Symposium on ambulatory surgery: principles, practice, pitfalls

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At the 1996 annual meeting of the Canadian Association of General Surgeons, a symposium on ambulatory surgery was presented. What follows is a compilation of the subject matter discussed by the 9 participating speakers. The impetus for this symposium arose from the realization that the general surgical enterprise in Canada, as elsewhere in North America, is increasingly dependent upon ambulatory facilities for the delivery of patient care.

The Canadian Association of General Surgeons position statement on ambulatory care was presented in the this journal in 1996 (*Can J Surg* 1996;39:183). In that position paper, Pollett emphasized a number of fundamental principles, including the following:

- The numbers or percentages of procedures performed on an outpatient basis should be determined by the health care needs of the population.
- The final decision regarding the appropriateness of outpatient surgery should be made by the surgeon.
- Quality of care and patient safety must not suffer.
- Ongoing evaluation must be a part of any ambulatory surgical program.
- Educational issues should be addressed.
- The impact of ambulatory surgery on clinical research should be accounted for.
- Resources should be allocated to the organization of preoperative and postoperative care for patients who undergo ambulatory surgery.

With the increasing pressure on hospitals' resource allocations there has come a stimulus to increase the application of short stay surgery to a broader range of procedures in general surgery. This symposium examined the principles of ambulatory care surgery from the perspectives of the administrator, the patient and the teacher. Newer applications of ambulatory surgery to the management of endocrine, breast, biliary tract and perianal conditions were discussed, and the pitfalls of the ambulatory setting for general surgical procedures were described. The perspective of the Canadian Medical Protective Association and the patient was detailed. A panel discussion enlarged upon issues relating to quality assurance, readmission rates and the appropriateness of the shift of traditional inpatient procedures to an ambulatory setting.

The following is my summary of each presentation in the symposium. Although we, as surgeons, are frequently loathe to change the way we do things, the general discussion was aimed at increasing the awareness of those in attendance of the possibilities and practicalities of increasing their own use of the ambulatory setting for the surgical management of patients who require general surgical procedures. Each participant brought to the discussion his or her particular biases and points of view and although some presented data to support their positions others presented a more general discussion of the issues arising from the current push for increased use of ambulatory facilities in our hospitals. Those attending were subjected to a pre- and post-symposium objective test in an effort to highlight the important points in the presentations.

The administrative perspective

Dr. Douglas Sinclair noted in his

Summary of a symposium presented at the annual meeting of the Canadian Association of General Surgeons, Halifax, NS, Sept. 27, 1996

Participants were as follows: John K. MacFarlane (chairman), Professor, Department of Surgery, University of British Columbia, Vancouver, BC; Douglas Sinclair, Vice-President, Medicine, Queen Elizabeth II Health Sciences Centre, Halifax, NS; Rudy Danzinger, Head, Department of Surgery, St. Boniface Hospital, Winnipeg, Man.; Julius L. Stoller, Clinical Professor of Surgery, University of British Columbia, Vancouver Hospital and Health Sciences Centre, Vancouver, BC; Gayle Higgins, Associate Professor, Department of Surgery, Dalhousie University, Halifax, NS; Andrus J. Voitk, Surgeon-in-Chief, Salvation Army Scarborough Grace Hospital, Scarborough, Ont.; Nis Schmidt, Clinical Professor, Department of Surgery, St. Paul's Hospital, Vancouver, BC; John Heine, Clinical Assistant Professor, University of Calgary, Calgary, Alta.; William Beilby, Education Coordinator, The Canadian Medical Protective Association, Ottawa, Ont.; Mark Taylor, Lecturer, Department of Surgery, University of Manitoba, Winnipeg, Man.

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presentation that ambulatory surgery has long been recognized as an alternative to traditional inpatient surgery and alleviates many of the constraints currently present in our health care system. The positive effects are felt not only by the hospital and physician but also by the patient. Patients return to their homes quicker, early ambulation assists in recovery and in the prevention of complications of prolonged bed rest, and the patients' participation in self-care increases their awareness of their condition. The convenience of returning to their own homes sooner places less disruption on them and the family members. For physicians, ambulatory surgery is often more easily scheduled and with less requirement from on-site bedside follow-up, the efficient use of time becomes an attractive incentive. Hospitals see ambulatory surgery as a cost-containment strategy. However, several factors are necessary to ensure that the benefits of ambulatory surgery are realized for the patient, the physician and the hospital.

Diagnostic, therapeutic and support services must be physically close to the ambulatory surgical area to ensure convenience and facilitate prompt reporting. Renovation and service moves are often necessary, and the fiscal impact of such adjustments may be significant. Efficient use of available resources requires that the peak operating room times be made available for ambulatory procedures, so that cases may be scheduled to maximize the use of the recovery room staff and the physical facility. Nonambulatory cases can then be scheduled in "off peak" times to ensure that overruns do not disrupt the ambulatory surgical schedule. The effect of this shift may change the way in which surgeon time is allocated.

The fiscal realities of increasing ambulatory surgery are:

1. An increase in ambulatory surgical volume with no change in nonambulatory volume will only increase cost.
2. An increase in ambulatory surgical volume with a corresponding decrease in nonambulatory surgical procedures will reduce cost when the avoided patient-days are not used by other services.
3. The avoidance of an inpatient stay is the key cost-containment strategy of ambulatory surgery. The determining factor for cost saving is not the difference between the procedure cost as inpatient versus outpatient but rather whether a patient-day stay is avoided.

Teaching in the ambulatory setting

In this study, Danzinger's goal was to train competent general medical graduates and surgical specialists by meeting the following objectives: the provision of appropriate space, time and environment for learning; direction of learning to the appropriate student; and the provision of exemplary patient care. Outpatient clinics must have sufficient rooms of appropriate size and configuration that contain necessary special equipment for teaching. The time available for these teaching clinics must be separate and specified. Additional time is necessary to be dedicated to teaching and to allow for evaluation.

Everyone involved must be aware of and prepared for teaching. This includes patients, students and surgeons as well as clinic staff. The same principles apply to the outpatient operating room. Surgeons must differentiate and separate teaching skills to junior medical students and the patient, and provide disease-focussed teaching of clinical clerks and graduated clinical and teaching responsibilities assumed by specialty residents.

All of this necessitates planning of an appropriate physical-structures curriculum and time management, faculty development and imparting the principles of self-learning and continued education along with continuous evaluation and feedback. Traditionally, we have done this reasonably well in the inpatient environment. Now, our challenge is to achieve even better results in the ambulatory milieu.

Patient preparation

Informed-consent discussions are an essential part of all surgical procedures, according to Dr. Julius Stoller, but in addition thorough patient preparation is of the utmost importance to achieve the best possible surgical outcome.

Patients remember very little of what they are told during an office consultation and at worst may simply "get it all wrong." Thus, any information must be given verbally and in writing. The written material for patient preparation is best presented in a simple point-by-point form and presented by the surgeon after the decision for surgery has been made. The patient will examine it later in the calmer atmosphere of the home and re-examine it the night before surgery and, if appropriate, postoperatively. A final reminder to the patient in the recovery room before discharge will help. However, it is neither acceptable clinical practice nor appropriate from a medicolegal viewpoint to go to the extreme of merely presenting a handout to the patient without an accompanying discussion. The documents presented must be simplified, avoiding long and complex words. Medical jargon should never be used. It is important that the document is presented in the patient's first language, especially where large sections of the patient population speak English as a second

language. Liberal use of interpreting skills is a necessity where appropriate. The document should not be long, yet it must contain the appropriate elements of the planned procedure.

In addition to the instruction that relates to the operation planned, there should be a second handout printed by the hospital's Department of Surgery, indicating the location of the Ambulatory Surgical Reception area. The document specific to the proposed surgery must contain postoperative instructions and be personalized by the surgeon and reviewed preoperatively.

Practice — breast

Pressures from bed closures and rationalization have made the surgeon aware of patient populations that could be equally well served, or in some cases better served, by converting inpatient surgery to day or short stay procedures. The field of breast cancer treatment appears ideal for this transformation according to Dr. Gayle Higgins.

The population addressed is that of patients who undergo modified radical mastectomy, quadrant resection with axillary node dissection and complicated open biopsy procedures. Traditionally many of these patients remained in hospital for 5 to 7 days. The length of stay is often determined by the management of drains.

These patients were examined specifically from the standpoint of pain and nausea control, the formation of hematomas and seromas and technical failure of drains. The increase in preoperative teaching with regard to the management of drains and the intraoperative approach to the securing of drains has been modified.

In the assessment of outcomes, Higgins's group examined the return to the Emergency Department or family physician office and were concerned mainly about technical failures and failure to control pain and nausea.

Of the 57 patients studied, only 2 returned to the Emergency Department. Both had technical failure of the suction collector apparatus. No patients returned with any other complications to the Emergency Department, the family physician or the surgeon's office. An extra visit was added for drain removal after 1 week. However, this was a time for the review of pathology reports and for further planning in breast cancer management.

Although the amount of preoperative teaching was increased, especially relating to drains, patients often were better served by brief postoperative teaching with the drain in place, since the preoperative teaching was of a hypothetical nature and seemed only to produce unnecessary anxiety.

In spite of enthusiasm for ambulatory surgery in this situation, elderly patients living alone and coming from great distances could not be included. A small number of patients had ongoing postoperative nausea, which prevented their early discharge. Most patients are now being treated with short-term stay and are experiencing no negative outcomes from this altered form of management.

Practice — biliary tract

In his presentation, Dr. Andrus Voitk reported that although laparoscopy has enabled cholecystectomy to be practised on an outpatient basis, this has not yet become routine (see article in this issue on page 284). Several reports in the literature have suggested that this can be achieved safely for about 90% of all elective operations. With respect to institutional practice, at his hospital the outpatient rate in the first year of routine institution was 75%. Some problems were found with preselection for inpatient care, inappropriate day surgery facilities and variation in the individual surgeon's practice. Once these were addressed, the institutionalized rate in the following year for outpatient surgery rose to 95%, suggesting that institutions can achieve results similar to individual enthusiasts. Prudence always dictates concern for the safety of this practice in high-risk patients. Voitk noted that over 200 higher risk patients had been managed as outpatients for laparoscopic cholecystectomy. Not surprisingly, a much greater percentage (about 23%) of patients from this subgroup tend to be admitted. However, the practice is very safe. A patient who remains stable throughout the perioperative observation period could be safely discharged home on the day of surgery without fear of instability or decompensation later. In patients who had problems requiring admission, the problems become evident during a 6-hour postoperative observation period.

The cornerstone of a satisfactory result is preparedness. This is achieved by a thorough explanation, given preoperatively in the office, of what to expect. The explanation is reinforced in a preadmission clinic, attended by all of the patients slated for elective admission. Once they come for surgery, the message is again reinforced by the day surgery nurses. These 2 programs have been a very important adjunct to the explanation initially given in the surgeon's office. On discharge, patients are given written instructions in addition to verbal instructions, and all patients are contacted by telephone by a nurse 24 hours after operation.

All surgeons at the hospital embraced this routine on a voluntary basis after educational sessions demonstrated to their satisfaction that the approach was both safe and acceptable and gave results equivalent to those of inpatient treatment. For this to suc-

ceed on an institutional basis, all players — nurses, surgeons and anesthetists — must be enthusiastic and on-side. In addition, the hospital administration must support the effort by ensuring sufficient day surgery facilities. If day surgery facilities are inadequate, patients may end up being admitted or surgeons may not cooperate out of fear that their cases may be cancelled. If surgeons voluntarily embark on this policy, they need not be forced into 100% compliance. Once they gain sufficient experience with this approach, they will be convinced of its advantages and will voluntarily embrace it. If individual differences are brought to their attention they will be even more ready to correct discrepancies voluntarily. Voitk noted that after 2 years of outpatient cholecystectomy, the surgeons in his hospital would not consider reverting to an inpatient policy because they were so satisfied with this approach.

Practice — endocrine

In his presentation, Dr. Nis Schmidt considered the following with respect to patients with parathyroid disease who undergo outpatient surgery: preoperative preparation; management; postoperative complications; and cost benefit.

Patient preparation

Patients who require parathyroid surgery tend to be healthy, are usually women in their mid-40s to 50s and do not need admission to hospital the day before an operation. Laboratory investigations are done beforehand in preparation for the procedure. Patients are required to fast from midnight the day before surgery, and sometimes 1 g of cefazolin sodium is given prophylactically at the time anesthesia is induced.

The younger patients are managed this way and, increasingly, older patients are able to come to the hospital on the day of their operation. Schmidt's group have admitted patients in their late 80s and even 90s for same day surgery.

Postoperative patient management

After the operation, which averages just under 1 hour, with wound dressings but no drains, the patient is observed for the day and overnight in the Overnight Surgical Stay Unit. Calcium levels are measured routinely on 3 occasions between surgery and the following morning so that the rate of calcium drop can be monitored. The following morning the calcium level determined at 6:00 is important in deciding the time of discharge, what symptoms the patient might have from hypercalcemia and the amount of calcium to prescribe, which the patient will take for 10 days postoperatively. Patients usually are discharged at 7:00. They are given an analgesic prescription (low-dose Tylenol with codeine); calcium carbonate is prescribed 3 times a day for 1 week. A home care nurse usually monitors the wound and removes the clips and sutures on the fourth postoperative day. The patient returns to the surgeon for follow-up at 2 weeks. In the meantime patients are instructed to increase ambulation and diet progressively. As their comfort increases, they can return to light activity but not vigorous physical work or recreational activities.

Postoperative problems

Parathyroid surgery usually causes few problems with respect to the surgical side. The most serious problem is recurrent laryngeal nerve dysfunction, but the rate for this is less than 1%. Bleeding should be minimal since there is usually no extensive dissection, and pain and swallowing should be no problem. The patient does not need routine drainage of the neck, the dressings usually can be light and, if there is no difficulty with the wound at 12 hours after surgery, the incidence of later difficulties is 0% in Schmidt's experience. Caution is recommended regarding indiscriminate use of cautery; also, the judicial use of good ligation in neck veins can avoid unexpected postoperative hemorrhage.

Cost analysis of overnight stay versus inpatient stay

The difference in the cost of doing overnight-stay parathyroid surgery as opposed to admitted-patient parathyroid surgery is essentially the room cost and greatly favours overnight-stay patient surgery, which might include home care and some prescription costs. The savings are approximately $2300 per case which, for a large volume of parathyroid surgery, adds up. In 1995 it was over $100 000.

Summary

Overnight-stay parathyroid surgery has proved to be safe and effective. The risk to the patient has been extremely small, the results of the surgery have been unchanged from inpatient surgery and patient compliance has been very good, with a high level of acceptance.

Practice — hemorrhoidectomy

Careful patient selection is integral to a successful outcome of outpatient hemorrhoidectomy, according to Dr. John Heine in his presentation. Preoperatively, patients are informed of the anticipated amount of discomfort.

Heine emphasized the safety of the outpatient approach. To reduce the risk of admission after the procedure, the majority of hemorrhoidectomies are carried out with the use of intravenous sedation and a local perianal field block. If a general anesthetic is necessary, Propofol is the agent of choice to reduce the incidence of emesis. Postoperatively, nonsteroidal anti-inflammatory medication is helpful in decreasing the need for narcotics, which can result in fecal impaction.

In a series of 83 patients, 2 experienced postoperative bleeding, but neither required reoperation or transfusion. One patient suffered impaction, so a tap water enema was given. One patient required a single in/out bladder catheterization for urinary retention. Thirty percent of patients identified postoperative pain as a significant problem. Ten percent of patients visited another health care professional before the scheduled 2-week postoperative visit because of inadequate analgesia. None found it necessary to enlist the support of a friend or family member during convalescence.

Approximately $1000 per case was saved by carrying out the procedure on an outpatient basis. Outpatient hemorrhoidectomy would appear to be safe, reasonably well-tolerated and cost-effective.

Pitfalls — the Canadian Medical Protective Association

As reported by Dr. William Beilby, the Canadian Medical Protective Association recently conducted a review of their experience with the professional liability of general surgeons. Between Jan. 1, 1990, and Dec. 31, 1995, 627 legal actions were concluded, all of which involved a general surgeon. Of these, 10% resulted from care provided to nonadmitted patients.

In the nonadmitted group, 45% resulted from care provided in the office, 36% in outpatient departments and 19% in same day surgery units. There was no statistically significant difference between the legal outcomes for the admitted and nonadmitted groups.

The most common clinical problem leading to litigation in the outpatient group related to procedures on the breast. They were split evenly between allegations of a delay in the diagnosis of a breast lump and complications related to biopsies or aspirations. The most common complications were pneumothoraces following fine-needle aspirations.

After breast procedures, the next most common clinical circumstance related to the follow-up of orthopedic injuries. Half of the cases related to a delay in the diagnosis of malalignment during follow-up. The main allegation related to the fact that no radiographs were obtained during follow-up visits.

Endoscopy-related complications of perforation and bleeding was the third most common clinical circumstance. There were also 3 cases in which there was an accessory nerve injury during posterior triangle node biopsies.

Pitfalls — patient acceptance

The Manitoba Centre for Health Policy and Evaluation carried out a series of investigations into the effect that early discharge of patients from hospitals has had on the quality of care provided in Manitoba hospitals. Dr. Mark Taylor from Winnipeg reported that quality of care for surgical patients was assessed using the readmission rate as a marker.

Throughout Canada, there have been dramatic efforts to reduce health care spending. This has led to the closure of a large number of hospital beds accompanied by a shift to outpatient surgery and a reduction of length of stay for most inpatient surgery. In Manitoba, gynecologic, orthopedic and general surgical procedures were studied. For all categories there were dramatic reductions in length of stay between 1989/90 and 1994/95. This reduction was not accompanied by an increase in readmission rate.

A potential pitfall of the shift to short stay surgery is that readmission rates could rise. For the surgery categories studied, there has been no increase in readmission rates associated with reductions in length of hospital stay. To the extent to which readmission rates can be held to represent quality of care, there was no evidence of a decline in quality of care as a result of the reduction in hospital beds.

Discussion and conclusions

In the panel discussion following the formal presentations, the adequate preparation of the patient for ambulatory surgery was emphasized. Institutional practices differ. However, all participants agreed that a well-prepared confident patient is the key ingredient to a successful program. In the clinical areas discussed, readmission rates were extremely low and attested to the success of the programs. There was no increase in medicolegal actions as a result of ambulatory care. The shift to ambulatory surgery in Canadian general surgery is appropriate. A wide variety of procedures can be incorporated into this expanding field. Careful monitoring of patient satisfaction, readmission rates and surgical results is mandatory for a successful program.