

# A Critical Clinical Analysis of Day Care ENT Surgical Procedures in a Tertiary Teaching Hospital in Telangana

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## Abstract

**Background:** Day care surgery in ENT has ever since the advent of modern anaesthetic techniques has become a popular modality of surgical intervention in India. Factors including the cost and time are making these surgeries more popular among surgeons, anesthesiologists, and general public. In a way advanced methods of anesthesia, surgical techniques and availability of latest drugs are largely responsible for the progress of day care surgeries. The most important step in successfully delivering the day care surgical services includes proper selection of the patients.

**Aim of the study:** This study aims to analyze the different ENT procedures adopted for day care surgical management and the factors playing role in their success.

**Materials and Methods:** A total of 364 patients undergoing day care surgeries in the Department of ENT, Kakatiya Medical College and Mahatma Gandhi Medical College, Warangal, Telangana, were included in this study. All the patients were subjected to ENT examination followed by laboratory investigations to confirm the diagnosis and to establish the functioning of all the systems were undertaken.

**Premedication:** Tablet Diazepam 5 mg at bedtime on the night before surgery. Injection Atropine (10 µg/kg to a max. of 0.6 mg I/M) 45 min before surgery was given. Injection Fortwin (1 mg/kg to a max. of 50 mg I/M) 45 min before surgery was given. Injection Phenergan 25 mg I/M 45 min before surgery was given.

**Surgical Technique:** Only standard ENT surgical techniques were used.

**Post-operative Monitoring:** All the patients were allowed to rest in a post-operative ward adjacent to the operation for 4–8 h.

**Criteria at the time of Discharge:** The following criteria are as follows: (1) Stable vital signs for at least 2 h, (2) a good and correct orientation to time, place, and attendants, (3) patients with adequate pain control with oral analgesics alone, (4) patients without vomiting, and (5) patients with minimal or no bleeding. The data were analyzed and post-operative events and complications were recorded, and the treatment given was also recorded. All the data were analyzed using standard statistical methods.

**Observations and Results:** The most common complaint was nausea observed in 105/364 patients (28.84%). Tachycardia was noted in 46 (12.63%), bradycardia in 21 (5.76%), sensation of vertigo in 17 (4.67%), and epistaxis in 36 (9.89%) of the patients. Orbital edema was noted in 5 (1.37%) of the patients. Soakage of the mastoid bandage was noted in 7 (1.92%) of the patients. Overall general satisfaction expressed by the patients was found in (359/364) 98.62% of patients in this study.

**Conclusions:** Day care surgeries performed with increased understanding of the pathophysiological basis of the disease, advancements in anesthetic techniques, adoption of minimally invasive surgical techniques, availability of newer and short-acting anesthetic drugs, and evolution of sociobehavioral and economic factors would give wider acceptability and reduction in overall cost of health services.

**Key words:** Day care surgery, Pre anaesthetic check up, Recovery period, Post operative analgesia

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## INTRODUCTION

Day care surgeries started during the post-World War II period. Today, 80 years later, the day care surgeries enjoy excellent popularity, especially in India.<sup>[1]</sup> The obvious benefits to the patients include minimal disruption of their activities and cost-effectiveness to the patients and

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their organizations. In terms of economy, they help in cost reduction and optimal utilization of available manpower, bed occupancy, and resources of the hospital.<sup>[2,3]</sup> In coming days, much larger number of patients and physicians would be opting for day care surgeries, which are due to the fast pace of life, adoption of nuclear family structure, need of early return to work, and resumption of daily routine chores to maintain social and professional competitiveness which are few of the important factors which have propelled this treatment modality to newer heights.<sup>[4,5]</sup> Moreover, the relative shortage of beds in the hospital and scarce economic resources due to ever-increasing patient population has boosted the concept of small incisions and minimal invasive surgeries, thus allowing for more surgical procedures to be performed on day care basis.<sup>[4-6]</sup> Anesthesia for day care surgeries otherwise called as ambulatory anesthesia requires administration of general, regional, and local anesthesia or monitored anesthesia care supplemented with sedation. The advancements in anesthesia techniques and availability of newer drugs have contributed largely to the progress of day care surgery.<sup>[6]</sup> However, providing day care anesthesia services are a challenging task to both the anesthetist and surgeon. The main challenges include the logistics and organization of the day care setup to make it function efficiently, effectively, and safely.<sup>[7-9]</sup> These difficulties are accentuated in resource-challenged settings.<sup>[9]</sup> The important aspects toward the successful and complication free post-operative period following day care surgeries include patients selection, robust day surgery pathway, and motivated patients.<sup>[10]</sup> In the USA, 66% of surgical procedures are performed on outpatient basis.<sup>[11]</sup> In the UK, 50% of the surgeries are performed on day care basis with an ambitious target of 75% over the next decade.<sup>[12]</sup> Even though the correct data from India are unavailable, it can be assumed that 11%–23% of the surgeries are performed in hospital settings on outpatient basis. The majority of surgeries are drawn from ophthalmology, otorhinolaryngology, gynecology, and general surgery specialties.<sup>[13]</sup>

### Type of Study

This was a cross-sectional prospective analytical study.

### Duration of Study

This study was from January 2015 to December 2017.

### Institute of Study

This study was conducted at Kakatiya Medical College and Mahatma Gandhi Medical College Hospital, Warangal, Telangana.

## MATERIALS AND METHODS

A total of 364 patients undergoing day care surgeries in the Department of ENT, Kakatiya Medical College and

Mahatma Gandhi Medical College, Warangal, Telangana, were included in this study. An ethical committee clearance was obtained before the commencement of the study. An ethical committee cleared pro forma was used for this study. As the patient screening and selection was one of the important requisites for day care anaesthesia and surgery, patients were selected on the following criteria:

### Inclusion Criteria

- (1) Patients who are sound to understand the delicate intricacies of day care procedures were only included.
- (2) Patients discharged after the surgery should be accompanied by an adult attendant alone were included.
- (3) Patients sent with written instructions to be followed postoperatively in a domestic environment conducive enough for smooth post-operative period were included.
- (4) Patients with basic minimum laboratory investigations were included.
- (5) Patients with minimal comorbid diseases were included.

### Exclusion Criteria

- (1) Patients requiring prolonged surgery and having potential chances of hemodynamic instability were excluded.
- (2) Patients who are unable to take oral fluids within few hours of the surgical procedure were excluded.
- (3) Patients requiring anesthetic drugs and techniques in a manner making post-operative ambulation difficult were excluded.
- (4) Patients who are unable to take care of himself/herself were excluded.
- (5) Patients who do not have a good means of transport and communication at home were excluded.
- (6) Patients who are American Society for Anesthesiologists Grade III and above were excluded. All the patients were subjected to ENT examination followed by laboratory investigations to confirm the diagnosis and to establish functioning of all the systems were undertaken. Pre-anesthetic evaluation was done by anesthetist who is actually giving anesthesia the following day.

### Premedication

Tablet Diazepam 5 mg at bedtime on the night before surgery. Injection Atropine (10 µg/kg to a max. of 0.6 mg I/M) 45 min before surgery was given. Injection Fortwin (1 mg/kg to a max. of 50 mg I/M) 45 min before surgery was given. Injection Phenergan 25 mg I/M 45 min before surgery was given. A combination of standard regional, infiltrative, and topical local anesthesia was used.

### Surgical Technique

Only standard ENT surgical techniques were used.

### Post-operative Monitoring

All the patients were allowed to rest in a post-operative ward adjacent to the operation for 4–8 h.

**Criteria at the Time of Discharge**

The following criteria are as follows:

(1) Stable vital signs for at least 2 h, (2) a good and correct orientation to time, place, and attendants, (3) patients with adequate pain control with oral analgesics alone, (4) patients without vomiting, and (5) patients with minimal or no bleeding.

**Post-Operative Follow-up**

(1) Wound and dressing checked and changed (drains removed) after 24 h. (2) Antibiotics and analgesics changed to oral route of administration after 24 h. (3) Sutures removed after 7 days. (4) Ear packs removed after 3 weeks. (5) Patient reviewed if there is an emergency by the surgeon. The data were analyzed and post-operative events and complications were recorded, and the treatment given was also recorded. All the data were analyzed using standard statistical methods.

**OBSERVATIONS AND RESULTS**

Among the 364 patients, there were 238 males (65.38%) and 126 (34.61%) females with a male-to-female ratio of 1.8:1. The youngest patient was aged 3 years and the eldest patient was aged 72 years with a mean age of 36.65 ± 2.10 years. The demographic data were analyzed and tabulated in Table 1.

The different surgical ENT procedures performed in the institute as day care surgeries with their percentages are tabulated in Table 2.

The incidence of various complications and post-operative scenarios observed by the residents of ENT department is tabulated in Table 3. The most common complaint was nausea followed by vomiting as far as the complication of gastrointestinal tract (GIT) was concerned, observed in 105/364 patients (28.84%). Tachycardia was noted in 46 (12.63%) of the patients. Bradycardia was noted in 21 (5.76%) of the patients. Sensation of vertigo was noted in those patients who underwent mastoidectomy and stapedotomy and tympanoplasty. The overall incidence of the vertigo was 17 (4.67%). Epistaxis was noted in 36 (9.89%) of the patients. These were the patients who underwent endonasal Dacryocystorhinostomy (DCR), septoplasty, and minimal FESS surgeries. Orbital edema was noted in 5 (1.37%) of the patients who underwent endonasal DCR operation. Soakage of the mastoid bandage was noted in 7 (1.92%) of the patients and was a major point concern for the attendants of the patients who underwent mastoid surgeries. Overall general satisfaction expressed by the patients was found in (359/364) 98.62% of patients in this study. 2/364 patients (0.54%) who

**Table 1: The demographic data of the subjects (n=364)**

Age group	Male 238 (65.38%)		Female 126 (34.61%)		Economy		Education		Hypertension 67 (18.40%)	Diabetes mellitus 41 (11.26%)	Smoking 52 (14.28%)	Allergy 30 (8.24%)
	BPL - 212	APL - 152	<12 <sup>th</sup> 223	>12 <sup>th</sup> 141	BPL - 212	APL - 152	<12 <sup>th</sup> 223	>12 <sup>th</sup> 141				
1-10 (45)	31 (8.51%)	14 (3.84%)	26 (7.14%)	19 (5.21%)	20 (5.49%)	25 (6.86%)	20 (5.49%)	25 (6.86%)	-	-	-	4 (%)
11-20 (67)	45 (12.36%)	20 (5.49%)	41 (11.26%)	26 (7.14%)	39 (10.71%)	28 (7.69%)	39 (10.71%)	28 (7.69%)	1 (%)	1 (%)	2 (0.54%)	7 (%)
21-30 (72)	51 (14.01%)	21 (5.76%)	46 (12.63%)	26 (7.14%)	47 (12.91%)	25 (6.86%)	47 (12.91%)	25 (6.86%)	6 (1.64%)	2 (0.54%)	10 (2.74%)	6 (1.64%)
31-40 (69)	44 (12.08%)	25 (6.86%)	31 (8.51%)	38 (10.43%)	50 (13.73%)	19 (5.21%)	50 (13.73%)	19 (5.21%)	9 (2.47%)	6 (1.64%)	11 (3.02%)	3 (0.82%)
41-50 (47)	31 (8.51%)	21 (6.86%)	37 (10.16%)	10 (2.74%)	29 (7.96%)	18 (4.94%)	29 (7.96%)	18 (4.94%)	11 (3.02%)	11 (3.02%)	9 (2.47%)	4 (1.09%)
51-60 (33)	20 (5.49%)	13 (3.57%)	18 (4.94%)	15 (4.12%)	18 (4.94%)	15 (4.12%)	18 (4.94%)	15 (4.12%)	17 (4.67%)	10 (2.74%)	8 (2.19%)	2 (0.54%)
61-70 (17)	9 (2.47%)	8 (2.19%)	6 (1.64%)	11 (3.02%)	9 (2.47%)	8 (2.19%)	9 (2.47%)	8 (2.19%)	13 (3.57%)	6 (1.64%)	5 (1.37%)	3 (0.82%)
71-80 (14)	7 (1.92%)	4 (1.09%)	7 (1.92%)	7 (1.92%)	11 (3.02%)	3 (0.82%)	11 (3.02%)	3 (0.82%)	10 (2.74%)	5 (1.37%)	7 (1.92%)	1 (0.27%)

**Table 2: The various surgeries performed as day care surgeries (n=364)**

Age group	Adenoid surgery - 23 (6.31%)	Tonsillectomy (%) - 36	Grommet insertion - 32 (9.89%)	Septoplasty - 39 (10.71%)	Minimal FESS - 59 (16.20%)	Myringoplasty - 41 (11.26%)	Cortical mastoidectomy - 34 (9.34%)	Tympanoplasty - 29 (7.96%)	Stapedotomy - 21 (5.76%)	MLS - 24 (6.59%)	DCR - 26 (7.14%)
1-10 (45)	11 (4.12%)	19 (5.21%)	15 (4.21%)	(0%)	(0%)	(0.0%)	(0%)	(0%)	(0%)	(0%)	(0%)
11-20 (67)	12 (3.29%)	9 (2.47%)	10 (2.47%)	10 (2.47%)	8 (2.19%)	6 (1.64%)	7 (1.29%)	4 (1.09%)	1 (0.27%)	1 (0.27%)	(0%)
21-30 (72)	(0%)	8 (2.19%)	7 (1.92%)	14 (3.84%)	17 (4.67%)	6 (1.64%)	7 (1.92%)	4 (1.09%)	3 (0.82%)	3 (0.82%)	1 (0.27%)
31-40 (69)	(0%)	(0%)	(0%)	11 (3.02%)	15 (4.12%)	12 (3.29%)	8 (2.19%)	4 (1.09%)	6 (1.64%)	5 (1.37%)	5 (1.37%)
41-50 (47)	(0%)	(0%)	(0%)	4 (1.09%)	13 (3.57%)	8 (2.19%)	3 (0.82%)	8 (2.19%)	6 (1.64%)	3 (0.82%)	3 (0.82%)
51-60 (33)	(0%)	(0%)	(0%)	(0%)	3 (0.82%)	3 (0.82%)	5 (1.37%)	7 (1.92%)	3 (0.82%)	5 (1.37%)	7 (1.92%)
61-70 (17)	(0%)	(0%)	(0%)	(0%)	3 (0.82%)	4 (1.09%)	1 (0.27%)	2 (0.54%)	2 (0.54%)	5 (1.37%)	2 (0.54%)
71-80 (14)	(0%)	(0%)	(0%)	(0%)	(0%)	2 (0.54%)	3 (0.82%)	2 (0.54%)	(0%)	5 (1.37%)	2 (0.54%)

DCR: Dendonasal dacryocystostomy

underwent tonsillectomy had to be shifted to the operation theater for ligation of bleeding vessel in the tonsillar fossa due to reactionary hemorrhage. 2/364 (0.54%) patients who underwent minimal FESS developed severe orbital edema and have to undergo revision inspection under general anesthesia. One patient developed facial weakness following mastoidectomy which recovered after 2 weeks and had to be kept under observation and was considered as eliminated from day care surgeries. One (0.27%) patient developed laryngospasm immediately after shifted to post-operative ward and had to be taken to operation theater for further management conservatively [Table 3].

**Table 3: Showing the incidence of complications and post operative scenarios (n=78)**

Complication/Post-operative scenario	Incidence	%
Nausea/vomiting	105	28.84
Post-operative pain	84	23.07
Tachycardia	46	12.63
Epistaxis	36	9.89
Bradycardia	21	5.76
Delayed return to full cognitive functions	19	5.21
Vertigo	17	4.67
Unsteady gait	14	3.84
Urinary retention	11	3.02
Vomiting followed by oral fluid administration	9	2.47
Soakage of mastoid bandage	7	1.92
Orbital edema	5	1.37
Reactionary hemorrhage	3	0.82
Facial weakness	1	0.27
Laryngospasm	1	0.27

**DISCUSSION**

In this cross-sectional prospective analytical study, 364 patients were included who were undergoing day care ENT procedures in the Department of ENT, Kakatiya Medical College and MGM Hospital, Warangal, Telangana. The key facets of post-operative care following day care surgeries are regular oral analgesia with paracetamol combined with long-acting nonsteroidal anti-inflammatory drugs, if not contraindicated accompanied by supplementation with local or regional anesthesia where possible. At the same time avoiding use of any long-acting opiates and judicious use of short-acting opiates if required for management of acute pain. In the present study, 5/364 patients required special attention or intervention or shifting them to operation theater for further conservative management, 5/364 (1.37%). The remaining patients 359/364 (98.63%) showed satisfied stay before, during, and after day care surgery. Day care surgery is defined as performing planned surgical procedure after careful selection of patient and their diseases and returning the same day.<sup>[14]</sup> Day surgeries are known to reduce the cost of entire surgeries and minimal



disruption of work schedule of the patients. The reduction in cost is due to minimum workforce who was required as the patients do not get admitted for the night, and the short recovery times are translated into cost savings. In this way, the hospital resources are also spared which are hugely beneficial in situations where resource-challenged settings of developing countries. They improve cost-effectiveness as well as improved anesthesia procedures also improve the quality and efficiency of patient care.<sup>[15]</sup> They help in obviating the psychological trauma to the entire family which is usually disturbed when patients are hospitalized.<sup>[16]</sup> To assess the real value of day care surgeries, proper pre-operative, operative, and post-operative guidelines should be implemented including check list at the time of discharge. These settings should be audited regularly, as are the practice in the developed countries.<sup>[17]</sup> Post-operative period remains one of the most important steps in the day care surgery cycle as the discharge of the patient from the hospital was decided after evaluating recovery characteristics. Major issues before discharge were the occurrence of any episode of bradycardia, hypotension, hemorrhage, emergence phenomenon, transient neurological symptoms, pain, respiratory depression, urinary retention, shivering, post-operative nausea and vomiting, and many others which can possibly defeat the goals of ambulatory anesthesia/day care surgery.<sup>[18-20]</sup> In day care surgeries, recovery was usually divided into three stages; early, intermediate, and late recovery stages. The early stage was characterized by patient getting awake with return of protective reflexes. Patients undergoing local anesthetics are considered to have fast-track recovery. Intermediate stage starts with the patient getting admitted into the post-anesthesia recovery care unit till discharge of the patient. Any complication or symptoms during this stage can be easily managed as the recovery unit of day care surgery is well equipped and staffed. The ability to take oral fluids and self-ambulation for micturition is not considered vital criteria for discharge. Regression of neuraxial blockade beyond S3 level helps in return of micturition reflex.<sup>[21]</sup> Late-stage recovery terminates when patient fully recovers from the physiological and psychological aspects of the surgical procedure. A written set of instructions and contact number of attending doctor should be handed over to the patients and the accompanying persons during discharge and should be told to contact immediately on appearance of any signs and symptoms. Ideally, such patients should be handed over a summary of general details pertaining to day care anesthesia and surgical procedure. Numerous scoring systems such as clinical recovery score, Stewart recovery scores, Aldrete score (AS), post-anesthesia discharge scoring systems (PADSSs), and others have been developed to monitor patients before being discharged safely from the hospital

after ambulatory surgery.<sup>[6,19]</sup> Overall general satisfaction expressed by the patients was found in (359/364) 98.62% in this study.

## CONCLUSIONS

Day care surgeries performed with increased understanding of the pathophysiological basis of the disease, advancements in anesthetic techniques, adoption of minimally invasive surgical techniques, availability of newer and short-acting anesthetic drugs, and evolution of sociobehavioral and economic factors would give wider acceptability and reduction in overall cost of health services. They can be performed with careful patient selection to achieve degree of satisfaction from the patients following surgery and are highly recommended for a wide variety of ENT procedures.

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