

Role of Preoperative Steroids on Perioperative and Postoperative Bleeding in FESS Patients

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Abstract

Background: Deviated nasal septum (DNS) is a common anatomical variation in the paranasal sinuses (PNS), and sinusitis is a prevalent condition. 134 million Indians are thought to have persistent sinusitis. The purpose of this study is to examine the impact of preoperative oral steroids (prednisolone) on perioperative and postoperative bleeding in patients having functional endoscopic sinus surgery for chronic sinusitis with those who do not receive steroids.

Methods: From September 2025 to February 2026, the ENT Department of ANMMCH in Gayaji, Bihar, conducted this randomized controlled study. Functional endoscopic sinus surgery was performed on 120 patients who met the inclusion criteria after obtaining informed consent. Using random number tables, they were split into two groups of sixty people each. Group B (the control group) did not receive any steroids, but Group A received prednisolone at a dose of 01 mg/kg body weight for one week before to surgery, with the last day of the medication being the day before the operation day.

Results: Perioperative and postoperative bleeding were significantly different, with group A having superior control rates.

Conclusion: In patients undergoing functional endoscopic sinus surgery for chronic sinusitis, prednisolone administered before to surgery greatly reduces the morbidity of perioperative and postoperative hemorrhage, allowing for an early return to normal lifestyle.

Keywords: Functional Endoscopic Sinus Surgery, Prednisolone, Chronic Sinusitis.

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Introduction

Acute and chronic sinusitis most frequently affect the maxillary sinuses in adults. Medication alone is sufficient to treat the majority of these situations. Surgery may be required to treat chronic maxillary sinusitis in cases where medication therapy is ineffective.

The surgical technique used by Messerklinger and Wigand via the Ostiomeatal complex is the foundation of functional endoscopic sinus surgery (FESS).[1,2] FESS is now the conventional surgical procedure for treating chronic maxillary sinusitis; in more complex instances or for managing tumors, an external approach is employed as an adjuvant.

The majority of existing research has examined the effects of oral or intranasal (topical) steroids in the

treatment of chronic sinusitis; however, there is currently no research on the effects of a brief preoperative oral steroid course on perioperative and postoperative hemorrhage. The purpose of this study was to compare the effects of steroids on perioperative and postoperative morbidity between two groups: one group received oral prednisolone for seven days before surgery, whereas the control group did not receive steroids.

It is thought that steroids work by decreasing leukocyte migration and tissue damage. Intravenous dexamethasone is known to provide a long-lasting antiemetic effect.

Additionally, the majority of the information currently available on this specific issue comes from research conducted in the West. In our setup,

very few studies have been carried out, and those that have been done have not addressed perioperative and postoperative morbidity in terms of bleeding. The development of novel and advantageous treatment modalities and procedures that are most appropriate for our patients will advance as a result of this study.

Material and Methods

From September 2025 to February 2026, the ENT Department of Anugrah Narayan Magadh Medical College and Hospital in Gayaji, Bihar, conducted this randomized controlled study.

This study used non-probability convenience sampling to include a total of 120 cases, which were then split into two groups using a random numbers table. Patients between the ages of 8 and 35 who were resistant to medical treatment (antibiotics, nasal decongestants, and steam inhalation only) and had chronic sinusitis (maxillary and ethmoidal (both anterior and posterior group) confirmed on CT scan) were chosen for FESS. Patients with severe reactive airway disease, conditions for which steroids are contraindicated (diabetes mellitus), extensive intranasal polypsis, anatomical variations, patients already on topical or oral steroids, bleeding disorders, and those who responded to our brief course of steroid therapy were all excluded from the study.

Patients beyond the age of 12 were treated as adults, while those between the ages of 8 and 12 were treated as children. Parents and subjects gave their informed consent. Two groups of thirty patients each were created. One week before surgery, group A was given preoperative prednisolone orally at a dose of 01 mg/kg body weight, but group B (the control group) was not given any steroids. Oral prednisolone (Deltacortil), which is readily accessible and reasonably priced, costs 84 rupees for a seven-day treatment.

Additionally, there is no need for dose tapering and it can be stopped suddenly without causing any negative side effects. FESS was only carried out by a specific set of skilled surgeons. Both groups received the same general anesthesia and postoperative care. A five-day prescription of amoxicillin was recommended to each patient. Adults received a dose of 500 mg orally three times a day, while children received a dose of 40 mg/kg body weight/day orally in three separate doses. For

five days, acetaminophen was taken as an analgesic. The oral dosage for the pediatric group was 10–15 mg/kg body weight per day, whereas the adult dose was 500 mg three times per day.

The amount of blood lost in milliliters as determined by a suction bottle was used to gauge the severity of perioperative bleeding. Blood loss of 10–20 milliliters was regarded as mild, 20–30 milliliters as moderate, and more than 30 milliliters as severe. When an oral cavity examination revealed an active trickle in the throat on the day of surgery, post-operative bleeding was evaluated. During the procedure, there was no perioperative nose packing to stop bleeding. At the conclusion of the treatment, a Merecel/Spongostone dressing was applied to the middle meatus. Perioperative bleeding (mild 10–20 ml, moderate 20–30 ml, and severe >30 ml) and postoperative bleeding (active trickle of blood in neck, present or absent) were recorded in a proforma. The findings were then compiled using this.

SPSS-24 software was used to analyze the data. For age, the mean and standard deviation were computed. Perioperative and postoperative bleeding frequencies were computed. The statistical significance of the difference between the two groups was assessed using the chi-square test. A p-value of less than 0.05 was deemed significant.

Results

Two groups, A and B, were created from the patients. Functional endoscopic sinus surgery was performed on both groups. Group A had a 07-day short course of oral steroids at a dose of 01 mg/kg body weight prior to surgery, while group B received no steroids. Males made up 32 (53.33%) of group A and 44 (73.3%) of group B. Patients ranged in age from 8 to 35. The average age in group A was 13.23 years (SD = 6.4), whereas the average age in group B was 14.37 years (SD = 6.9). Group A's mean height was 100.2 cm (SD = 38), but group B's was 102.4 cm (SD = 35.6). Group B's weight mean was 38 kg (SD=17.7), while group A's was 36 kg (SD=20.1). In terms of age, gender, height, and weight, both groups were similar.

There were 18 (80%) patients in group A with light bleeding, 10 (16.7%) with moderate bleeding, and 2 (3.3%) with severe bleeding. Ten (16.7%) of the patients in group B had light bleeding, four (6.7%) had moderate bleeding, and forty-six (76.7%) had severe bleeding. (Table 1, $p < 0.05$)

Table 1: Percentage of amount of perioperative hemorrhage

	Mild hemorrhage 10-20 ml	Moderate hemorrhage 20-30 ml	Severe hemorrhage >30 ml
Group A (n=60)	48(80%)	10(16.7%)	2(3.3%)
Group B (n=60)	10(16.7%)	4(6.7%)	46(76.7%)

P<0.05

Only 8 patients (10%) in group A experienced active blood trickling in their throats on the day of surgery, whereas 48 patients (80%) in group B experienced some blood trickling during the recovery period. (Table 2, $p < 0.05$).

Table 2: Active trickle of blood in throat on operation day

Patients	Active blood trickle	
	Present	Absent
Group A (n=60)	8(10%)	52(90%)
Group B (n=60)	48(80%)	12(20%)

Both groups' patients recovered from anesthesia without any issues. According to the procedure specified in the data collection, patients were discharged between the third and fourth postoperative day after receiving postoperative antibiotics and analgesics.

Discussion

In order to restore sinus function while maintaining normal sinus anatomy, functional endoscopic sinus surgery (FESS) provides procedures customized to each patient's condition. Medical interventions during the immediate preoperative and postoperative phases are just as important to a good functional outcome as surgical skill. Preoperative, perioperative, and postoperative care all affect the functional outcome of FESS.

Managing FESS before and after surgery promotes mucosal healing, reduces scar tissue, and guarantees a quick return to normal function. With advancements in instruments, optics, and mucosal preservation techniques, surgical technique has evolved.[1,2]

Since FESS is a relatively new surgical technique in a few developing nations, there are no clinical trials of the use of immediate preoperative medication, and there are currently no studies available both domestically and internationally to examine the preoperative role of steroids on perioperative and postoperative hemorrhage in patients undergoing FESS for chronic sinusitis. Nonetheless, some studies have looked at topical steroid administration after FESS [10–14] and postoperative medical management [3–9]. Regarding the best time to follow up with patients following FESS, opinions also differ greatly [6,15–17]. According to table 1, the incidence of perioperative mild hemorrhage was 48 (80%) in group A and 10 (16.7%) in group B. Similarly, the frequency of severe hemorrhage was 2 (3.3%) in group A and 46 (76.7%) in group B.

On the day of surgery, there was an active trickle of blood in the throat in 8 cases (10%) of group A and 48 cases (80%) of group B. Table 2 indicates that the P values were significant. By inhibiting fibrin deposition, capillary dilatation, edema development, and leukocyte migration, steroids are thought to lessen tissue damage and postoperative discomfort.[18–20] Intravenous dexamethasone is

known to have a long-lasting antiemetic effect due to its central depression [21, 22]. Because there is less edema at the nerve's severed end, there is less pain stimulus, which results in less discomfort. In terms of corticosteroid therapy problems, these are usually associated with long-term use, and the hazards associated with steroid therapy lasting less than seven days are minimal [23]. According to our findings, using prednisolone for a short period of time—7 days in our study—was less expensive and resulted in less perioperative and postoperative complications, such as bleeding.

Our investigation was limited by the qualitative rather than quantitative nature of the data. The study's goal was to reduce perioperative and postoperative morbidity by using corticosteroids prior to surgery, allowing for an earlier return to a regular lifestyle. Our research has demonstrated this. To validate these results, however, more extensive research must be planned.

Conclusion

In patients undergoing functional endoscopic sinus surgery, prednisolone administered one week before to surgery dramatically lowers the perioperative and postoperative morbidity of bleeding, making the procedure easier.

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