal splint with clip (%)			
	Our study	Udgir <i>et al.</i> <sup>[13]</sup>	Veluswamy <i>et al.</i> <sup>[10]</sup>	Kurle <i>et al.</i> <sup>[14]</sup>
Septal hematoma	2.5	4	Less complication	2
Synechia	5	4	Less complication	0
Septal perforation	0	0	Less complication	2

can jeopardize the vascularity causing septal perforation. In our study, we have used splints with clips which minimize these disadvantages.

Various studies have been conducted by ENT surgeons using nasal septal splint with clip postoperatively. The results of their studies have been shown along with the findings of our study [Tables 1-6].<sup>[13,14]</sup>

In a study done by Pandurangara *et al.*,<sup>[15]</sup> post-operative symptoms such as epiphora and sleep discomfort were less in the nasal splint group. In our study, we have found lesser extent of immediate post-operative signs and symptoms with nasal septal splint and clip which is similar to studies done using splints done by other ENT surgeons.

In case of splints with clips, dysphagia attributed to Toynbee phenomenon is less. If the patient swallows, when nasal passages are blocked as in post-septoplasty, nasal packing air cannot pass anteriorly and it is insufflated to the middle ear. This unpleasant feeling results in poor oral intake while packs are in place.

Pain and bleeding following nasal septal splint and clip removal were also less which is similar to the findings of the study using septal splints done by other ENT surgeons.

In our study, we also noted lesser post-operative complications with nasal septal splint and clip which is similar to the findings of the study using septal splint done by other

ENT surgeons. This could be because nasal septal splints with clips exert pressure only on nasal septum as compared to nasal packs which exert pressure on both the lateral nasal wall and septum.

## CONCLUSION

The patient's post-operative comfort, lesser pain and bleeding, and complications make septal splints with clips a useful alternative to nasal pack in septoplasty patients.

## CLINICAL SIGNIFICANCE

Nasal septal splint with clip may be used as a safe alternative to nasal packing post-septoplasty operation with minimal patient discomfort.

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