

Primary varicose veins in a day surgery unit

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Abstract

Patients awaiting surgery for primary varicose veins can dominate 'in-patient' waiting lists. However, there is now an established pattern of change towards day case surgery. Significantly, this may lead to a rise in the numbers treated, lowering of 'per-case' costs and a concomitant release of 'in-patient' beds. The service must be both safe and cost effective and should be led by senior staff to minimise complications and maximise theatre utilisation. For the patient, their hospital experience can be enhanced by the provision of clear information, careful surgical technique and appropriate aftercare, including suitable points of contact. © 1997 Elsevier Science B.V.

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1. Introduction

Each year in the United Kingdom, it is estimated that over 400 000 people consult their General Practitioners about varicose veins. Of these, more than 50 000 are finally placed onto vascular and general surgical waiting lists for an operative procedure [1]. Many will have cosmetic disfigurement or moderate symptomatology alone and, hence, command a low priority for elective admission to hospital. In consequence, patients awaiting surgery for (primary) varicose veins can dominate hospital waiting lists.

Over the past few years, there has been a firm move towards day case surgery, to allow a greater overall throughput of surgical patients, to free 'in-patient' beds and to allow patients a far more rapid return to their own familiar surroundings [2,3]. Such

a trend must be seen to be both safe and cost effective, which could be monitored for example, by recording transfer rates from the Day Surgery Unit to the main hospital, complication rates and by assessing theatre utilisation and overall costs per case.

For the patients, the overall cosmetic result is often paramount, although their hospital experience is likely to be enhanced by the clear provision of information, careful surgical technique to minimise complications, appropriate aftercare, repeated reassurance and knowledge of a suitable point of contact should they have any particular concerns.

In this paper we record the experience of a large, purpose-built day surgery unit in its treatment of primary varicose veins over a 3.5 year period (January 1992 to June 1995 inclusive), highlighting: (i) the rapidly changing pattern of surgical practice away from the use of 'in-patient' beds with the advent of this facility, together with a significant rise in the overall numbers of patients treated and a lowering of 'per-case' costs, (ii) a low complication rate and high theatre utilisation rate achieved by use of senior staff and (iii) our means of recording information, complications and how we provide patient assistance.

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2. Methods

2.1. Surgery and anaesthesia

During the period under review, over 96% of all primary varicose vein procedures performed in both the Day Surgery Unit and in the main hospital theatre complex were undertaken by the vascular surgical firm. For patients accepted for day surgery (according to guidelines based upon the recommendations of the Royal College of Surgeons of England [2]), the operative procedure is one of flush sapheno-femoral ligation and division of all long saphenous vein (LSV) tributaries, stripping of the LSV to just below the knee and multiple phlebectomies via stab incisions (with use of Oschner hooks). Short saphenous vein surgery is also undertaken, with flush sapheno-popliteal ligation and multiple phlebectomies.

The anaesthetic procedure is to monitor all patients continuously for heart rhythm, blood pressure and oxygen saturation. At induction, Fentanyl (Janssen) is given intravenously followed by intravenous Propofol (ICI). Generally, a laryngeal mask is used and the patient is maintained on nitrous oxide and isoflurane (Abbott). Post-operative pain relief is provided by a Voltarol (Geigy) suppository given with the patient asleep (prior to the commencement of surgery and after consent has been obtained). In addition, local anaesthetic (0.5% plain Marcain) is infiltrated around wounds prior to closure. Patients are provided with a short course of oral analgesic tablets (Coproxamol) to take home.

2.2. Information gathering

From January 1992 until October 1994, information has been obtained (manually) from the theatre registers. Since November 1994, all information has been entered onto a computerised theatre management system (Surgserv-2000, TME Systems, Chertsey, Surrey). This system records much more information than that provided by the traditional theatre register including the time of patient arrival into the anaesthetic room, the actual anaesthetic start time, the actual procedural start and finish times and the time spent by the patient in the recovery ward. Reasons for delay at any stage can be recorded.

Since the inception of the Day Surgery Unit, a strict log has been kept of the number and reasons for post-operative transfer from a day unit bed to an 'in-patient' bed. The figures presented have been cross-referenced to the Department of Surgery's returns used for the monthly audit meetings.

Since January 1995 a new service has been offered for patients attending the Day Surgery Unit. In addition to each patient being given written details of whom to

contact should any complication or concern arise, a 24 h mobile phone number has been provided. The phone is held by a senior day surgery nurse who is able to provide instant advice or to direct a patient towards appropriate specialist help. All such calls are strictly logged. However, we accept that some post-operative problems will not have been recorded as patients may either attend their General Practitioner directly, or simply wait for matters to resolve with time, without informing the hospital. The true impact of day surgery on our local community services forms part of a larger team project due for completion in mid-1997.

3. Results

3.1. Turnover

In the 3.5 year period from July 1988 to December 1991 inclusive, prior to the Day Surgery Unit opening, the total number of primary varicose vein procedures undertaken in the main hospital theatres (based on two sites: King's College and Dulwich Hospitals) was 562 (a mean of 161 per year). For the 3.5 year period of investigation, January 1992 to June 1995 inclusive, 806 patients in total were operated upon. Of this number, 667 patients were operated upon in the Day Surgery Unit (a mean of 191 per year), with a further 139 procedures undertaken on an 'in-patient' basis. In both periods under review, approximately 20% of varicose vein procedures were bilateral. Those patients now remaining on the hospital 'in-patients' waiting list for primary varicose vein surgery totals less than 10% of all those waiting for such surgery and represents that cohort of patients deemed unsuitable for day case surgery (because of conditions such as poorly controlled hypertension or diabetes, obesity, age, or for socio-domestic reasons).

Before the Day Surgery Unit was opened, the approximate time spent by each of the above 562 patients waiting for primary varicose vein surgery to be performed on an 'in-patient' basis was 12 months (with a mean of 161 patients being treated per year). Since the Day Surgery Unit opened (and despite the loss of one of our surgical 'in-patient' facilities), the mean number of patients treated per year rose to 215, representing an approximate 33% increase. Furthermore, between 1988 and 1991, approximately 55% of patients stayed for between 1 and 2 days (inclusive of the day of admission and the day of discharge) with a further 40% recorded as staying for between 3 and 7 days. In the final 12 month period of our study (July 1994–June 1995, inclusive), only 14 primary varicose vein procedures have been performed within the main theatre complex on an 'in-patient' basis, with a maximum hospital stay in three cases of 5 days.

3.2. Costs

At Summer 1995 rates, the costs incurred by the Health Service (at King's College Hospital) when a single (4 h) session was run in the Day Surgery Unit were estimated to average £1000. For this sum, three (or more usually four) cases could be completed within the time available. However, an 'in-patient' stay was costed (on average) at £400 per 'bed day'. Although this was inclusive of operating costs, with a 2–3 'bed day' stay necessary (on average) for each case, this translated to a 'per-list' cost for four procedures of approximately £4000.

3.3. Morbidity

In all cases, the operations were performed by a Consultant/Senior Registrar (or very experienced middle-grade Registrar) with the assistance of a Senior House Officer. A Senior House Officer was not allowed to operate alone. Of the 667 patients attending for primary varicose vein surgery, 14 (2.1%) required transfer to an in-patient bed (Table 1).

There was no significant difference in complication rates between the senior surgical staff who operated. In addition, the mobile telephone service received three calls: two questioning a lump in the groin presumed to mean haematoma formation, and one concerning the degree of bruising sustained. In each case, these patients were referred to the Casualty Department where they were seen by either the operating surgeon or the duty Registrar. None were admitted into the hospital.

3.4. Efficiency

The information available from November 1994 onwards provided by the computerised theatre management system (Sergiserver-2000) indicated that for an allocated theatre session time of 4 h, theatre utilisation averaged 77% in the Day Surgery Unit (with utilisation defined from an assessment of the start of the first anaesthetic procedure to the official session end). For a Consultant/Senior Registrar led procedure, the average

operating time was 41 min (range 22–81 min) and for a middle-grade Registrar led procedure, the average operating time was not significantly different at 44 min (range 21–79 min). The average anaesthetic time per case (serviced by a Consultant or Senior Registrar only) was 13 min (range 6–26 min). This would allow up to four primary varicose vein operations to be scheduled per session (assuming the exclusion of any other type of operation from the list).

4. Conclusions

Varicose veins are so prevalent that they are likely to remain as one of the single most common conditions prompting referral to vascular surgical units and, indeed, many general surgical units. However, the low priority usually assigned to their surgical treatment means that many 'admission cards' can accumulate and come to dominate hospital waiting lists.

Day case surgery has had a dramatic impact on hospital practice since its rise to prominence over the past 20 years and the trend would now seem to be set for surgical departments to be asked to perform at least 40–50% or more of all procedures on a day case basis [4–6]. However, the assumption that numbers on a waiting list will decrease, because of the presence of a Day Surgery Unit, may not be true. In our case, over the past 3.5 years since the advent of the Day Surgery Unit, we have seen (on average) a 33% increase in the overall number of patients being treated which may reflect an increasing General Practitioner and patient awareness of the facility and its perceived benefits, encouraging referral.

Before the Day Surgery Unit was open, all primary varicose vein procedures were undertaken on an 'in-patient' basis, resulting in an average hospital 'bed day' stay of 2–3 days. Of course, this is an expensive way to manage such cases and often lists would change and patients be cancelled at short notice because of the lack of a bed. With the advent of the Day Surgery Unit the 'per-list' cost to the Health Service locally has fallen dramatically (from approximately £4000 to £1000). There has been a concomitant freeing of 'in-patient' beds and there is the distinct advantage to the patient that there is a very limited risk of cancellation for the want of a bed in the Day Unit.

For day surgery units to continue to be promoted and funded, they must be seen to be both safe and efficient. Patient selection remains of paramount importance as expressed by the Royal College of Surgeons [2] and by the Medical Defence Union [7], to minimise from the outset the post-operative complications from foreseeable causes. Once accepted, however, it is vitally important in order to prevent further complications, to provide optimum surgical and post-operative care,

Table 1
Post-operative complications following surgery for primary varicose veins in the Day Surgery Unit requiring transfer of the patient to an 'in-patient' hospital bed

Complication	Number
1. Large haematoma formation	3
2. Persistent bleeding	2
3. Disabling nausea	2
4. Hypotension or fainting	3
5. Pain (uncontrolled by oral therapy)	1
6. Social factors	3

combined with efficient (and cost effective) theatre management [8–11]. In this study, we were able to keep complications to an acceptably low level (less than 3%) and achieve a high rate of theatre utilisation (consistently above 75%). We feel that this has been achieved by only using senior staff to run lists (for both surgery and anaesthesia) and by monitoring practice with an efficient theatre management system (Surgiserver-2000). From the information gathered, we know that three or more usually four primary varicose vein procedures, correctly performed, can comfortably and safely be undertaken in a single theatre session. For the patient, as part of the aftercare package, we provide information sheets listing whom to contact in the event of a complication or concern after discharge. We feel the additional service offered by a 24 h mobile phone gives further reassurance (and indeed, sourced three further problems). In an attempt to pick up those complications missed by our recording systems, it may be deemed appropriate to also give the local General Practitioners the mobile phone number.

In our opinion, primary varicose vein surgery is ideally suited as a day case procedure. We recommend careful screening of patients onto the day surgery waiting list. The operation itself should be performed by the most senior surgeons and anaesthetists available, with experienced assistance. In order to maximise theatre utilisation time, three to four primary varicose vein procedures can realistically and safely be booked onto

an operating list. We would emphasise the need to keep a careful log of all complications and would advocate the introduction of a 24 h mobile phone system.

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