Paediatric Surgery as Day-case

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Introduction

One of the biggest series of its kind was published in 1909. James Nicoll 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, and in Europe, since the late 1800s, however in the United States, surgeons 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, 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. It was only in the 1960s, the economic advantage of outpatient surgery hastened its acceptance. 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.

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.

As paediatric surgery developed, there was a better understanding of the disease process and patho-physiology 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 and Myringotomy
Antral puncture
Excision of branchial arch appendages
Otoscopy and 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 and procedures
Oesophago/gastroscopy and 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. 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.\textsuperscript{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 recognized 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.

**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.

**References**

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