



Study of Day Care Surgery in a Private Charitable Hospital

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Abstract

Introduction: History of 'Day Care' or 'Ambulatory Surgery' is as old as medicine itself. In the present century, with the better understanding of healing process, increase in surgical skills and availability of anaesthetic drugs has led to the development of Day Care Surgery or Ambulatory Surgeries into an art in itself.

Aim: To Assess the feasibility, cost benefit and factors for strengthening the potentials of Day Care Surgery in a private charitable hospital.

Materials & Methods: This was a prospective comparative study carried over a period of 1 month involving patients between 18 years-65 years of age with ASA Grade I or II. A total of 40 patients were selected and divided into 2 groups, Group A (Patients undergoing day care surgery) and Group B (Patients not undergoing day care surgery). Group A patients were admitted on the day of surgery and discharged on the same day evening. Group B patients were discharged on Day 3 or after suture removal, depending upon their condition and social status. Patients in both the groups were analyzed with respect to wound infection, duration of stay in ward, approximate cost incurred and post-operative pain.. Post operative analgesia was also administered. All the patients were followed up for 15 days postoperatively.

Results: In Group A, there were 15 males and 5 females while in group B there were 14 males and 6 female patients. Both the groups were comparable in terms of age and operative procedures carried. Both groups had 1 complication each. Average Hospital cost was Rs 300/ patient in Group A whereas it was Rs 1185/patient in Group B.

Conclusion: Day care surgery is possible in Private charitable Hospital with a dedicated day care surgery unit and it definitely decreases the expenses, hence cost effective.

Keywords: Ambulatory surgery, Private hospital.

Introduction

Day surgery is defined as planned investigation or procedures on patients who are admitted and discharged home on the day of their surgery, but who require some facilities & time for recovery ⁽¹⁾. “True day surgery” patients are day case patients who require full operating theatre facilities and/or a general anaesthetic, and any day cases not included as outpatient or endoscopy.

In 1909, James Nicoll, a Scottish surgeon reported operating on nearly 9000 children as day cases, for operations such as talipes, corrections of harelip, hernia repairs and mastoid surgery. His motivation was to save money and use resources better – reasons which are equally valid today ⁽²⁾. In the USA, Ralph waters, an anaesthetist, founded his ‘downtown anaesthesia clinic’, for dental and minor surgery in 1912, the prototype for the free Standing Day Surgery Unit ⁽³⁾. Despite acclaim for the acceptance, and it was only when the disadvantages of prolonged bed rest after surgery became appreciated in the 1940s that day surgery could really progress. Hospital based Day Surgery Units began to appear in the USA in the 1960’s and in 1969, Walter Reed, an American surgeon, set up the phoenix surgicenter, the 1st free standing DSU. UK hospitals followed suit from the 1970, and Day Surgery Units became established in most hospitals, although the free standing Day Surgery Unit is almost unknown in the UK ^(4,5). But even though, day care surgery was success at that time dedicated day surgery unit with dedicated day surgery staff needs to be set up in a public hospital. We undertook the present study to evaluate the feasibility and cost effectiveness of Day care surgery in a private charitable hospital.

Materials and Methods

This was a comparative study carried out over a period of 1 month. Patients over 18yrs of age were selected. All patients underwent anesthesia fitness prior to surgery, on OPD basis and their ASA grading was noted.

The surgeries included were:

1. Inguinal hernia repair.
2. Surgery for tunica vaginalis hydrocele.
3. Fibroadenoma
4. Varicocele
5. Appendicectomy
6. Tympanoplasty

A total of 40 patients were selected and divided into 2 groups, Group A (Patients undergoing day care surgery) and Group B (Patients not undergoing day care surgery). Group A patients were admitted on the day of surgery and discharged on the same day evening. Group B patients were discharged on Day 3 or after suture removal, depending upon their condition and social status. All the patients in both the groups were analyzed with respect to wound infection, duration of stay in ward, approximate cost incurred and post-operative pain. . Post operative analgesia was also administered. All the patients were followed up for 15 days postoperatively.

Patient Exclusion Criteria:

a) Medical:

1. ASA III & IV Patients.(American Society of Anesthesiologists grading)
2. Obese: Body Mass Index >35.
3. Specific problems: e.g. multiple recurrent hernias.
4. Size of pathology: Large scrotal hernia (Gilberts III and above).
5. Procedures requiring more than one hour.

b) Patient:

1. Concept of day care surgery unacceptable to the patient.
2. Psychologically unstable.
3. Lives far away from the hospital.

c) Social: No competent relative or friend to

- I. Accompany or drive patient home after operation.
- II. Look after him or her at home for next 24-48 hours.

Data collection

Patient's questionnaire: A detailed questionnaire (annexure I) was prepared and given to each patient or relatives to fill. Some of the cases where patients were uneducated or did not understand either Marathi or Hindi or English, needed support of natives for interpretation and correct answering. All the patients in both the groups were analyzed with respect to duration of stay in ward, approximate cost incurred and post-operative pain. The status of wound and analgesia required were assessed on day 2 and at suture removal postoperatively. Erythema, fever discharge and dehiscence were the parameters used to assess the presence of a wound infection. Diclofenac sodium was analgesia used in the post operative period.

The parameters considered for comparison were as follows.

1. Hospital stay in number of days
2. Total expenditure incurred by the hospital on each patient including:

- a) Stay charges (---INR/ Day)
- b) Doctors' charges (INR)
- c) Charges for investigations (INR)
- d) Food and other sundry expenses (---INR/ Day)

This expenditure did not include the expenditure by the way of loss of wages by the patients due to their absence from work while they were in the hospital. This was not included because there was too much of variation depending on the socioeconomic class of the patients.

Results

Data was collected as follows:

1. Records of all 40 patients
2. The questionnaires submitted by the patients
3. Follow up visit data

All the data thus collected in the study was arranged in tabular format. Various parameters were used for this tabulation.

Table 1: Sex distribution

Group A (Day care surgery) N = 20		Group B (conventional) N = 20	
Male	Female	Male	Female
15	05	14	06

In the Day care group, there were 15 males and 5 females while in conventional surgery group there

were 14 males and 6 female patients. Both the groups are comparable.

Table 2: Age distribution

Age of the patient	Group A (Day care)	Group B (conventional)
20 to 30 years	05	04
31 to 40 years	05	04
41 to 50 years	05	04
51 to 60 years	05	08

The age of these patients in both groups shows a widely distributed pattern from 20 to 60 years. The youngest patient in the study was 20 years

old while the oldest patient was 60 years old. In the conventional group maximum number of patients were in the elderly age group.

Table 3: Distribution of Operative procedures

Operative procedures	Group A	Group B
Inguinal hernia repair	03	06
Hydrocele repair	04	04
Fibroadenoma	04	02
Varicocele	03	02
Appendicectomy	03	03
Tympanoplasty	03	03

In day care surgery group all patients were admitted on the morning of the surgery day. They were operated and discharged on the same day of the surgery i.e by evening. In conventional group, all patients were admitted a day prior to surgery. They were discharged on day 3 or after suture removal.

Follow up and audit

All patients in both groups in the study were asked to follow up after one week in surgical OPD where they were carefully examined for the progress following surgery and also for any untoward problems or complications. Dressings at operative sites were changed and sutures removed wherever necessary. Follow up data collected included any difficulty or problems at home, degree of pain or discomfort and need for visit to the general practitioner or the hospital

Table 5 Complications/ Morbidity

Group B Conventional surgery	Group A Day care surgery
Stitch abscess 01	Lipolysis 01

Both groups had only one case of post operative morbidity/ complications. In conventional surgery group a case operated for inguinal hernia had a stitch abscess which responded to removal of the stitch and a short course of oral antibiotics. The

day care surgery group a patient had lipolysis from the operated site on 4th post operative day which resolved on giving antibiotics. None of these two required re admission to the hospital and were managed successfully without any long term morbidity on OPD basis.

Table 6: Overall results:

	Group A	Group B
Average time taken	45 min.	45 min.
Change of technique	Nil	Nil
Additional anaesthetic	Nil	Nil
Post operative pain	Nil	Nil
Readmission	Nil	-
Wound infection	Nil	1
Avg. hospital cost /patient	Rs. 300/-	Rs. 1185/-

All procedures were completed in the stipulated time. No patient required change of technique or

an additional anaesthetic. All patients responded to oral analgesics postoperatively.

Hospital spends about Rs. 300/- per day per indoor patient. This amounts to Rs. 900/- or Rs. 2100/- for the patients going home on the 3rd day of operation or after suture removal respectively not including medication charges and materials required for surgery. Therefore, on an average, hospital spends Rs.1185/-, i.e. almost 4 times the cost per patient in day care surgery group.

Discussion

The concept of day care surgery started in the immediate post World War II period and now 50 years later, it enjoys tremendous popularity, especially in the developed countries. It is estimated that in a few years time, half of the elective surgery in Britain will be on day care basis.

Day surgery is the admission of selected patients to hospital for a planned surgical procedure, returning home on the same day. "True day surgery" patients are day case patients who require full operating theatre facilities and/or a general anaesthetic, and any day cases not included as outpatient or endoscopy.

Past decade has shown interest in the concept of day care surgery. Apart from cost containment, the other benefits received are decompression of busy hospital beds, less nosocomial infection and early recovery in home environment with the family.

Cost Containment

The expenditure incurred by the hospital on a patient occupying bed is Rs.300 per day. Traditionally a patient gets admitted one day prior to surgery, and is discharged, the next day of surgery or after suture removal i.e. Rs.1200 - 2100/- is spent. This does not take into account the drugs, medication and the material used for the surgery in day care surgery. As in our study, patient is called early in the morning for admission on day of surgery, and is discharged by evening, the same day. The load of minor surgery in our hospital is approximately 2500 per year.

The day care surgery results in saving of Rs.2962500/- annually. This overwhelming evidence that day care surgery has much lower average cost than equivalent inpatient surgery is comparable to the result of audit commission 1990 in UK¹ and Health *et al.*⁶

Decompression of Busy Hospital Beds

We are familiar with the phenomenon overcrowding beds in a hospital. But for day care surgery 15% bed occupancy is taken up by minor cases. This results in refusal of admission to patients needing urgent medical attention.

Decrease in Nosocomial Infections

Overcrowding of patients in the wards leads to cross infection. None of the patients undergoing day care surgery had wound infection. one patient in the conventional group had a stitch abscess which resolved with antibiotics and removal of the stitch.

Delivery of Quality Care

With the decrease in number of hospital admissions there is a corresponding decrease in the doctor/nurse-patient ratio. This leads to increased attention towards the patient resulting in delivering of quality care.

The various surgeries included in day care surgery by audit commission of U.K (7). are:-

Orchidopexy, Circumcision, Inguinal Hernia Repair, Excision of Breast Lump, Anal Fissure Dilatation or Excision, Haemorrhoidectomy, Laparoscopic Cholecystectomy, Varicose Vein Stripping or Ligation, Transurethral Resection of Bladder Tumour, Excision of Dupuytren's Contracture, Carpal Tunnel Decompression, Excision of Ganglion, Arthroscopy, Bunion Operations, Removal of Metalware, Extraction of Cataract with/without Implant, Correction of Squint, Myringotomy, Tonsillectomy, Sub Mucous Resection, Reduction of Nasal Fracture, Operation for Bat Ears, Dilatation and Curettage/

Hysteroscopy, Laparoscopy and Termination of Pregnancy.

For day care surgery patient selection is very important, those living nearby to the hospital (within 30 mins drive) and middle class patients having proper facilities at home are selected.

Factors relevant for the success of day care surgery:

1. Patient acceptability,
2. Patient selectivity,
3. Patient information,
4. Post operative audit
5. Audit

Patient acceptability: Method of gauging the acceptability of day care surgery for patients to look for a) Number of unsolicited complaints, b) Readmission later after patients have returned home and c) Postoperative complication rates. In our study there was no verbal or written complaint registered. No patient was readmitted after discharge.

Patient selection: This is the key to successful day care surgery. Selection is not simply a matter of choosing patients with conditions that may be treated on a day basis, but also involves shifting out those patients who are unsuitable for medical and social reasons. Outpatient surgical care provides a measure of control over the ever-increasing demand for hospital beds and some relief from the soaring costs of hospitalization to the patient and society. However, to be successful there must be effective co-operation between surgeon, anaesthetist, and patient. The operating room committee representing anaesthetists and surgeons must agree on criteria for patient selection and a method for arranging consultation about special cases. Only in this way can annoying confrontation between surgeon and anaesthetist be avoided and the greatest comfort and safety of the patient be likely to be achieved.

Patients were excluded from our study as per the criteria of medical exclusions and social requirements put forward by Twersky⁸ in 1993.

Patient information: Comprehensive and well presented information using lay terminologies for patients and their relatives is essential for the success of day surgery. Day patients, unlike inpatients, do not have ready access preoperatively and postoperatively to health care professionals to answer their questions and deal with their worries. As suggested by Baskerville *et al*⁹ the information given to patients should commence with a brief description of the condition for which they are being treated and the procedure being undertaken. This is followed by instruction as what patients must do before coming to the unit, what will happen during their stay in the unit, the postoperative analgesic regimen, what they should do on entering home and what is expected in the days following their operation. Finally, patients need advice on when they can return to various activities such as bathing and work. Perhaps the utmost information that must be given is the concerned problems, that might arise following surgery at home and how to deal with those. This will include advice on self-treatment and when to seek professional help. It is very essential that the information patients are given is honest. A patient given different advice by different doctor and nurse becomes worried and loses confidence. Thus all surgeons working in a unit must agree on standard advice to be given to patients for each of the procedures that are undertaken⁽¹⁰⁾.

Postoperative care: After the operation, patients recover in the recovery area and then ward. All the queries of the patient are answered. A detailed discharge is given including the details of the procedure, post operative analgesia, when to remove sutures and follow up appointment.

Audit: As in other areas of practice, audit is essential to maintain and improve standards. Both

quality and medical audit should be a continuous process ⁽¹⁰⁾.

The challenges faced by us in enrolling patients in this study were:

1. To convince the patients to go home on the same day of the operation, as they fear something unexpected might happen at home. Patients preferred going home after suture removal.
2. Majority of the people coming to our hospital are from lower socio-economic class. Hence there are no proper hygienic facilities available at home.
Many patients did not have a telephone to contact the hospital in case of emergency. Also no proper lavatory facility is available. Hence patient selection was limited.
3. People come from both urban & rural population as our hospital is at junction of urban & rural population, hence they had different educational & socioeconomic background. This made us deal with different strata of society in one single study.

In Indian scenario where population is a major concern, day care surgery relieves the dependency on the available hospital beds for a number of cases, thus increasing the output of the surgical services. This has been seen dramatically in All India Institute of Medical Sciences (AIIMS), New Delhi, where the ENT department started a day care operation theatre (OT) in 1995. In 1999 out of 90,208 total cases operated in AIIMS, New Delhi, 26.5% were done in ENT, with most of the routine surgery being done in the day care OT ⁽¹¹⁾.

In conclusion, almost every procedure that does not require the patient's admission for surgical reasons can from the anaesthetist's viewpoint be done satisfactorily on an outpatient basis. The increasing capability of anaesthetic management

made possible by advances in pharmacology, monitoring technology, clinical skills and careful cooperation between surgeon and anaesthetist has made the surgery, social circumstances, and domicile of the patient the major limiting factors when patients for day care surgery are being selected. Dedication to patient safety must be the goal of all outpatient surgical programs. An essential step toward this goal is collaboration between surgeons and anaesthetists regarding preoperative assessment, appropriate surgery, and final selection of patients suitable for day care surgery. The second step is strict observance of those principles that have been established.

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