

Total daycare shoulder surgery

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ABSTRACT

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Background There is continued interest in day surgery. Arthroscopic shoulder surgery may be performed on a daycase basis. Historically, daycase shoulder surgery has been limited by peri-operative pain and anaesthetic issues; and to date there are no reports of daycase shoulder arthroplasty in the literature.

Methods A prospective study of 112 patients having shoulder therapeutic arthroscopy or arthroplasty managed according to the total daycare pathway, which includes balanced anaesthesia and simple analgesia.

Results One hundred and eight patients (96%) were discharged home by 17.00 hours without complications. However the remaining five cases required overnight admission for medical or anaesthetic reasons.

Conclusion This study demonstrates that, with the correct infrastructure and a multidisciplinary approach: the full spectrum of shoulder surgery may be performed on a daycase basis using interscalene block and simple analgesia.

INTRODUCTION

Arthroscopic shoulder surgery may be performed on either a daycase or inpatient basis. Historically, daycase shoulder surgery has been limited by anaesthetic and peri-operative pain issues. Wilson et al. [1] have previously investigated the interscalene block in daycase shoulder surgery. They stated that analgesia was inadequate after the block had worn off; and further commented that even if the patients were not daycases the block would have worn off on discharge the following day. Subsequent studies have explored the alternatives: subacromial bursal block for subacromial decompressions [2] or combined subacromial and glenohumeral block for more complex procedures [3].

Our group has previously demonstrated the efficacy of general anaesthesia and interscalene block (balanced anaesthesia) in shoulder surgery [4]. In this pilot study, 104 shoulder surgery patients were treated on an inpatient basis. However, 83% expressed the opinion that they could have been managed on a daycase basis.

Through a multidisciplinary approach, our team of surgeons, anaesthetists and nursing and theatre staff has worked to extend the scope of daycase shoulder surgery. The aim of this prospective study is to evaluate the concept of total daycase shoulder surgery.

METHODS AND MATERIALS

From 2000 to 2005, the surgical and anaesthetic teams continued to optimize the shoulder surgery pathway. Initially, much of the shoulder surgery was done on an inpatient basis. Interscalene block plus general anaesthesia steadily became the norm as did purely arthroscopic subacromial decompressions, rotator cuff repairs and anterior and posterior stabilizations. By 2005, the

majority of patients were successfully discharged on day 0. This optimization of the shoulder surgery pathway culminated with the aforementioned pilot study [4]. This study demonstrated the efficacy of general anaesthesia and interscalene block in shoulder surgery, the potential of balanced anaesthesia in enabling a total daycare service and that patients would prefer a total daycare service. The final step in enabling a shift to a total daycare service was to ensure that the local day surgery unit had the necessary capacity and infrastructure (see below); this was achieved by mid-2006.

All patients were seen in the shoulder clinic and after a discussion of risks vs benefits were listed for daycase shoulder surgery. Subsequently, they were seen in the dedicated consultant anaesthetist-led daycase shoulder pre-assessment clinic. This is usually on the same day as the clinic: patients take their day-surgery booking card directly to the pre-assessment clinic and are seen immediately. In the pre-assessment clinic they were assessed for suitability for total daycase shoulder surgery (see Table 1) and fully counselled regarding the daycase shoulder pathway (Fig. 1).

The inclusion/exclusion criteria for a total daycase approach are presented in Table 2. These criteria can be divided into social circumstances, general health issues and specific medical contraindications, which may be general or specific.

Shoulder surgery was performed on a day surgery basis, combining an interscalene block with general anaesthesia. The interscalene block was performed: with the patient awake using a single injection technique with a Stimuplex needle (Braun, USA), ultrasound guidance and 0.375% bupivacaine. Intra-operatively patients were given short acting opioids such as fentanyl and alfentanil ± NSAIDs. Anaesthesia was maintained with oxygen, air

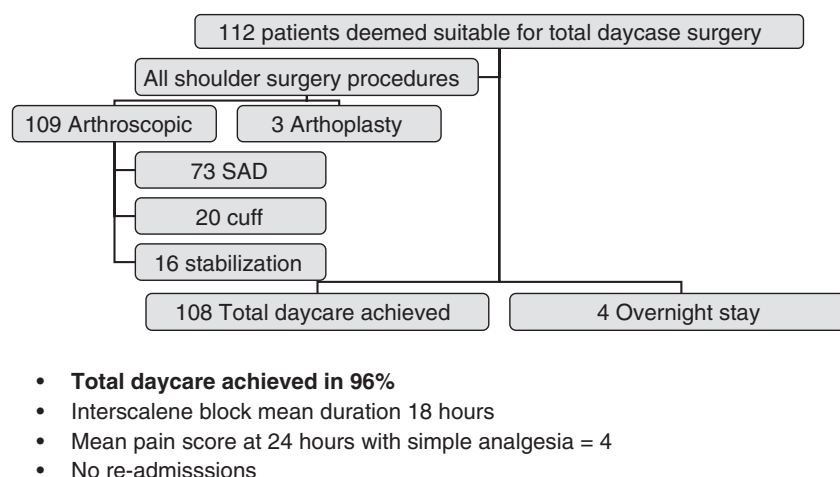


Fig. 1 Total daycare pathway. SAD subacromial decompression.

Table 1 Pre-operative investigations

Blood pressure
Pulse
Weight
Height
Sickle test in Afro-Caribbean and Eastern Mediterranean patients
ECG if patient hypertensive or if requested by doctor
U & Es if taking diuretics or antihypertensives
Hb for menorrhagia

and sevoflurane. Patients at low risk for nausea and vomiting were given dexamethasone at induction; high-risk nausea/vomiting patients were also given ondansetron at induction. Fluid balance was maintained with 500 ml to 1000 ml of intravenous Hartmann's solution. Post-operative analgesia was with Co-codamol 30/500, two tablets four times daily for 3 days to 5 days \pm diclofenac 50 mg three times daily for 3 days to 5 days.

All surgery was carried out by the senior surgeon using arthroscopic techniques. Patients were sent home within 8 hours after the operation providing they met discharge criteria (Table 3). Patients were then contacted at 24 hours using a standard telephone assessment as validated in the pilot study [4] recording analgesic requirements, nausea, hospital admission rate, pain (verbal 0 to 10) and subjective satisfaction levels (satisfied, dissatisfied, unsure).

RESULTS

One hundred and twelve patients (61 men, 51 women) were prospectively enrolled into the study during a 6 month period (September 2006 to January 2007). The mean age was 46 (range 19 to 85) years, with 60 right and 52 left shoulders.

The case mix was as follows: 109 arthroscopic procedures comprising 73 subacromial decompressions, 20 rotator cuff repairs, 16 stabilizations and 3 surface replacement arthroplasties. One hundred and eight patients (96%) were discharged home by 17.00 hours without complications. However the remaining five

cases required overnight admission for medical or anaesthetic reasons.

Immediate post-operative nausea was present in 11 (10%) of cases compared with only 7 (6%) patients at 24 hours. The mean duration of analgesic effect (i.e. the period for which patients did not require analgesia) was 18 hours. Patients then took simple supplemental analgesia (paracetamol and codeine) with a mean 24-hour pain score of 4.

There were no surgical complications and no re-admissions. In terms of satisfaction: the majority of patients (89%) were satisfied with the service (Fig. 2).

DISCUSSION

This study has demonstrated that the spectrum of shoulder procedures, including complex arthroscopic procedures and shoulder arthroplasty, can be performed as daycases. The use of an interscalene block with simple analgesia provides long lasting post-operative pain relief, with high levels of patient satisfaction. As far as we are aware, this was the first study of daycase shoulder surgery which included the full spectrum of shoulder surgery procedures.

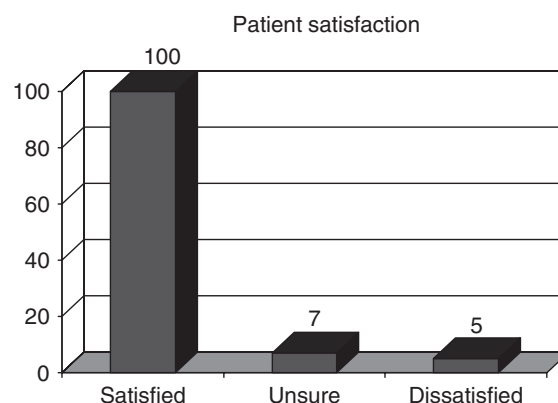


Fig. 2 Patient satisfaction with total daycare.

Table 2 Potential inclusion/exclusion criteria

All potential exclusions to be discussed with anaesthetist
Potential inclusion criteria
Social circumstances
Able to attend at 08.00 hours (morning case) or 12.00 hours (afternoon case)
Responsible adult to collect patient and care for overnight
General health
Generally fit i.e. able to climb 1 to 2 flights of stairs
Ambulant < 81 years old
Potential exclusion criteria
Cardiovascular disease
MI within 1 year
Unstable angina
Untreated arrhythmia
Uncontrolled hypertension 180/100 mmHg and above
Stroke within 1 year
Respiratory disease
Acute infection productive sputum
Obstructive airways disease- impaired exercise tolerance (see above)
Severe asthma- regular bronchodilators or steroids
Diabetes
Insulin dependent or poorly-controlled
Random BM stick > 10 mmol
Epilepsy
More than three attacks per year
Neurological disease that makes the person dependent
Stroke, myasthenia, muscular dystrophy, MS
Drug therapy
Not suitable for day surgery
Anticoagulants, steroids, monoamine oxidase inhibitors
Suitable for day surgery if well-controlled
Digoxin, antiarrhythmics, nitrates, thyroxine (must take drugs on day of surgery)
Impaired mobility
Stroke, severe arthritis, severe visual impairment
Obesity
BMI \geq 35
Known anaesthetic problems
Pregnancy
Blood disorders
Sickle cell, haemophilia
Infectious states
Hepatitis B, C, HIV, MRSA

The pilot study performed by our group demonstrated the potential of balanced anaesthesia in enabling a total daycare service for shoulder surgery [4]. It also illustrated that patients endorsed a total daycare approach. Our group utilized the results and lessons from the pilot study to plan a total daycare service and to establish the necessary infrastructure within the local daycare unit. In the present study, all patients deemed suitable for daycare surgery were managed in the day surgery unit. During this time period only those patients with anaesthetic/medical issues were managed as inpatients (and were hence excluded from the study). In our experience total daycare is possible

Table 3 Criteria for discharge

Haemodynamically stable maintaining oxygenation
Pain free or pain controlled with pain scores < 5 (0 no pain, 10 worst pain)
Eating or drinking
Mobilized
Has passed urine
Patient has medication to take home
All patients must stay for at least 4 hours
If above criteria borderline/not met inform anaesthetist

only through patient education and a multidisciplinary team approach (surgeons, anaesthetists, nurses, theatre and anaesthetic staff).

Previous studies have explored the role of interscalene block in shoulder surgery [1,5–7]. Wilson et al. [1] investigated analgesia for daycare shoulder surgery. They stated that analgesia was inadequate after the block had worn off and further commented that even if the patients were not daycases the block would have worn off on discharge the following day. Hence, the confounding factor was analgesia rather than a problem with the day surgery pathway. Several other studies have highlighted the great potential of interscalene blocks for daycare shoulder surgery [5–7]. Conn et al. reported successful anaesthesia with interscalene block in 82% of patients undergoing major shoulder surgery [5]. Bishop et al. demonstrated that interscalene block provides safe and effective anaesthesia for most types of shoulder surgery [6]. Hadzic et al. demonstrated in a clinical trial that interscalene block for outpatient rotator cuff surgery provides several same-day recovery advantages over general anaesthesia [7]. Other studies have explored the alternatives: subacromial bursal block for subacromial decompressions [2] or combined subacromial and glenohumeral block for more complex procedures [3].

This study demonstrates that interscalene block plus simple analgesia enables total daycare shoulder surgery. Ninety-six percent of patients in this study were successfully managed as daycases, the remainder required overnight admission and were discharged on day 0. There were no re-admissions. With the evolution in healthcare provision and progress in anaesthetic and surgical care, daycare surgery is likely to become increasingly important. This study demonstrates that shoulder surgery lends itself to a total daycare service.

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