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Editorial:

“Great spirits have always encountered violent opposition from mediocre minds” so it has been said. Though this should not be a deterrent to any progress.

We have progressed to yet another issue of the Journal. Knowing more about the work of our colleagues. The difficulties faced in the initial years and the obstacles overcome by sheer determination. In the letters to editor section, Dr. U. Mehta, has tried to make us aware of what can be achieved with hardwork.

Dr. Gupta’s work is commendable, aspiring and succeeding to bring about a change in his chosen speciality. Dr. Coda’s description of maintaining constant pressure on the progress of day surgery and ultimate acceptance by the healthcare policy makers, making it mandatory, reminds us of our own situation.

Singapore being a small nation, is technically advanced in all aspect, thus so in Surgery. Therefore, it does not come as a surprise of the progress made by them in Day-case surgery. Dr. Lomanto and his team, have reached a comfort level evident from the title of the article itself!

Day-case or Ambulatory surgery, though have been around since many years, not all the countries have adapted to this concept in one go. They have carefully evolved over the years and reached a stage of being able to state, matter of factly, that they have reached an advanced stage, so to speak, in performing more and more surgeries routinely as Day-case. Dr. A. Kishore, has briefly delineated the history of Day-case surgery, which took shape out of necessity during the evolution of modern-day surgery.

We have made a modest beginning, the dynamics of healthcare in India is unique. Comparable to none in the world. We have tremendous talent, potential, knack of varied application and a desire to keep up with the emerging trends from all over the world. We are in the process of evolution, recognising the need for Day-care surgery is the first step, the rest will follow.

In this era of super-speciality, Day-surgery has to find its place, create a niche, bridging the gap of smaller cases that do not require to block valuable bed space or theatre time, yet require some period of post-procedure observation and a fully equipped set-up.

As is evident from articles published in this issue and earlier, that most of the countries have realised that the bed-patient ratio can be brought down to reasonable levels by Ambulatory surgery. With initial backing of government agencies, the policy makers, medical fraternity, insurance providers and patients, a target can be fixed and achieved.

All in all, some progress has been made in the direction of creating awareness on Day surgery, a multi-pronged approach involving the state health machinery, the insurance providers, including TPAs, interaction with different speciality Associations and municipal health authorities have been initiated, making them aware of the need to look into Day surgery in a new light.

Most importantly, your feed back and suggestions will help in making rapid progress. Happy reading!

Dr. T. Naresh Row

The Indian scenario of Day Care Surgery in proctology.

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Abstract:

The aim of this study was to determine the results of proctological surgeries carried out in a private nursing home on an outpatient basis.

The study was carried out at Gupta Nursing Home, Nagpur, between June 1997 and July 2004. Patient demographics, type of anesthesia used, the type of operation and postoperative complications, were analyzed. The last follow up was carried out after 2 years of the procedure. Patient satisfaction with regard to day care treatment was assessed at the last follow-up using a visual analogue scale.

The study included 2678 patients. Mean age of the patients was 39 years. 67% patients were male.

There was no mortality. The mean duration of hospital stay was 9.2 hours [range 4 – 23 hours].

Complication rate was 1.6%. The mean patient satisfaction score was 9.2.

These results seem to confirm the feasibility of proctological day surgery in almost all patients, with both a considerably cost reduction and enhanced patient comfort and compliance.

Keywords- Day care, Proctology, ambulatory, ano-rectal

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Introduction

Ambulatory surgery or day care surgery is a clinical admission for a surgical procedure, with discharge of the patient on the same working day.

Ambulatory surgery encompasses those surgical interventions that are more complex than office-based procedures performed under local anesthesia, but fewer complexes than major procedures requiring at least an overnight stay. (1)

The potential benefits of ambulatory surgery include more rapid return to the comforts of a home environment, diminished opportunities for nosocomial complications and diminished cost. (2)

Though increasing numbers of surgical procedures were performed as day cases, the colorectal surgical practice has been slow to embrace the concept because of perceived problems with post-operative pain management and bleeding. (3)

It was in 1973, that Rivkin published his paper on ambulatory proctology surgery. (4) The rediscovery, improvement and broadening of outpatient resources and utilities occurred during the last three decades, and now it has been estimated that 90% of ano-rectal cases may be suitable for ambulatory surgery. A wide variety of ano-rectal conditions including anal fissures, hemorrhoids, anal fistula, pilonidal sinus, condylomata, abscesses and other miscellaneous conditions have been shown to be amenable to surgery on an outpatient basis. (5)

Despite the social, economic and medical advantages reported by various authors, majority of surgeons are loath to utilize it, either because of difficulty in ensuring adequate pain control, or for fear of postoperative complications. Many times patients themselves are reluctant to give consent for day care surgery for lack of knowledge about safety, feasibility and advantages of such surgeries.

Other possible reason could be the lower payment made by the health insurance plan on an erroneous assumption that outpatient surgeries were minor and low risk procedures. (6,7,8,9)

In this paper we report results of our experience in surgery for various proctological pathologies conducted by us on an outpatient basis during the last seven years. The purpose of this study was to assess patient's response to the ambulatory surgery dedicated to proctology.

Material and Methods:

We reviewed the records of all the patients who underwent anorectal procedures in our ambulatory unit between June 1997 and July 2004. Data was collected on age of patients, sex, associated illness, preoperative evaluation; type of anesthesia used and treatment provided.

The patients who satisfied the following criteria were included in the study.

Patients having good control on systemic diseases like hypertension, diabetes or ischemic heart disease, patients corresponding to ASA I and II levels, [ASA- American Society of Anesthesiology], medically stable ASA III patients following consultation with the anesthesiologist concerned, those who were on anticoagulant therapy on having discontinued the same a week prior to the procedure and an informed willingness to undergo the procedure and an ability to faithfully follow post discharge instructions.

We made sure that the patients were accompanied by a responsible person to take him home and to attend on him at least for next 48 hours with assurance of active participation of family members in postoperative care.

We excluded minor procedures performed during consultation such as endoscopies, infra red or radiofrequency coagulation of hemorrhoids or their band ligations, evacuation of perianal hematomas or hemorrhoidal thrombectomies, and all major procedures such as extensive rectal surgeries that required long hospital stay.

Our protocol included admission in the morning of the operation and preoperative evaluation by means of ECG, coagulation profile, and blood glucose estimation. The patient, prepared with a dose of Polyethylene glycol on the prior night, was taken in the operative room where a venous line was placed and the anesthesiologist proceeds to monitor his/her ECG, blood pressure and oximetry.

70% of our operations were performed using a short-term general anesthesia with muscle relaxants. Caudal block or spinal anesthesia was used for patients who were not found suitable for general anesthesia. Procedures like pilonidal sinus surgery, removal of condylomata were carried out using local anesthesia. (10)

The procedures were carried out after careful disinfection of the operative field. No intra-anal wound dressing was done except covering the external wounds by an absorbent pad. Patients were kept under observation in the ward for next few hours to contain vomiting, urinary retention, pain or post anesthesia events, if any.

The patients received a leaflet exhaustively detailing essential post-operative care along with dietary instructions and an elaborate prescription for sitz bath, dressing, application of ointments, analgesics, and laxatives. They were provided with a 24-hour telephone call facility to report any complication or address any query regarding postoperative care.

The patients were discharged home after applying the following criteria. (11)

Stable vital signs for at least 2 hours, adequate pain control, minimal nausea, vomiting or dizziness; correct orientation as to time, place and relevant people; adequate hydration; patients having significant risk of urinary retention after having already passed urine, and the patients able to help themselves to the toilet and in dressing-up on their own.

Postoperative care- The patients were instructed to take a warm water sitz bath immediately after each defecation and again at bedtime. They were asked to apply a cream containing local anesthetics and antiseptics twice in a day, also, as and when they felt pain or passed stool. Systemic antibiotics were prescribed to patients who were operated for infective pathologies like anal fistula, abscess etc. Emphasis was placed on inducing an early bowel action, so a liberal use of fiber supplement and stool softeners was encouraged.

Patients were instructed to consume analgesics on s.o.s basis to contain pain. The analgesics routinely prescribed were Paracetamol, Tramadol and Diclofenac sodium.

Follow-up- Patients were called in the office at 2 and 4 week post operation. The follow-up was carried till the wounds healed completely. They were asked to rate the level of satisfaction on the

0-10 visual analogue scale (0= unsatisfied, 10= highly satisfied) at the last follow-up.

The late follow-up was carried at least after 2 years of the procedure.

Statistical analysis- Patient's data was entered in to a database and statistical analysis was performed using statistical software (Graph pad Software, San Diego, CA).

Result

The study included 2678 patients who underwent ambulatory ano-rectal surgery. The mean age of all the patients was 39 years [range 2- 64 years]. 67% patients were male with a mean age of 41 years [range 2-63 years]. The mean age of females was 38.5 years [range 9- 64 years]. As per ASA classification, 72% patients presented with ASA I, while 24% patients presented with ASA II and the remaining patients as ASA III.

The most frequent type of surgery performed was anal sphincterotomy for anal fissures, while the next common surgical procedure was for hemorrhoids. The list of various pathologies included in this study is given in **Figure 1**.

There was no mortality. The mean duration of hospital stay was 9.2 hours [range 4 – 23 hours]. There were no episodes of vomiting or nausea that prevented discharge.

Fifty-four of our patients had post-operative complications. Of this 38 were considered minor and only 16 had major complications that required hospital admission. Of the minor complications, urinary retention, perianal thrombosis and fecal impaction were the most common. Urinary retention was treated with one time urinary bladder drainage. None of the patient needed a dwelling catheter. Fecal impaction was resolved by manual extraction in the office. The patients with perianal thrombosis were reassured and the thrombosis resolved by its own in two weeks.

Of the 16 patients with major complications, seven patients had secondary bleeding in the form of sudden, spontaneous and persistent bleeding per anus. All of them were operated for hemorrhoids. They were readmitted. While in six of these patients the bleeding stopped with conservative treatment in the form of local compression, hemostatic medication and rest, one patient needed examination under anesthesia with ligation of the vascular pedicle. None of these patients needed a blood transfusion.

Another seven patients reported with septic complications leading to perianal abscess. Six of them had this complication after sphincterotomy for anal fissure and the remaining one patient was operated for hemorrhoids. These patients were treated with incision, drainage and antibiotics. They had uneventful recovery thereafter.

Two patients reported with rather unusual complications. One patient operated for hemorrhoids came with a history of loss of the plastic applicator in the rectum while applying anesthetic cream with it at home. The applicator was removed under anesthesia. Another patient came with severe perianal burns allegedly sustained during a warm water sitz bath. He was treated with local wound care and antibiotics.

The mean satisfaction score on visual analogue scale was 9.2.

Discussion

A correct choice of patients suitable for outpatient treatment is of vital importance because enforcement of such treatment in patients who are suitable for in-patient treatment would compromise the method. **(12)**

For the success of surgical treatment of anorectal diseases it is necessary to be familiar with different surgical methods best suited for the individual patient. After examination, a surgeon may decide to choose either an optimal method or a combination of two, in order to achieve the best effect. **(13)**

The procedures suitable for day care surgery must entail- no risk of postoperative airway compromise, postoperative pain controllable by outpatient management techniques, minimal risk of postoperative hemorrhage, no need of a specialized nursing requirement in the postoperative course, and a rapid return to normal fluid and food intake. **(14)**

A day care surgery offers many advantages over the indoor ones as the patient's life is only minimally disturbed with a diminished anxiety. The incidence of nosocomial infection is minimum. There is earlier return to normal activities and a reduced time off work. The patient is usually more comfortable at home. The significant reduction in treatment costs and minimal pressure on hospital resources are the two major achievements of the day-care surgeries. **(15)**

The most challenging problem in ambulatory proctological surgery is postoperative pain. (16) This can be reduced by one or several of the following measures- Infiltration with long-acting anesthetic drugs after the end of the procedure, administration of non steroidal anti-inflammatory drugs preoperatively and oral administration of opioids. (17)

While most of the studies have shown that nearly all the ano-rectal procedures could be performed under local or loco-regional anesthesia like posterior perineal block or caudal block and a general anesthesia should be avoided to reduce bleeding risk and the occurrence of complications related to general anesthesia, we have used all the methods of anesthesia in our series. The dislike for general anesthesia may reflect differences in surgical culture and in our patients it caused minimal morbidity. (18)

Bleeding and pain are the most frequent complications following proctological procedures. Their intensity however, can be influenced by the procedure and the experience of the surgeon. Through careful hemostasis and wound closure, greatly reduces the risk of bleeding. The intensity of pain experienced by the patient is very much personality dependent and is in general unpredictable. (19)

One of the common complications in our series was urinary retention. (20) The reasons for postoperative urinary retention are multiple and they comprise of amount of intravenous fluid administered perioperatively, dysfunction of the detrusor, reflex urethral spasm, clinically silent prostatic hypertrophy and fear of pain. (21) However, none of the patient under our study needed an indwelling catheter.

While few of the patients in our series have contacted us for the postoperative pain, none of them needed readmission. Reassurance, regulation of dietary and bowel habits; improving local hygiene and prescribing an additional dose of analgesics were enough to achieve a satisfactory pain control.

Our experience in ambulatory surgery has made it clear that good patient information and support are vital, as is early outpatient review. (22) Patients knowing that they will be seeing a doctor as and when needed, will accept symptoms that may well resolve spontaneously. (23)

It is not to overemphasis that there is a need to educate the patients on the safety, economy, accuracy and efficacy of the concept of daycare surgical procedures so that a greater number of patients could opt for and reap the benefits thereof. (24)

Conclusion

Our study confirms an already well-established observation that day care proctology can be performed with a high degree of patient satisfaction if the patient receives precise and clear preoperative explanation and also postoperative instructions.

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Development of Day Surgery in Italy

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The concept of Day Surgery in Italy was first put to use in the late '80s at the Children's Hospital, "Bambin Gesù", in Rome, close to the Vatican City. The project had a very good outcome and was extended to adult care, but still as an individual initiative.

Being a pioneer in prosthetic inguinal hernia repair under local anaesthesia (1), allowed patients early ambulation and oral intake; and a pain free post operative period; staying in the hospital for a week was unacceptable. Whereas, the trend in the country was a hospital stay of eight days for inguinal hernia repair! However, I couldn't go against the "common sense" of that age. Therefore, my patients experienced a strange kind of 'holiday': playing cards, chattering, watching football matches and movies together.

In 1995, the Italian Society for Ambulatory and Day Surgery (SICADS) was founded, primarily to promote the scientific basis of this innovative way of care. The 1st National Congress was held in Milan in January 1997. My presentation was "The Ambulatory Surgery, between mirage and reality" (2), an apt title for that time.

Initially, for less than 48 hours stay in the hospital, only 40% of the expense was reimbursed by medical insurance. Therefore, the hospital administration had no advantage promoting Day Case Surgery (DCS).

But, the patients stay of two nights, admitted the day before surgery and discharged the day after, was a big progress, compared to the eight days of earlier years.

In 1999, due to government pressure, hospitals were forced to perform 70% of cases, in some pathology, in DCS, but to reduce costs for public administration, these cases reimbursed at 80%.

In 2001, finally government did the more obvious and wanting thing: stated that DCS would include a stay in the hospital of less than 24 hours: as One Day Surgery (ODS), or without overnight, as Day Surgery (DS). 80% of surgical cases, like inguinal hernia, would be treated this way. Therefore, hospital stay of longer than 24 hrs, needed a justification; for example: operation for strangulation, associated severe illness, complications, etc. But, staying in hospital longer than 24 hrs, if exceeded 20% of all operated cases, would not be reimbursed.

This year there has been an explosion of the DCS in Italy. Many DCS unit were founded. Since then, the annual National SICADS Congress has been one of the most attended meetings! Encouraging a flourish of regional SICADS meetings.

Any surgeon with five years of experience, or a patient exposed to Day Case Surgery, would always opt for this option of treatment. The government may or may not have saved on expenses, but, surgical care has greatly improved. Over a period of time, a great deal has been discussed, proving Day Case Surgery to be better a modality, not only from a surgical point of view, but, also it has improved over hospital-stay-treatment as a whole.

Our hospital has an independent multidisciplinary Day Surgery unit, which works 12 hrs every day. Patients arrive early in the morning, ready for surgery, having consulted and prepared few days before. Every step is regulated by protocols and rules of the DCS unit. Operations are performed in the morning; then the patient is in observation for a few hours. At 4 pm, the surgeon checks the patient, at 5 pm the anaesthesiologist does the same by her/his point of view and then, by 6 pm, patient is ready to be discharged. If a patient has a problem that can't be solved promptly,

she/he is transferred to inpatient service. The unit is finally closed for the day at 7 pm.

This unit caters to surgical cases from General surgery, Urology and Orthopaedics.

ENT-Oculist Service, patients operated for Cataract, has only a reclining chair, instead of a bed and is discharged quickly, same as patients undergoing excision skin neoplasm.

In this service we have 2-3 ODS beds for patient having 'social living problems' (living alone or with a non-reliable person, living in a high-rise building without lift, living too far away from hospital, without telephone, mental disorder, etc.) or having had spinal or general anaesthesia (not as a rule), or having been operated late in the afternoon.

However, still the stay in hospital for these patients is no longer than 24 hrs.

The organization of ODS must be very meticulous to get best results. It begins with selection of the patients, which needs a very careful history and a meticulous description of the pathway they have to go through.

If operation is possible with local anaesthesia, it is essential to have a very good rapport with the patient to get her/his confidence, because in this case the patient is not passive, but acts as an active-apprehensive subject and we need her/his co-operation. When operation is completed without experiencing pain, she/he is the happiest person!

In this way, we have more and more patients asking to be treated in DCS and are particularly satisfied when they hear that it will be possible to perform this particular surgery under LA. This means, in the patients' eyes, the surgical pathology is not so severe. Therefore, operation will not be difficult and they can be home for dinner with their family.

An independent multidisciplinary unit is the best way to manage DCS, because if you have some dedicated beds for DCS along with in-door service of General Surgery, then, you will have patients operated for inguinal hernia or varicose veins recouping beside patients with gastrectomy, colectomy or peritonitis, for instance. With the same nurses having to care for both these category of patients. The striking difference of illness will invariably result in more care for operated supra-major cases, causing a lack in the care for DCS patients, making outcome in these patients unfavourable.

DCS patients, those without overnight stay (DS), need concentrated care within a short time frame. Therefore, the protocol pathway has to be meticulously gone through, the quality of the care is affected because,

and patient's problems are neither prevented nor resolved quickly. They become anxious and suspicious, instead of confident with their situation and invariable refuse to go home. Patient's relationship with nurses and surgeons get strained because they see that other patients are receiving more attention and care, without understanding why. Sometimes, necessitating lengthy explanations.

In our institution, (Presidio Sanitario Gradenigo, Torino, Italy), in the year 2003-2004, we performed 832 inguinal hernia repair, out of which, 42 (5%) stayed back in the hospital for longer than 24 hrs. The rest were as: 387 as ODS and 393 as DS.

From 1991, we are performing repair of inguinal hernia with tension-free & suture-less method as described by Trabucco (3,4,5), 60% of which is under local anaesthesia. This technique, to our mind and experience, is the least invasive: the pre-shaped polypropylene mesh is left without any suture in the inguinal box after careful dissection of the hernia sac, which is then inverted with a suture, if direct or simply reduced, if indirect.

Only 7 ODS patients, (1.8%) could not be sent home due to complications. All DS patients, repaired under local anaesthesia, planned as out-patient, were sent home by 7 pm. Nobody needed a re-admission in hospital after discharge.

The 7 patients, who overstayed, had an average age of 68.3 yrs and all were operated under spinal anaesthesia. The hernia types were: huge scrotal; bilateral, recurrent (posterior open approach) and one with hydrocele.

The complications that occurred in these cases were:

- Early seroma (2 cases).
- Urinary retention.
- Urinary retention with haematuria.
- Fever.
- Headache, post spinal anaesthesia.
- Cardiologic problems in ASA IV patient.

At the end, we had: 1.8% of prolonged stay in hospital, plus, 5% planned stay in hospital, longer than 24 hrs. 93.2% patients, of inguinal hernia repair, were discharged as DS, showing high patient satisfaction and very good clinical results.

Elderly patients benefit the most from DCS organization.

In our Institution, over a period of 3 yrs (2003-2005), we have performed surgery on 1,493 patients, older than 64 yrs., as DCS. In Table 1, the details of the cases have been mentioned. 3 out of 4 operated cases of inguinal hernia require overnight hospital stay.

Cases requiring wide excision for skin tumors, require overnight hospitalisation. This is only due to the extensive surgery which means a reconstruction in the form of a rotation-flap or if their general condition is poor.

In the same period (table 2), 46 patients, older than 90 years, were operated (that are comprised in the cases of Table 1). We think that it is very important for elderly patients to go back home as soon as possible and to resume normal life.

Table 1. Patients over 64 yrs old – (2003-2005)

| | Total | DS | ODS |
|-----------------|--------------|------------|------------|
| SKIN TUMOR | 818 | 742 | 76 |
| INGUINAL HERNIA | 450 | 117 | 333 |
| NON-ING. HERNIA | 29 | 12 | 17 |
| PROCTOLOGY | 45 | 20 | 25 |
| VAR. VEINS | 107 | 13 | 94 |
| OTHERS | 46 | 26 | 18 |
| Total | 1493 | 930 | 563 |

Table 2. Patients older than 90 years (M: male – F: female) (2003-2005)

| | Total | DS | M | F | ODS | M | F |
|--------------|--------------|-----------|-----------|-----------|------------|----------|----------|
| SKIN T. | 43 | 38 | 10 | 28 | 5 | 2 | 3 |
| HERNIA | 3 | - | - | - | 3 | 2 | 1 |
| TOTAL | 46 | 38 | 10 | 28 | 8 | 4 | 3 |

Differences between inguinal hernia operated as DS and ODS:

DS

- Simple hernias.
- Patient in good health (ASA I-II) and with good domestic set-up.
- Surgeon skilled in administering Local Anaesthesia.
- Can be operated under Local Anaesthesia.
- Early ambulation.

ODS

- More complex and complicated hernias.
- Severe associated disease.
- Less experienced surgeon.
- Spinal anaesthesia.
- Late ambulation.
- Urinary retention.
- Headache, nausea, vomiting.

In conclusion:

To get best results in DCS, it is important to:

- Carefully select the patients.
- Detailed information of the patient.
- Extensive use of local anaesthesia.
- Minimal invasive procedure (e.g. use of mesh).
- Early ambulation.
- Prevention and early treatment of systemic and local complications.

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Day-case General Surgery as Super specialty.

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Introduction:

Day Care or Ambulatory surgery is a concept familiar to surgeons since time immemorial. More so now, as world over it has been re-evolved into a speciality in the modern medical care scenario.

Broadly: Day Care or Ambulatory surgery in one wherein, the patient can be discharged on the same day of surgery or invasive procedure. (1)

A certain period of post-procedure observation would depend on the nature of surgery and the anaesthesia used, but a fully equipped operation theatre and facility for observation along with nursing care is mandatory.

Based on this concept, we have retrospectively analysed cases performed at our centre, which is dedicated to Day Care General Surgery, performed over the period of last 6 years.

We take this analysis to present the concept of Day Care Surgery and its benefits.

Objectives:

- Analysis of the overall rate of complication of Day Surgery Cases.
- Propose to recommend practice parameters for Day Care General Surgery.
- Recommend a list of General Surgical cases, which can be performed as Day Case.

Material and Method:

Place of study: Our Day Care Surgery Centre at Mumbai, India.

The patients analysed were operated during the period from June 2000 to May 2006.

Total number of cases analysed : 4725
Under the following headings:
1) Major Surgical Procedures (Table 1) : 1251
2) OPD (Minor) Procedures (Table 2) : 1777
3) Endoscopy (Table 3) : 1697

Certain Criteria's were used for Case / Patient selection, to decide those best suited for Day Surgery. These are enumerated in Table 4.

Apart from these criteria's, certain contraindication, in general, to any type of Day Surgery have been identified and put to practice while deciding the best option for the patients are shown in Table 5. They have been divided into absolute and relative contraindications.

While preparing the patient for the surgery, after medical examination and establishing a diagnosis, certain routine investigations have been done for all the cases. They include Haemogram, Blood sugar levels, HIV, HBsAg, Urine (Routine), Stool, X-ray Chest, Ultra-sonography of abdomen / pelvis, if indicated.

Medical fitness was taken wherever found necessary. Cases were discussed with the anaesthetist routinely, prior to surgery.

Patients were kept fasting overnight, irrespective of the nature of surgery, as a precaution.

Bowel preparation was given to all patients undergoing anal procedures, in the form of laxatives, intestinal lavage and / or enemas, on the night before and / or on the day of procedure. Pre-operative medications: aspirin is stopped 3 days prior to surgery, anti-hypertensive medications are given with a sip of water on the morning of surgery. Tetanus Toxoid injection was given to all

the patients undergoing surgical procedure.

Mild sedative or anxiolytic drugs were prescribed to patients who were found to be anxiety prone, on the night before, in cases of adult patients and in the early morning, in case of children.

Table 1: List of Major Procedures:

| Type of procedure | No. of cases |
|--|--------------|
| 1. Breast lump excision. | 46 |
| 2. Hernias: | |
| - Inguinal. | 163 |
| - Femoral. | 2 |
| - Umbilical. | 18 |
| - Inscisional | 9 |
| 3. Hydrocele. | 65 |
| 4. Varicocele. | 43 |
| 5. Vasectomy. | 12 |
| 6. Haemorrhoidectomy (Open / Stapler). | 320/8 |
| 7. Fistula-in-ano. | 87 |
| 8. Fissure-in-ano. | 127 |
| 9. Pilonidal sinus excision and closure. | 36 |
| 10. Abscess drainage. | 173 |
| 11. Diagnostic laparoscopy. | 2 |
| 12. Varicose vein ligation. | 4 |
| 13. Appendicectomy. | 52 |
| 14. Gynaecomastia Excision. | 2 |
| 15. Circumcision. | 28 |
| 16. Lymph node biopsy. | 48 |
| 17. Hypospadiasis correction (adult) | 2 |
| 18. Liver biopsy | 2 |
| 19. Testicular biopsy | 2 |

Table 2: List of Minor / OPD procedures:

| | |
|------------------------------|-----|
| 1. Toes nail excision. | 38 |
| 2. Biopsy: | |
| - Muscle biopsy. | 3 |
| - Skin biopsy. | 0 |
| - Nerve biopsy. | 0 |
| 3. Lipoma excision. | 71 |
| 4. Sebaceous cyst excision. | 129 |
| 5. Warts excision. | 44 |
| 6. Corn excision. | 35 |
| 7. Auroplasty. | 62 |
| 8. Piles: | |
| - Sclerotherapy. | 739 |
| - Cryosurgery. | 101 |
| - Infra red coagulation. | 229 |
| - Crypts/papilloma ex. | 137 |
| 9. Ganglion excision | 1 |
| 10. Ascites/pleural tapping. | 8 |
| 11. CLW | 52 |
| 12. FNAC | 50 |
| 13. Wound debridment | 15 |
| 14. Granuloma excision | 14 |
| 15. Secondary suturing | 12 |

Table 3: List of Endoscopies:

| Endoscopies | No of cases |
|------------------|-------------|
| 1. Gastroscopy | 1032 |
| 2. Sigmoidoscopy | 453 |
| 3. Colonoscopy | 186 |
| 4. Cystoscopy | 26 |

Anaesthesia used: all the patients were operated under Local anaesthesia: a combination of 2% Lignocaine HCl (with or without adrenaline), mixed in equal quantity of 0.5% Bupivacaine, with or without some form of sedation.

Local or Regional blocks commonly used by us:

1. Field block: Lipoma, Sebaceous cyst, Umbilical hernia, Inscisional hernia, Carbuncle, Breast lump, etc.
2. Ring block: Nail excision, Pyronychia drainage, Circumcision, etc.
3. Cord / Scrotal block: Hydrocele, Vasectomy, etc.
4. Inguinal block: Hernia, High ligation for varicocele, etc.
5. Pudendal block: Piles ex., Fissurectomy, Fistulectomy, Anal dilatation, etc.
6. Coastal block: Epigastric hernia, Inscisional hernia, etc.

General anaesthesia in the form of Halothane and Nitrous-Oxide, used for appendicectomy: Open / Laparoscopic.

Sedation in the form of Midazolam: 1-2 mg, Pentazocine: 15-30 mg, Small doses of Ketamine: 10mg-100mg, have been used in almost all of our patients. Children requiring surgery in Day care set up do extremely well with an induction dose of ketamine HCl of 2-6 mg / kg body weight, given intramuscularly.(2) We always have an Anaesthesiologist as stand-by for all our procedures requiring sedation.

Table 4: Criteria for patient selection:

| S. No. | Criteria |
|--------|-------------------------------|
| 1. | Medically fit. |
| 2. | Well Motivated. |
| 3. | Responsible person. |
| 4. | Transport, Toilet, Telephone. |

Table 5: Contraindications:

| Absolute Contraindications: | Relative Contraindications: |
|--|------------------------------------|
| Medically unfit patients. | Obesity. |
| Suffering from Highly infectious diseases. | Babies younger than 6 months old. |
| Severe upper respiratory tract infection. | Long distance from home. |
| Premature babies. | |
| Requiring extensive post-operative monitoring. | |
| High fever. | |
| Mental retardation. | |

Break-up of cases requiring anaesthesia (Table 6):

| | |
|--|---------|
| Number of cases requiring no anaesthesia | : 58 |
| Number of cases requiring only Local anaesthesia (LA) | : 1504. |
| Number of cases requiring Local anaesthesia + Midazolam | : 139 |
| Number of cases requiring LA + Midazolam + Pentazocin | : 738. |
| Number of cases requiring LA + Midazolam + Pentazocin + Ketamine | : 455. |
| Number of cases requiring Inhalation anaesthesia | : 52. |
| Total no. of Major and OPD (Minor) cases requiring Anaesthesia | : 2888. |

Procedure:

The local anaesthesia is injected through a 27 G needle. The pain felt during the injection is covered by the sedation, so that the patient is pain free while injecting the local anaesthesia.

Once the local has acted, there is no pain and patients' apprehension is reduced, the procedure is undertaken and by the time it is over, the patient is out of the sedative effect. Post-procedure recovery, in the form of drowsiness is dose related, therefore, requiring a few hours of observation.

History of sensitivity is taken prior to surgery, previous history of procedures under local anaesthesia, for example, dental procedures; gives a fairly good idea as to the patient's sensitivity. On-table sensitivity test is done in all patients.

Skin crease incision is taken wherever possible, minimal dissection, sub-cuticular closure performed with fine absorbable suture material.

Patient is almost immediately mobilized; oral liquids are started within half to two hours, depending on the sedation given.

Patient is sent home after a maximum stay of 8 hours, once we are sure that the patient fulfils the Criteria's for discharging the patient. Verbal and written instructions are given to the patient and attendant. Discharge file includes Post-procedural instructions along with all the contact numbers of our team of doctors.

Patient is called for follow-up the next day.

Criteria are for discharge:

We have worked out certain simple rule of the thumb to help us in instructing the patient and reduce complications.

Patients are not sent unless they are fully conscious, Haemodynamically stable, No giddiness on standing, able to walk without support, tolerating oral feeds, no or minimal pain, passed urine, responsible person is present to take the patient home and there are no post-procedural complications.

Patients discharge file contains instruction on medication, wound care, post-procedural instructions, including how to look for complications and manage them, most of all: contact numbers of all our team of doctors.

A visit from our team of doctors or a phone call is mandatory.

Complications:

Out of the 4725 patients who under went procedures at our centre, 1251 cases were major surgical procedure, following were the complications seen:

Appendicectomy: 52 patients were operated; 4 patients needed overnight hospitalization due to excessive drowsiness, that is, 3.84% would be the rate of complications in the post appendicectomy group.

| Type of procedure | LA* + Mid.° + Penta^ / LA + Mid. + Penta. + Ketamine |
|--|---|
| 1. Breast lump excision. | 42/04 |
| 1. Hemias: | |
| - Inguinal. | 145/18 |
| - Femoral. | 02 |
| - Umbilical. | 17/01 |
| - Inscisional | 08/01 |
| 2. Hydrocele. | 53/12 |
| 3. Varicocele. | 39/04 |
| 4. Vasectomy. | 12 |
| 5. Haemorrhoidectomy: Open: | 113/207 |
| Stapler: | /08 |
| 6. Fistula-in-ano. | 04/83 |
| 7. Fissure-in-ano. | 90/37 |
| 8. Pilonidal sinus excision and closure. | 34/02 |
| 9. Abscess drainage. | 128/45 |
| 10. Diagnostic laparoscopy. | /02 |
| 11. Varicose vein ligation. | 02/02 |
| 12. Gynaecomstia Excision. | /02 |
| 13. Circumcision. | 17/11 |
| 14. Lymph node biopsy. | 46/02 |
| 16. Appendectomy. | O2+N2O+Halothane: 52 |
| | LA |
| 17. Toes nail excision. | 38 |
| 18. Biopsy: | |
| - Muscle biopsy. | 3 |
| - Skin biopsy. | 0 |
| - Nerve biopsy. | 0 |
| 19. Lipoma excision. | 71 |
| 20. Sebaceous cyst excision. | 129 |
| 21. Warts excision. | 44 |
| 22. Corn excision. | 35 |
| 23. Auoplasty. | 62 |
| 24. Piles: | |
| - Sclerotherapy. | 739 |
| - Cryosurgery. | 101 |
| - Infra red coagulation. | 229 |
| 25. Ganglion excision | 1 |
| 26. CLW | 52 |
| 27. Hypospadiasis correction (adult) | LA+Mid. 2 |
| 28. Anal Crypt / Papilloma ex. | 137 |
| 29. Ascitis / Pleural tapping | Nil 8 |
| 30. FNAC | 50 |

* Local Anaesthesia; °Midazolam; ^Pentazocine.

Haemorrhoidectomy: 328 patients were operated; 2 patients had secondary haemorrhage within 24 hrs. post-operatively. Both patients were managed conservatively. 1 patient was taken for examination under anaesthesia, but no obvious cause could be found. No blood transfusion was given in either of the cases. The complication rate in this group was 0.6%.

Bilateral Hernioplasty: 75 male patients were operated for both sides in the same sitting;

1 patient needed overnight hospitalization due to excessive drowsiness post operatively; 4 patients having underlying prostatic hypertrophy went into urinary retention, post-operatively, needing catheterisation. They were discharge on the same day with the catheter. This was taken as a complication and which was found to be: 6.66%.

Results:

Therefore, the overall complication rate at our centre was found to be: 0.23%;

Complication in the Major post operative group was: 0.87%.

Hence, at the end of three years, there has not been any significant change in the overall complication rate from our earlier analysis. (3)

Discussion:

World over, more and more cases are being performed as Day Case.

With the continued development of scientific knowledge and modern technology, the discipline of surgery expanded into many specialities and single-subject sub-speciality, to the betterment of patient care. (4)

Although many general surgeons consider themselves to be hepatobiliary, pancreatic, laparoscopic or some-specialist, the truth is that virtually most of us perform our share of 'bread and butter, everyday procedures.

A general surgeon's regular OT list does not contain Hepatectomy, Colectomy, Parathyroidectomy and Pancreatectomy as part of the list of common surgical procedures. They are rare! Circumcision, incision and drainage of paronychia and scar revision are very common, and in fact perhaps more numerous than those listed above. (5)

Countries pioneering this concept, are utilizing Day Surgery for the benefit of millions of patients. In the United States, Ambulatory procedures have risen from 27.7 million cases in 1994 to more than 40 million cases this year. (6)

In our country too, in a study conducted in a government

hospital, up to 50% of reduction in the cost of surgical care has been shown by the use of Day Care Surgery.(7)

Minor surgical procedure forms the bulk of all the cases, undergoing procedure at our centre, that is 1777 cases; though these are considered to be OPD cases, are included in the Day Care Surgery list as the precautions have to be taken same as that of Major cases and some of them do need a good amount of sedation, hence, 3 to 4 hours of post-operative recovery period.

Day Care surgery as a speciality is still in its infancy in India. Though, this concept is widely used, cases are mostly done as part of routine list, where the patients are hospitalised and have to undergo the same formality as for indoor patients.

Now, there are some large hospitals in metropolitan cities, which have incorporated a separate Day surgery unit along with the causality, but these are few in numbers.

Free standing centres, that is, Day Care Surgery Centres, run by individual specialists, are smaller in size as per the number of beds, to cater to a population of over a billion people. Also, they are very few in number; most of them are confined to the bigger cities.

There is a need for several dedicated day care centre with a fully equipped operation theatre consisting of Anaesthetic apparatus, Pulse Oximeter, Cardioscope, Electrocautry, Defibrillator, etc. Recovery area or rooms, where post operative care is given by trained staff, helping in patient's recuperation and handling of complications, is mandatory. Training of Medical and Nursing staff, dedicated and well versed in the management of Day Care surgery patients for the efficient functioning of the centre.

“Convenience” is the key word to be kept in mind while setting up a Day Care Surgery centre. In the metropolitan cities, restriction of space makes you innovative. Here one tries to provide every necessary detail required in the minimum of space, without compromising on the quality. (8)

The first modern day unit was established in 1969, in Phoenix, Arizona, USA. The ‘Surgicenter’ was the prototype of a ‘free standing’ unit, on which are based all centres all over the USA. (9)

Advantages of Day Surgery are many, they are time tested and proven, over a period of time, in our practice, the once which we found to be of significance are briefly illustrated:

A day procedure, which does not entail overnight admission, makes it look like a ‘Minor’ surgery to the patient, therefore, reduces the anxiety of surgery, which always makes its presence felt when ever a patient hears the word ‘Surgery’. Being a Day procedure, it reduces the hospital stay, thus reducing the chance of hospital acquired infection. Since most of the surgeries are done under regional or local anaesthesia, the side effects of general anaesthesia is considerably reduced, making it an ideal method of surgery in cases where general or spinal anaesthesia is to be avoided. Most of the patients have conscious sedation; their requirement for post-operative starvation is less. The recovery is faster and in familiar surroundings, which is very important for the recovery of patients of older age group and children. An early resumption of day to day activity along with the other benefit makes it cost effective, in the long run.

In a busy hospital set up with limited beds, Day procedures help in making indoor beds free, for the admission of other patients who need to be hospitalised. Similarly, a separate Day Surgery theatre will reduce the wait list and overload of any regular theatre complex.

Disadvantages of Day Surgery practice, on the other hand, certain points to be kept in mind, which can be considered as: The patient is given instructions with regards to pre-operative preparation, such as, bowel preparation, overnight fasting, anti-hypertension medication, etc., which either they fail to take or take incompletely, resulting in poor bowel preparation or delay in surgery. This is avoided if instructions are written down and repeated verbally to the patient and attendant. Operative position like Jack-knife, Lithotomy or Supine position, may be found to be uncomfortable as most of the day procedures are performed under Local anaesthesia or Conscious sedation.

Failure of local blocks, due to technical reasons, can lead to substitution of deeper form of anaesthesia, leading in the delay of patient's recovery.

Since the concept of Day surgery is not well known, the idea of being discharged on the same day of surgery, does not go down too well with most of the apprehensive patients, therefore, some of them may refuse to being discharged on the same day.

Lack of facilities at home, in the form of absence of a responsible person to take care of the patient, remote areas which do not have accesses to medical facilities in case of any complication, would also not be fit for day procedure of the major type, and hence is considered as a disadvantage.

Patient selection criteria: which we used for the Day surgery at our centre, helped us in proper safeguard of the patients, to discuss them:

We chose medically fit / stable patients; falling within the recommendation of American Society of Anaesthesia I, II, and III (well controlled).

Our patients were well motivated for Day Surgery and psychologically / mentally stable.

Emphasis on the presence of responsible relation at home to take care of the patient, if needed, contact our team or bring the patient to us in case of any complications, was made.

We recommended for the convenience of the patient's post operative recovery, the facilities of toilet, transport and telephone, at or near the residence of the patient, so as to be able to recoup comfortably.

Absolute contraindication for Day Surgery, when we discussed, we kept in mind that:
Medically unfit; those patients who do not qualify within any of the ASA category.

Patients suffering from highly infectious diseases, which need isolation, are not ideal for recovery at home, if they are to be operated, then, they should be hospitalized. Patients suffering from severe upper respiratory tract infection, which can lead to bronchospasm, needing medical support, are best treated as indoor cases.

Premature babies are prone to respiratory tract infection and dehydration.

Patients who are in shock due to the disease or trauma and requiring extensive post-operative monitoring, are not ideal candidate for Day Case procedures.

Even high fever, for any reason, needing to undergo surgery would require to be hospitalized for observation. Lastly, patients having mental retardation, as they are in no position to look after them, hence needs supervision, should not be operated as day case.

Relative contraindications are subject to cases selection and surgeon's discretion is mandatory in such cases, depending on type of surgical or invasive procedure these patients have to undergo Day Surgery, are:

Obesity, as they requirement of anaesthesia will be more and surgery will be technically difficult due to the presence of excessive sub-cutaneous fatty tissue. Babies younger than 6 months of age are at risk of upper respiratory tract infection and dehydration is high

in these cases.

Long distance from home, if patient have to travel long distances to their residences after the procedure, there is a possibility of increasing their morbidity due to the travel.

Procedure: the most important aspect of a Day Surgical procedure is the anaesthesia part. In our practice, the combination of 2% Lignocaine HCL and 0.5% Bupivacaine, have found to give the advantage of immediate and prolonged anaesthesia at the site of surgery. Lignocaine acts almost immediately, but wears off in 20-30 minutes, Bupivacaine, requires 20 minutes to show its effects, but lasts for almost 8 hours. Toxicity of the local anaesthesia is also avoided as the combination gives a diluted strength of 1 %.

One should keep in mind, the toxic dose of Lignocaine HCl with adrenaline is 7 mg/kg, plain lignocaine has a maximum dosage of 3 mg/kg, where as bupivacaine is 2 mg/kg body weight. For example, the usual amount of local anaesthesia required for one sided inguinal hernioplasty is about 30 ml of the combination, which is well within the toxicity dose. Though sensitivity to local anaesthesia used is very rare, as the most commonly used agents are Lignocaine and Bupivacaine, which are amides and less toxic than the ester derivatives (e.g. procaine, prilocaine).**(10)**

Conscious sedation is achieved by a combination of IV drugs, depending on the apprehension and the duration of the cases. At the time of initiating the local block, the patient is sedated with the help of Midazolam (1-2mg), along with Pentazocine (15-30mg) to give analgesia, deeper form of sedation if required is achieved by Ketamine ranging from 10-100mg, bolus dose, as a single drug or in combination. (25mg of ketamine in bolus form, in an adult patient, gives conscious anaesthesia, where as, 100mg is considered to be anaesthetic dose in an adult of 70 kg body weight).

The pain caused by the injection of local anaesthesia is taken care off by this sedation, making the patient virtually painless.

Though the patient is asleep, he can be aroused easily and a repair of hernia can be tested on table.

In cases of appendicectomy, combination of oxygen-nitrous-oxide-halothane was used, in open cases, where spontaneous breathing has been maintained. In patients of Laparoscopic appendicectomy, controlled breathing was achieved by intubation. Muscle relaxant was used in 2 cases only.

The use of IV sedation and anaesthetic drugs

make it mandatory to observe the patient for at least 6 to 8 hours, therefore, these cases are preferably conducted in the morning as a first case so as to have enough time for post-operation observation.

Complication: Reaction to local anaesthesia, though rare is a possibility one should keep in mind. Most commonly seen complications are giddiness, syncope, bradycardia, Nausea, Vomiting; Retention of urine is seen sometimes in male patients; severe pain at home, bleeding, haemorrhage and haematoma, during and after surgery, needing attention.

A home visit by one of our team doctors or a phone call is mandatory for every patient before the centre is closed for the night. However, the involvement of the referring physician or family physician is ideal for the post-operative care of the patient, till they come back to you for follow-up.

The reason for the trend towards increasing outpatient and office procedures are clear: lower cost, greater efficiency and improved patient convenience.

Accomplishing the procedures described in this issue safely, swiftly and successfully will serve legions of patients (and surgeons) well. (II)

Insurance companies, disbursing claims for surgeries performed as Day Case, still demand over 24 hours admission, which is a policy decision to be taken by all the insurance companies together. But, it is just a matter of time.

The Indian Association of Day Surgery, will provide technical data and relevant material for the advancement of Day Surgery in India and hopes to place the recommended practice parameters in place for every Surgeon as a safeguard.

Conclusion:

The results of the analysis of Day Case procedures at our centre were found to be: overall complication: 0.23%; Complication in the Major post operative group was: 0.87%. This is very small, considering the nature of complications.

With proper cases selection and meticulous patient preparation, following the criteria's for discharge to its last word, will form the guidelines and practice parameters, recommended by us, for the use of cases / procedures which were performed, and listed in the tables, by us, we hope to make Day Care Surgery a worthy modality for the future to come.

The Historic standard: "Is this patient suitable for Day Surgery?" should be replaced by: "Is there any

justification for admitting this case as an inpatient?" (I2)

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Surgery in the new millenium-all in a day's work.

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The emerging technologies of the late 20th century were developed to allow the practice of medicine and surgery, with minimal trauma, less expense and better clinical outcome. In the next millennium to come, owing to the efficiency of new gadgetry and techniques, these state-of-the-art equipments would propel our hope for more affordable healthcare. Making it worthwhile, the time, funds and manpower, spent in research efforts to develop new technology for better and more cost-effective patient care.

The obvious trend in the 21st century is towards smaller incisions, allowing minimal access surgery to gain headway, since its first introduction fifteen years ago. It is this relatively new modality that has revolutionized the practice of surgery and redefined the standards of holistic patient care, reducing the surgical trauma, lesser pain, lesser hospital stay, better cosmesis, earlier return to normal activity and work; resulting in perhaps better over-all clinical outcomes. Most of our patients nowadays are aware of these advantages and despite the seemingly apparent initial added expense it may entail them, they are willing to explore the possibility of undergoing more of these "band-aid" procedures instead of the time-tested conventional methods. They prefer to undergo procedures that would prevent them from experiencing unnecessary pain and modalities that would save them numerous manpower hours.

The economic, social, health and personal benefits to patients undergoing major surgery under the minimally invasive approach are not simply obvious but tremendously cost-effective and efficient. Patients would rather shell out an initial extra buck rather than be stingy and end up paying a lot more due to prolonged hospital stay and a much greater use of antibiotics, analgesics, and other medications. Less invasive procedures result in better patient tolerance equating a decrease in over-all medical care post surgery.

Patients today are now more concerned and knowledgeable of the different approaches and how procedures for various ailments and conditions can be performed, reducing the hospital stay and total cost, including social aspect of healthcare system. This sudden rise in active patient participation, in peri-operative decision making, can be attributed to the internet revolution and more liberal education of the general population.

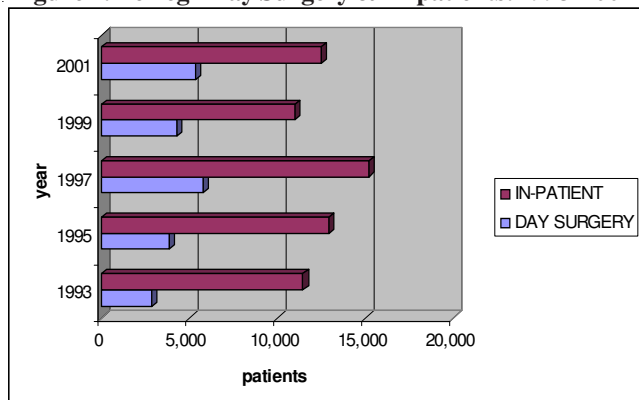
Day surgery centers used to be the battle grounds solely for minor lumps and bumps. However, with the advent of minimally invasive procedures, the decrease in morbidity and over-all post-operative care needs, in major cases, has allowed more than a few of these surgeries to be performed on an out-patient setting. Major operations performed through the laparoscopic approach in day surgery centers has been steadily increasing, from hernia repair to cholecystectomy, and from video-assisted thoracoscopic sympathectomy to thyroid surgery.

With minimal pain and little need for close professional nursing care, after surgery, for minor lumps and bumps or major laparoscopic procedures, patients now prefer to recuperate at the comfort of their own homes; at the same time resulting in a decrease in the total expenditures of hospital stay. Medical Centers worldwide are aware of this new patient preference and trend, therefore, smartly joined the bandwagon. Not exempt to this is the National University Hospital of Singapore whose Department of Surgery has been actively developing and refitting its Day Surgery Center to accommodate the needs of patients today. Major surgeries are mostly done in the major operation theatre, thus requiring hospital admissions for the patient with subsequent increase in bed space, manpower and financial demand for the hospital. Even though, more than 60% of these major surgeries performed, were cases operated on the same-day admission.

In recent years, there has been a steady increase in the number of day surgeries performed, except during the critical period of the Severe Acute Respiratory Syndrome (SARS) epidemic, where a significant decrease in day surgeries were noted. However, this decrease does not only cover ambulatory cases but encompasses the entire spectrum of medical care in the region, including hospital admissions.

The steady growth of foreign patient load was hit hard by the Asian financial crisis that swept across the region in the second half of 1997. However, the recovery in the foreign patient load during the post-crisis period has been encouraging. By 2002, the day surgery volume has surpassed the pre-crisis level, while the inpatient volume has returned close to the pre-crisis level. Indonesians and Malaysians have remained the two largest foreign patient groups in our practice.

Figure 1: Foreign Day Surgery & In-patients: 1993-2002



For the period 1993-1997, patient load for day surgery grew, on an average, by 24.7% p.a., while that for inpatient grew, on average, by 8.6% p.a. (Fig.1).

The Asian financial crisis in late 1997, however, caused foreign patient load to drop sharply by more than one-third in 1998, with the sharpest decline registered in Indonesian and Malaysian patient load (Table 1).

Post-crisis, the situation has been improving. Day surgery patient load grew at a rate of 18.1% p.a. over 1998-2002. Although this was slower than the 24.7% p.a. registered over 1993-1997, in terms of volume, day surgery patient load has out-grown the pre-crisis 1997 level by 20% in 2002 (Table 2).

Indonesian patients returned in strong numbers for day surgery, but now take up a much reduced 48.5% of patient load (1998-2002), compared to 56.0% in 1993-97 (Table 4). Malaysian patients also returned to take up 22.4% of patient load, compared to pre-crisis average of 24.7%. After 1997, North American and British patients increased significantly in numbers and as a share of patient load. The National Health Care Group of Singapore manages a network of hospitals, national specialty centers, polyclinics and business / service divisions. One of its institutions is the National University Hospital, which provides a Day Surgery Centre for the past few years.

One of the major changes that National University Hospital has adopted in the Day Surgery activities is to embark on performing major procedures like laparoscopic herniorrhaphy (even bilateral), thyroidectomy, parathyroidectomy, thoracoscopic sympathectomy, and soon cholecystectomy, to be discharged on the same day. Initial results were encouraging, with no major complications and complaints from the patient, nor the hospital.

Table 1: Day Surgery-1997 and 1998 (Singapore Hospital)

| Country | Year 1997 | Year 1998 | Change | % change |
|------------------------------|--------------|--------------|---------------|---------------|
| Indonesia | 3,205 | 1,374 | -1,831 | -57.1% |
| Malaysia | 1,381 | 1,022 | -359 | -26.0% |
| USA or Canada | 178 | 214 | 36 | 20.2% |
| UK | 44 | 63 | 19 | 43.2% |
| India, Pakistan or Sri Lanka | 123 | 164 | 41 | 33.3% |
| Australia or New Zealand | 53 | 61 | 8 | 15.1% |
| Brunei | 81 | 58 | -23 | -28.4% |
| Hongkong | 16 | 10 | -6 | -37.5% |
| Japan | 28 | 23 | -5 | -17.9% |
| Korea | 20 | 3 | -17 | -85.0% |
| Philippines | 35 | 36 | 1 | 2.9% |
| Taiwan | 13 | 5 | -8 | -61.5% |
| Thailand | 15 | 12 | -3 | -20.0% |
| Other nationalities | 574 | 475 | -99 | -17.2% |
| TOTAL* | 5,767 | 3,522 | -2,245 | -38.9% |

Table 2: Day Surgery Average Growth - 5 years average

| COUNTRY | 1993-1997 | 1998-2002 | +/- (In % points) |
|--------------------------|------------------|------------------|--------------------------|
| Indonesia | +27% | +28.3% | +1.4 |
| Malaysia | +26.3% | +7.1% | -19.2 |
| Brunei | +16.8% | +19.0% | +2.2 |
| Philippines | +26.5% | +28.1% | +1.6 |
| Thailand | +85.0% | +17.7% | -67.3 |
| American or Canadian | +23.2% | +11.5% | -11.8 |
| Britain | +18.9% | +35.6% | +16.8 |
| Japan | +14.2% | +38.0% | +23.8 |
| Hongkong | +34.5% | +25.3% | -9.2 |
| Taiwan | +29.2% | +33.3% | +4.1 |
| Korea | +67.9% | +10.4% | -57.5 |
| Australia/New Zealand | +18.3% | +18.4% | +0.0 |
| India/Pakistan/Sri Lanka | +36.7% | -1.6% | -38.3 |
| Other nationalities | +18.5% | +15.3% | -3.2 |
| TOTAL* | +24.7% | +18.1% | |

The figures on the table show a steady increase in the number of day surgery patients. The year 2004 showed 5,161 patients operated under day surgery with 5,170 admitted for major surgeries. A variance of 1% is noted when 2004 and 2005 day surgery cases were compared. The year 2006 revealed 6,471 for day surgery and 6,433 subsequently for inpatient procedures.

This results to a variance of 17% for day surgery. The data above shows a progressive increase in the number of day surgeries performed indirectly reflecting the safety and acceptance of protocols employed for proper patient selection undergoing selected major surgeries in the ambulatory setting.

Table 3: Comparative Results of Day Surgery and Out Patient Procedures from Year 2004 – 2006 (National University Hospital – Singapore)

| YEAR | DAY SURGERY | VARIANCE | IN -PATIENT | VARIANCE |
|-------------|--------------------|-----------------|--------------------|-----------------|
| 2004 | 5161 | } 1% | 5170 | } 15% |
| 2005 | 5232 | | 6103 | |
| 2006 | 6471 | 17% | 6433 | |

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Table 4: Cases performed by each subspecialty at the Day Surgery Centre From 2004 – 2005 (National University Hospital - Singapore)

| Department | Total |
|--------------------|-------|
| Colorectal | 2,498 |
| General Surgery | 1,551 |
| Hepatobiliary | 137 |
| Neurosurgery | 4 |
| Paediatric Surgery | 459 |
| Plastic Surgery | 512 |

Among the 6 specialty divisions of the department, majority of cases were performed by the colorectal surgery group and this included hemorrhoidectomy, fistulectomy, drainage of abscesses, etc. General surgery had 1,551 patients comprising of breast surgery, herniorrhaphy, skin tumors and lesions.

At present, our hospital policy is to continue Day Surgery procedures, whenever it is possible, for several reasons: reduce the surgical trauma, early return to normal daily activities and less cost for the patient; for the hospital: to accommodate more patients and achieve its goal of performing more major procedures in the congested main operating theatres.

The promise of better surgical care for this millennium is certainly dawning. Exciting changes are transforming the practice of medicine into a less invasive and yet more effective and efficient concert of superior human knowledge and skill with cutting edge gadgetry and instrumentation. Ambulatory surgery has started to become a byword in most modern households with superb results to boot. At this day and age, the obvious trend at the National University Hospital and probably the rest of the world, is a more global acceptance of ambulatory surgery as a highly favored option. Day surgery has proven to be beneficial to and accepted by both patients and the medical faculties. It is a win-win situation for both parties trying to cope with the changing times and ever renewing standards of medicine for less invasive, cost-effective, and complication-free therapy, that's all in a day's work.

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Paediatric Surgery as Day-case

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Introduction:

One of the biggest series of its kind was published in 1909, James Nicoll (1) performed over 7000 day care procedures in paediatric age group, over a period of 10 years. He realised that admitting children for certain operations "constitutes a waste of resources of a children's hospital". The results were comparable with patients admitted overnight, as was the trend, with significant savings to the patient and to the hospital. He further added that "with a mother of average intelligence, assisted by advice from the hospital sister, the child fares better than in the hospital." When we talk about Day-care surgery, we still consider minor procedures. Procedures involving major surgeries as Day-case are true Day-care procedures.

History:

Very early in practice, it was realised that delays in Paediatric surgery was unacceptable to the patients as well as the relatives. Thus, giving rise to the beginning of a new era in modern medicine: Ambulatory surgery. As the surgical technique evolved and became more refined, surgeries like inguinal hernia, did very well with simple herniotomy, without requiring hernioplasty, as was the norm. Thus came into existence the 'Gold standard' in hernia surgery for children. This fact was recognized in Australia (2), and in Europe (3,4,5), since the late 1800s, however in the United States, surgeons (6,7,8), still persisted in performing the traditional repair followed by seven days stay in the hospital followed by two weeks of bed rest at home! Potts (8), though successful in changing the type of surgery for hernia repair, continued to admit his patients for three days for a herniotomy. He believed that the advantages of outpatient surgery were highlighted to cover the inadequacies of hospital in Scotland. A study in the 1950s revealed that there was a significant rate of hospital related infections in children admitted for elective surgery (9). It was only in the 1960s, the

economic advantage of outpatient surgery hastened its acceptance (10). This showed that about 40% of all operations in children could be performed without the need for hospital admission. Cloud, in 1972, presented a large series of wide varieties of case performed under general anaesthesia, with endotracheal intubations; demonstrating the safety of this concept. Outpatient surgery or day care surgery, quickly gained momentum and surgical care of children acquired a new style (11,12,13).

The success seen in paediatric patients, led to changes in adult surgical care, making it possible for patients to stay out of the hospital. Now, it is possible to perform about 70% of all operations paediatric age group in a day care setting (14, 15, 16).

As paediatric surgery developed, there was a better understanding of the disease process and pathophysiology of several surgical conditions in children; more operations were gradually added to the list of possible day care cases.

Types of Surgeries:

Surgeries which have been performed and recommended by experts as Day-case:

Adenoidectomy & Myringotomy
Antral puncture

Excision of branchial arch appendages
Otoscopy & removal of ear foreign bodies
Laryngoscopy
Excision of preauricular cysts and sinuses, and small dermoids
Tonsillectomy (with or without adenoidectomy)
Torticollis correction

Excision of Thyroglossal cysts
 Cervical lymph node biopsy
 Bronchoscopy & procedures
 Esophago/Gastroscopy & procedures
 Frenulectomy- tongue
 Gynaecomastia excision
 Excision of BCG Adenitis
 Excision of Skin lesions
 Excision of subcutaneous swellings, cysts, etc.
 Removal of stitch granulomas
 Suture removals
 Excision or injection of haemangiomas
 Muscle biopsy
 Nerve biopsy
 Hickman's Catheter insertion
 Umbilical hernia repair
 Umbilical polypectomy
 Cauterisation of umbilical granulomas

Excision of umbilical sinuses
 Inguinal herniotomy
 Orchidopexy
 Circumcision
 Meatotomy
 Preputial separation
 Distal hypospadias repair
 Cystoscopy

 Pilonidal sinus
 Rectal biopsy
 Anal dilation
 Rectal polypectomy
 Sigmoidoscopy
 Colostomy revision

 Dental surgery
 Laparoscopy / Procedures

These surgeries do not require specialised nursing care, nor do they need extensive monitoring or intravenous administration of drugs.

Studies have shown that there is a unit cost saving of between 19-68 %, depending on the operation performed (17). The economics and hospital management shows an increase in the efficiency as well. The saving is not only of money, but also on the number of man-hours, the bed can be utilised more efficiently for critical and needy patients who require nursing care, thus making it possible for the nursing staff to work more efficiently in caring of these patients.

Even from the patient's viewpoint, especially in children, apart from the fear of staying in an unfamiliar environment and spending a night at the hospital, with unfamiliar people, compounds the stress, delaying recovery.

"A mother of basic intelligence", as has been mentioned several times, capable of providing nursing care at home, is all that the surgeon needs. In India, we still have the luxury of joint families, where, there are several family members to look after the patient. The key to success of Day-case surgery is the back-up that you can provide. Availability at least over a telephone, with assurance of taking care of the patient in case over night stay is required, involvement of family physician in caring for the patient at night and as and when required, all amount to tremendous confidence in the family of the operated child.

Case selection is of immense importance, distances of over a couple of hours drive from the surgery centre,

lack of basic amenities, inability to look after the basic needs and situations leading to complications, should be assessed while posting a patient for surgery.

Babies of less than a year old, have increased likelihood of developing post-operative apnoea, bradycardia and post-procedure chest infection. Although there is no consensus to the specific lower age, it is cautioned that term infants under three month of age, and pre-term infants of less than 48 weeks, post conceptual age, are considered unsuitable for day care surgery (18, 19).

Medically unfit child, with associated conditions, complicating the post operative course, is obviously not suitable for day care surgery.

Pre-Procedure:

Counselling with clear instructions is mandatory for a smooth procedure. Apart from detailed explanation of the procedure itself, it is advisable to procure consent, explaining the possible complications and that they have adequately understood the risks involved. Paediatric surgery is usually scheduled early in the morning as first case, so as to minimise the starvation period. Sedation given orally at home the night before, or early in the morning, just before the procedure itself, is helpful.

Intra-operation:

Short general anaesthesia is the most frequently used method for paediatric cases. It is safe for the child and affords adequate time for most procedures. Pre-op.

anaesthetic assessment should be encouraged. Intra muscular sedation can be given to the patient in the presence of the child so as to minimise the anxiety of separation.

Local or regional blocks are known for minimizing the depth of anaesthesia and ensuring quick recovery as well as pain relief following surgery. But, expertise is required.

The child is observed in the recovery area till he is awake, assessed again by the anaesthetist, patient can be discharged. A detailed prescription along with contact numbers for any queries and emergencies and a set of instructions is handed over to the parents at the time of discharge.

Need of the hour:

Day care are existing in most private nursing homes, some major hospitals still do not recognize its value. Separate spaces for recovery following surgery are not always available, they form a part of the operation theatre complex. Tedious admission and discharge procedures defeat the sole purpose of convenience of Day surgery. The provision of day-care beds, or the availability of economical day-care 'package rates', with a simplified registration protocol, is the need of the hour.

Also, at present, some insurance companies that reimburse patients for medical costs still ask for a mandatory 24 hours hospitalisation, even when there is no justification for the same on medical grounds. Undermining the very purpose of ambulatory surgery. Knowing very well that an extra charge is being paid by the insurance company for the overhead incurred in the overnight hospital stay.

Internationally:

Currently, in U.K., the normal trend of day surgery involves admission, investigation or treatment, and discharge of suitable patients within one working day; they have increased their surgeries to almost 80%. In the USA the concept of '23 hour stay' day surgery has been developed, where by patients are discharged following surgery within 24 hours of their admission. This has allowed them to increase the gamut of cases as well as providing adequate time for post-procedure observation in many major surgeries.

In summary:

Approximately 70% of surgeries performed by paediatric surgeons can and should be conducted in Day Care setting. The future day surgery is likely to include more intermediate operations, such as,

laparoscopic surgeries and surgeries with minimal access, which may require longer duration of post-operative stay. Increased day surgery will help reduce the waiting period and free more inpatient beds. The selection of suitable patients and operation, proper parent's education and good communication with general practitioners is the cornerstone of good day care surgical practice. Therefore, over the years, we can now conclude, that, in appropriate cases, day care surgery in children is safe and cost-effective.

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Letters to Editor

Potential of Day-care Surgery for a General Surgeon.

Dear Editor,

I am interested in sharing my work & my evolution to day care in the presented to you and our readers, through this letter. I do hope this will be an inspiration to others and highlight the difficulties I faced in my practice.

In 1981, after master's degree from Mumbai University, I started my practice in Kandivali with concept of One-Day Surgery in a 2000 sq. feet area. My first sign board "Vrindavan Ambulatory Surgical Center" had to be changed to "Vrindavan Nursing Home" as the name was not acceptable by any doctor at that time.

In 1984, I could gather enough courage to again put up a new board "Ambulatory Surgical Center" after giving up Urology; later, all other surgeries except Hernia, Piles, Fissure, Hydrocele & occasional planned Appendix surgeries on non-emergency but, one day basis. Now our name is "Vrindavan Hernia Institute & Piles Center" since the past 20 years.

Our staff consists of me as Chief surgeon. One full time Anaesthetist and one on call; 2 Doctors, 3 OT Assistants, 7 sisters, 1 ward boy, 2 Ayas, 1 Receptionist and 1 Accountant.

We perform approximately 3 to 4 surgeries per day, with an OPD Attendance of 25–30 patients per day, including follow-ups. We have 2 dedicated theatres, one for clean cases and the other for Septic cases. We work from 2 pm to 8 pm (for surgeries as well as consultations).

We have operated over 10,000 Hernia Surgeries (4,000 in first 15 years, 6,000 in second 11 years) and 6,500 Anorectal Surgeries (4,000 in first 15 years and 2,500 in next 11 years).

I am very much involved and interested in Hernia Surgeries. I achieved a less than 1% Recurrence Rate, with Shouldice's repair, in the first 15 years. Then, I switched over to 'Plug method' for Indirect Inguinal Hernia and 'Patch Method' in sliding and Direct Hernias, with less than 0.5% Recurrence Rate, all operated under Local anaesthesia. Almost all Inguinal, Umbilical, Epigastric, Spigelian & small Incisional, at our centre are performed under Local anaesthesia, with an Anaesthetist as stand-by and the patients walk to their room after the surgery.

We have almost zero infection rates and daily fumigation our OT. Surgeons from all over India have come to our centre for a better understanding of Hernia Surgery since over 20 years.

For Anal surgeries: Piles with Fissure-in-ano, depending on the degree of pathology, we use Sclerotherapy with lateral Sphincterotomy or closed Haemorrhoidectomy with lateral Sphincterotomy; in Jack Knife position, under local Anaesthesia with short acting sedation, to avoid pain of local injections. Patients walk back to their rooms from the Operation Theater.

On an average, patients are discharged after 5 hours stay in the hospital, after they have fulfilled the discharge criteria's.

Our staff nurse calls up each patient pre & post operatively (till needed). Patient is informed about all possible complications of each surgery, like wound infection, with instruction to inform us immediately, on the first indication of any change. Our follow-up calls also inquire about all symptoms in detail.

Over 25 years as a Day-care Hernia & Piles Surgeon, I have no regrets. I do hope, the younger generation of surgeons, will be able to use our experience as an inspiration and further the cause of Day Care surgery.

Ambulatory surgery is now more accepted, but, awareness has to be increased, I do hope that our Association will make good progress and make it easy for the generation of surgeons and patients to come. I hope they do not have to face the hardships that I have faced in setting-up my practice.

Regards,

Dr. Upendra V. Mehta
Consultant Surgeon,
Vrindavan Hernia Institute & Piles Centre,
Mumbai.

Dt.: 08/02/07

Intricacies of a mesh.

Dear Editor ,

The history of surgical mesh is an important example of the deep cooperation between surgeons and manufacturers, resulting in the continuous progress of the use of biomaterials and its benefits in the hernia surgery.

In literature, Prof. Amid has made the classification of biomaterials and numerous clinical reports and studies have demonstrated the successful application of different kind of mesh in the hernia surgery. Prosthetic mesh is a mix between his design, kind of weave, thickness, pore size, tensile and bursting strength, lightness and stability. The manufacturers use the same polymers to create a different variety of prosthesis. The non absorbable meshes are extruded monofilament polypropylene. The mesh is manufactured by creating knitted fabric with warp and weave and this webbing is designed to offers the maximum mechanical integrity and stability.

The mesh must have the right strength in both directions. This property is typical of the knitted fabric, and help to determine the right orientation of the mesh during the implantation. According to professor Chu (1985) the direction of the mesh should be parallel to the maximum physiological stress. Other important characteristics to take in consideration are the lightweight and large porous, as described in excellent way in various articles of professor Schumpelick & Klosterhalfen.

Our R&D Department , with the high cooperation of Chemicals, Polymerists ,Textile Engineers and Bioengineers, and following the important teaching of world wide opinion leaders and international literature, has developed Evolution , a new concept of mesh.

The concept is based on the lightweight mesh, large porous but with high stability. Sometime the concept of lightweight & soft mesh it is legacy to the concept of not much stability and insufficient handling. We've gone to research the right balance between the weight and the stability. The results are a light weight mesh with high stability, and this stability favours the good handling and the right positioning during implantation.

As Professor Goldstain said: Select the right mesh is difficult, but understanding some mechanic characteristics, like thickness or rigidity, can help to know the advantages or disadvantages.

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Abstract: Not exceeding 100-200 words stating the main problem and conclusion with keywords at the end if desired.

Main text with subtitles: Introduction, Material & Methods, Results, Case Reports, Observations, Discussion, Summary, Conclusion (IMRAD).

References: Acknowledgment, Citations in the text are to be super-scribed by number or in parenthesis at top, serially in the order in which they are first mentioned. Author names need not be included. Repeated reference gets the same serial number on top. Authors must verify the references with original documents. References are typed on a separate sheet in the same serial order. Vancouver system is to be followed.

Papers: Name(s) and initials, of all authors, full title of the paper; Journal name abbreviated as in Index Medicus, year, volume number, first and last Page numbers.

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