Surgery or palliation for hip fractures in patients with advanced malignancy?

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Abstract

Objective: to investigate the management and outcome of patients with advanced cancer who sustain fractures of the neck of femur.

Design: multi-centre, prospective, observational study.

Subjects: patients with advanced malignancy, under the care of a palliative care team, who subsequently fractured a femur.

Outcome measures: survival time post-fracture, return home.

Results: 40 patients were recruited with a fractured neck of femur. Analysis of the management of patients according to the Eastern Co-operative Oncology Group performance score was undertaken. Twenty-nine patients were treated surgically and 11 conservatively. For patients with performance scores of 0, 1 and 2 surgery usually resulted in a successful rehabilitation outcome and discharge. None of those with scores of 3 or 4 returned home.

Conclusion: patients with advanced malignancy and a poor performance score should not be automatically referred for surgery.

Keywords: advanced malignancy, conservative management fractured neck of femur, palliative care

Introduction

The management of fractured neck of femur in elderly patients is costly in terms of numbers of hospital consultant episodes, bed occupancy [1] and individual suffering. One-third of elderly women who have fractured their necks of femur will die within 1 year and one-quarter of the survivors are more disabled than before the event [2, 3].

The aim of management is to rehabilitate patients so that they can return to their own homes as quickly as possible. Although elderly patients pose anaesthetic risks, surgical management offers the best chance of a successful outcome. The alternative—conservative management—means a longer hospital stay with increasing risks of thrombo-embolism and bronchopneumonia associated with prolonged immobility. Furthermore, conservative management can create nursing problems in lifting and transferring the patient.

Patients with advanced cancer not infrequently sustain fractures to the neck of femur, both pathological and non-pathological and, whilst the management of pathological fractures in patients with malignancy has been investigated, there has been no previous work on the population in palliative care units, i.e. those with advanced cancer [4, 5].

The investigators, both working in hospice medicine, felt that there were inevitably some patients who were too near death to contemplate surgery. We therefore sought to investigate the management of patients with advanced cancer who sustained fractures of the lower limb in order to ascertain whether a surgical approach should be applied to this vulnerable group of patients.

Methods

Eleven palliative care units, comprising the South Thames West Palliative Medicine Collaborative Audit Group, took part in the survey. Each centre entered patients who had been referred to the unit and then subsequently sustained a fracture of a lower limb. Age, sex and primary site of malignancy were recorded. The performance status in the week before the fracture was indicated using the Eastern Co-operative Oncology (ECOG) scale (Table 1). The reason for the chosen management was documented.

Subsequent recordings of the ECOG score, comments
Table 1. Eastern Co-operative Oncology Group performance status scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Fully active; able to carry on all pre-disease performance without restriction</td>
</tr>
<tr>
<td>1</td>
<td>Restricted in physically strenuous activity but ambulatory and able to carry out light work</td>
</tr>
<tr>
<td>2</td>
<td>Ambulatory and able to carry out all self-care but unable to carry out any work activities; up and about more than 50% of waking hours</td>
</tr>
<tr>
<td>3</td>
<td>Capable of only limited self-care; confined to bed or chair more than 50% of waking hours</td>
</tr>
<tr>
<td>4</td>
<td>Completely disabled; cannot carry on any self-care; totally confined to bed or chair</td>
</tr>
</tbody>
</table>

Results

During the study period, 44 patients were recruited. Forty had sustained a fractured neck of femur and four a fractured shaft of femur. The 40 with fractured necks of femur were analysed. There were 24 women and 16 men with an average age of 70 years (range 41 - 101). In 21 patients the fracture was judged from the history and the x-ray appearance to be pathological. In 16 it was thought not to be pathological and in three the diagnosis was unclear (no patient had histological confirmation). In four patients the fracture occurred in an area previously treated with radiotherapy. A further patient was undergoing radiotherapy to the hip at the time of fracture; the incident occurred during transfer to the treatment table. Radiotherapy was not given to any of the patients after the fracture occurred.

The distribution of patients by ECOG score is shown in Table 2. As might be expected for this population, a high level of physical dependency is seen, with over half the patients being confined to bed or chair for more than 50% of the day in the week before entering the study.

Of the 40 patients recruited, there had been an initial plan for surgical management in 31 (78%), but only 28 (70%) received surgery. In one patient the fracture was considered inoperable, while two patients died before surgery. Twelve patients received conservative measures.

Restoration of mobility, with a view to rehabilitation and return home, was the most common reason for referring a patient for surgery. This was recorded for 20 of the 31 patients in whom surgery was the planned management. In one of these 20, pain control was an additional factor. In another patient pain control alone was cited as the reason for referral. For seven patients the anticipated outcome and reason for the chosen management was not recorded, but in three patients referred for surgery 'imminent death' was documented.

Table 2. Distribution of Eastern Co-operative Oncology Group scores

<table>
<thead>
<tr>
<th>Score</th>
<th>No. of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

The nature of the fracture (pathological or not) did not seem to influence the decision to refer for surgery, but in one patient a pathological fracture was considered inoperable by the orthopaedic surgeons.

Table 3 illustrates the management of patients within each ECOG category and summarizes the outcomes. Patients with scores 0, 1 and 2 represent the relatively more mobile group: all but one of these were treated with surgery. In the more debilitated groups (with scores of 3 and 4), surgery was performed on 11 patients (48%).

Of the 19 patients in groups 0, 1 and 2 all but one were treated surgically. From these groups, 13 patients were able to return home for a period before death (12 of the surgically treated patients and the one treated conservatively). All patients dying before discharge were in the ECOG 2 group. The six patients who did return home in this group took longer to rehabilitate than those in the less dependent groups.

Of the 21 patients with ECOG scores of 3 or 4, 10 (48%) were managed surgically. No patient in these groups returned home regardless of whether they were surgically or conservatively managed. The usual reason for opting for conservative management was anticipated rapid deterioration and death. The survival of the surgically managed patients ranged from 4 days to 5 months, with a median survival of 34 days. The survival of the patients managed conservatively was considerably less, with a range of 2 days to 2 months (median 6 days).

Pain was assessed as no pain, minimal, moderate or severe. In only two patients were there recordings of moderate or severe pain, noted in both cases at the
Table 3. Management according to Eastern Co-operative Oncology Group score

<table>
<thead>
<tr>
<th>Score</th>
<th>Total</th>
<th>Surgery</th>
<th>Conservative management</th>
<th>Sent home</th>
<th>Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>1 year and 76 days</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>3 months - 10 months (median 8 months)</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>3 days - 10 months (median 120 days)</td>
</tr>
<tr>
<td>3</td>
<td>19</td>
<td>9</td>
<td>10</td>
<td>0</td>
<td>(Surgical) 4 days - 5 months (median 34 days)</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>(Conservative) 2 days - 2 months (median 6 days)</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>28</td>
<td>12</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

14-day assessment. Both of these patients had undergone surgery and in one of them pain was not controlled at other sites in addition to the fracture site. Whether the cause of the pain was surgical imperfection was not recorded, nor were details of the grade of surgeon who performed the operation recorded. Additionally, there were no reported problems of pain control in the comments section for any patient. The use of skin traction and regional blocks were reported for two of the patients who were managed conservatively.

Discussion

Effective surgical management of patients who fracture the neck of femur enables restoration of mobility and discharge home [6]. For patients in the palliative care setting, pain control is also an important consideration, but in this study was cited as the reason for proceeding to surgery in only two patients. Where patients are severely debilitated, confined to bed or chair for significant periods of the day and unable to perform full self-care needs, a fracture of the neck of femur further contributes to their dependency. In this series, surgery did not lead to successful rehabilitation in the most dependent patients. Aims to restore function are unlikely to improve the patient's well-being in those patients debilitated with advanced malignancy.

Conservative management did not compromise pain control during the periods that it was assessed, but in future studies more attention should be paid to pain control in the first 14 days after fracture (11 patients died within this time). Attempts to record analgesic requirements at the time of fracture and subsequently were abandoned due to the difficulty in differentiating the analgesic requirements for the fracture site from other sources of pain. Patients with advanced malignancy frequently have multiple sites of pain and their clinical condition may change rapidly. However, the absence of data concerning pain control for these patients at that time should not inhibit questions about the value of surgery, given their poor survival. Of particular concern were those patients referred for surgery despite a clear recognition that they were near to death. This may reflect the strength of the teaching that surgery is the treatment of choice for patients with fractured necks of femur, perhaps obscuring the more holistic conservative approach practised in palliative care units.

Nearly all the patients treated conservatively were cared for in hospices or on palliative care wards in hospital, where the nurses are used to handling extremely debilitated patients with multiple sites of pain. The presence of a fracture did not seem to pose exceptional nursing problems.

The use of the ECOG performance score may be criticized as being an insensitive measure of patients' functional ability, but it has the advantage of being simple and easy to use. In this study of patients with advanced malignancy a poor ECOG score in those who sustained a fracture of the neck of femur indicated a poor prognosis. Future studies might incorporate validated activities of daily living and quality of life scales.

In this study, the denominator population was relatively large (in terms of studies conducted in palliative care settings), involving 11 centres and running over 18 months, but few patients were recruited and thus the numbers in the subgroups are too small for statistical analysis. The survey does, however, raise the question of the appropriateness of surgical management of patients with advanced disease who are physically very dependent or near to death and who sustain a fracture of the neck of femur.

Acknowledgements

The authors would like to acknowledge the participation of the following centres: Harestone Marie Curie Centre, Caterham; Macmillan Unit, Midhurst; Phyllis Tuckwell Hospice, Farnham; Princess Alice Hospice, Esher; Royal Marsden Hospital, Sutton; St Barnabas' Hospice, Worthing; St Catherine's Hospice, Crawley; St Raphael's Hospice, Cheam; St Wilfred's Hospice, Chichester; St Thomas's Hospital, London; Trinity Hospice, Clapham.
Key points

- Surgical management of a fractured neck of femur in patients with advanced malignancy and poor performance status (Eastern Co-operative Oncology Group 3 or 4) is of doubtful benefit.
- Conservative management of these patients may be a reasonable alternative in selected cases.

References


Received 8 January 1997