



Original article

The development of a protocol in using day surgery for minor orthopaedic trauma patients

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We examined all minor orthopaedic trauma patients requiring surgical intervention at Manchester Royal Infirmary over a 6-month period to determine whether minor trauma patients meet the day surgery requirements in terms of medical fitness, analgesia requirements and postoperative complications. A total of 83 patients had surgery for minor orthopaedic trauma in the defined period. Of these patients, 79 (95.2%) were medically fit, 45 (70%) were admitted to a hospital ward and 19 (30%) were brought back to day surgery. None of the patients attending day surgery developed postoperative complications or required return to hospital. The majority of patients admitted to a ward required simple or no analgesia pre- (95.5%) and postoperatively (100%), and most were discharged on the same (55.6%) or next (35.6%) day of their operation. We suggest a protocol whereby patients with minor trauma are brought back to day surgery. This could potentially reduce pressures on bed availability.

Key words: Minor trauma – Orthopaedics – Surgery – Day surgery

It is recommended that every effort should be made for suitable surgical procedures to be identified and performed in day surgery.¹ It is estimated that 50–60% of elective surgical procedures can be done in day surgery.² The use of day surgery for elective surgical procedures is on the increase.³ However, its use for urgent surgical procedures has not been extensively studied. Loftus and Watkin⁴ reported a series of patients in which a day-surgery service for the surgical treatment of superficial abscesses was successfully provided. Although the use of day surgery for elective orthopaedic procedures is recognized,⁵ its use for minor orthopaedic trauma procedures has not been described.

Patients presenting to the accident and emergency (A&E) department or the fracture clinic of the Manchester Royal Infirmary, with orthopaedic minor trauma requiring surgical

intervention, are usually admitted to an acute trauma ward. If the acute trauma ward is full, they are admitted to an elective orthopaedic ward instead. Patients tend to stay in the ward until their operation is carried out. Due to lack of ward beds, there is often a long wait between the patient seen by the orthopaedic team and a ward bed becoming available. At our hospital, some minor trauma patients, instead of being admitted to a ward, are brought back to day surgery, at the discretion of the orthopaedic consultant in charge of their care. A protocol where most minor trauma patients would be brought back to day surgery instead of being admitted to a ward would be highly desirable, as it could potentially save hospital beds and reduce the time that more serious trauma patients would have to wait in A&E.

The aim of this study was to determine whether minor trauma patients meet the day surgery requirements in

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terms of medical fitness, analgesia requirements and post-operative complication rates and to develop a protocol whereby patients are brought back to day surgery instead of being admitted to the ward.

Patients and Methods

We looked at all minor orthopaedic trauma patients admitted in the orthopaedic department of the Manchester Royal Infirmary over a 6-month period, between 1 January and 30 June 2001, to identify those who had one of the following procedures: (i) manipulation under anaesthesia (MUA) of hand fractures and hand joint dislocations; (ii) repair of torn hand ligaments; (iii) MUA (with or without K-wire stabilisation) of distal radial fractures; (iv) hand extensor tendon repairs; (v) exploration and closure under anaesthesia of superficial limb lacerations; and (vi) sub-cutaneous limb foreign body removals.

The medical records of these patients were reviewed. Information with regards to the patients' demographics, previous medical history, day when procedure was carried out (weekday versus weekend), postoperative complications and place of admission (day surgery, acute trauma ward, orthopaedic ward) was collected. For those patients admitted to the ward, their pre-and postoperative analgesia requirements and hospital stay were determined.

Results

In the 6 first months of 2001, 355 adult patients had surgery for acute minor trauma at our hospital. Of these, 83 (23.4%) underwent one of the predefined surgical procedures. The average age of these patients was 25 years (range, 17–76 years). Of the patients, 79 (95.2%) were medically fit (ASA I or ASA II) according to the anaesthetic assessment. As our day surgery operates only Monday to Friday, we identified those patients who were

operated on during weekdays and could thus potentially have been brought back to day surgery. Of the 79 medically fit patients, 64 (81%) were operated on weekdays. Of these, 45 (70.3%) were admitted to the ward and 19 (29.7%) were brought to day surgery. All patients had surgery under general anaesthesia.

Table 1 summarises the procedures that the patients admitted to day surgery had. All patients admitted to day surgery were discharged home with simple analgesia (paracetamol, non-steroidal anti-inflammatory drugs [NSAIDs] and codeine phosphate). None required admission to a hospital ward, and none developed any postoperative complications that would require return to hospital.

We then looked at the 45 patients admitted to hospital to see whether they could have been brought back to day surgery. Nineteen (42.2%) were admitted to the acute trauma ward. Due to no bed availability in the acute trauma ward, 25 (55.6%) were admitted to our elective orthopaedic ward and 1 (2.2%) in a general surgical ward. Forty-one patients were admitted from A&E and 4 from the fracture clinic. For the patients admitted from A&E, the average waiting time from being seen by the orthopaedic team on-call in A&E, to obtaining a bed in the ward was 2 h and 25 min (range, 30 min to 24 h). Twenty (44.5%) of these 45 patients went home on leave at their own request, whilst in the ward waiting for their operation or whilst in A&E waiting for a ward bed.

Of the 45 patients admitted to the ward, 23 (51.1%) required no analgesia, 20 (44.41%) required simple analgesia (codeine phosphate, paracetamol, NSAIDs) and 2 (4.5%) required strong opioid analgesia (morphine, pethidine) prior to their operation. Postoperatively, 15 (33.3%) patients required no analgesia outside the recovery room and 30 (66.7%) required simple analgesia.

Of the 45 patients being given a hospital bed, 25 (55.6%) were discharged home the same day and 16 (35.6) the next day. On examining these 16 patients' records, there was no obvious clinical or social reason justifying their overnight stay. Only 4 (8.8%) stayed in hospital for more than 2 days, 3 of these for social reasons and 1 due to the development of postural hypotension postoperatively. None of the patients developed any acute postoperative complications.

Discussion

Although there is extensive literature with regards to use of day surgery for elective procedures,¹⁻³ there is only limited evidence with regards to its use for acute surgical problems, especially for minor orthopaedic trauma cases. The lack of hospital resources and limitation of hospital beds is a major problem especially encountered in busy inner-city hospitals. The use of day surgery for minor orthopaedic trauma patients would be highly desirable, as it would reduce the pressure on hospital beds.

Table 1 Surgical procedures performed in our study population

Procedure	Number of patients	
	Attending day surgery (n = 19)	Admitted to ward (n = 45)
MUA/EUA/K-wiring of hand and distal radial fractures	11	20
Hand extensor tendon repair	7	13
Wound cleansing/closure	0	6
Foreign body removal	0	2
Thumb ulnar collateral ligament repair	1	1
Application of finger external fixator	0	1
Combination of the above	0	2

All patients had general anaesthesia. MUA, manipulation under anaesthesia; EUA, examination under anaesthesia.

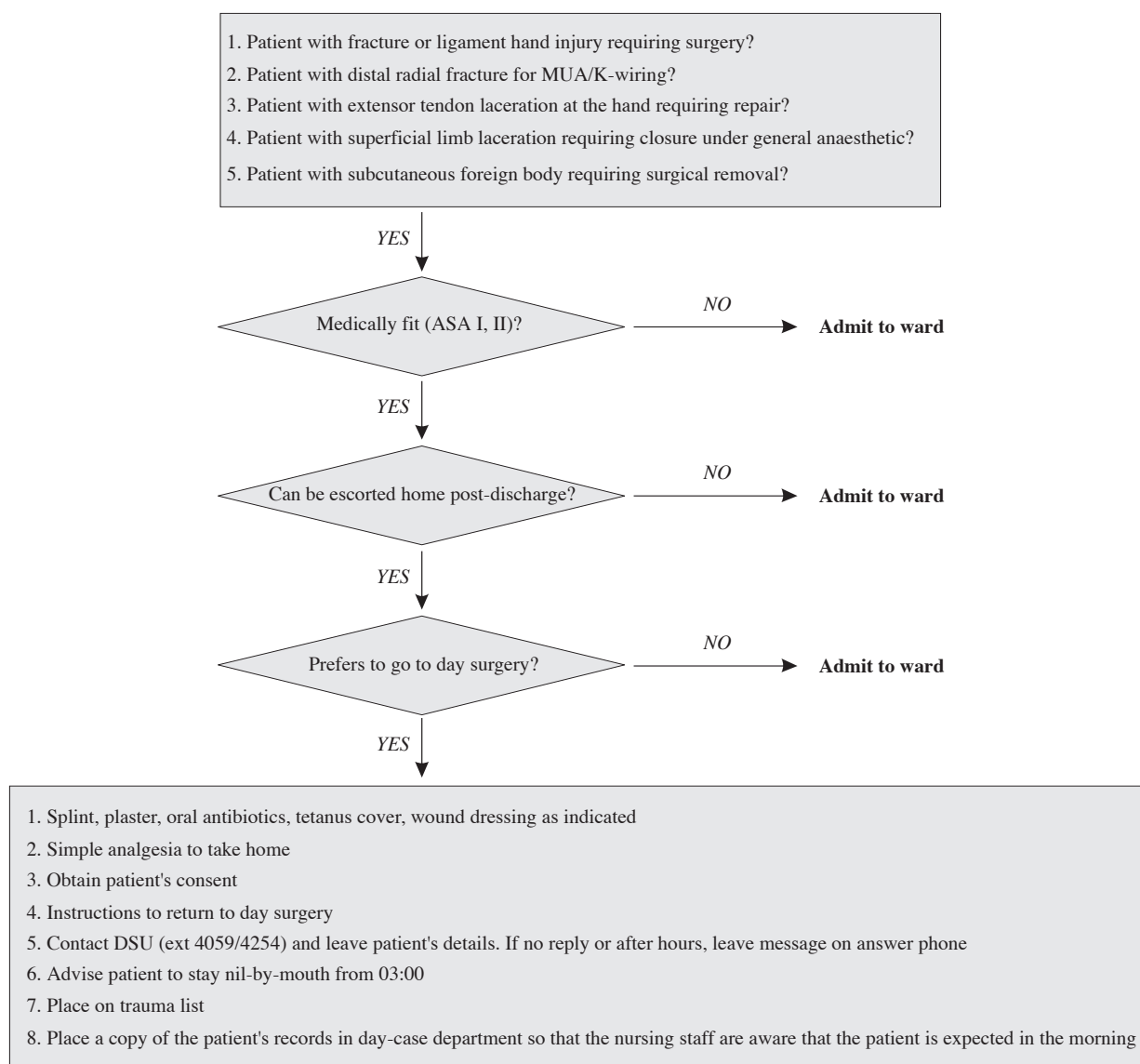


Figure 1 Protocol to be followed by orthopaedic SHO on-call or orthopaedic doctor in fracture clinic. For patients seen in A&E, the provisional decision on surgical management is made by the duty orthopaedic SHO in liaison with the duty orthopaedic SpR and is confirmed at the next morning's trauma meeting attended by the consultants. For patients seen in the fracture clinic, the decision is made by the attending consultant.

Although the successful use of day surgery for elective orthopaedic cases has been described, its use in minor trauma patients has not been investigated. We performed this work in an attempt to determine whether minor orthopaedic trauma patients are a population suitable for day surgery, and to develop a protocol whereby such patients would be brought back to the day surgery instead of being admitted to the ward.

From this study, it seems that the use of day-case for minor trauma patients would be feasible. The majority of minor trauma patients in our study were young and

medically fit (ASA I or II). Twenty patients were brought back to day surgery uneventfully. The patients admitted to the ward required minimal pre- and postoperative analgesia, one of the major criteria for day surgery. All patients had minor surgical procedures that lasted less than 1 h. None developed any significant postoperative complications. Because of the retrospective nature of this study, it was not possible to assess whether the patients would have someone to escort them home and stay with them overnight following a day-case procedure. Furthermore, it was not possible to assess whether they would

have preferred to go home and return the next day for day-case. Nonetheless, most of the patients in our series were young and thus it would be expected that they would be able to make arrangements for being escorted and overnight care. Furthermore, the fact that a significant proportion actually went home at their own request, whilst waiting in A&E for a bed, or whilst waiting for their operation after being given a hospital bed, suggests that these patients would have preferred to go home and return the next day.

Conclusions

On the basis of this study, we suggest that it is feasible to use day surgery for minor orthopaedic trauma patients and propose a protocol (Fig. 1) whereby this could be achieved. This could potentially reduce pressures on bed

availability, limit the waiting times in A&E departments for trauma patients, and prevent possible cancellations of elective procedures due to minor trauma patients occupying elective orthopaedic beds.

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