Is day case liver biopsy underutilised?

A C Douds, A E A Joseph, C Finlayson, J D Maxwell

Abstract

Day case liver biopsies are rarely performed nationally but have been routine practice in selected patients in our hospital since 1989. We have audited our experience of this procedure to compare its safety, and efficacy with inpatient biopsy and assess patient acceptability. Audit data were collected retrospectively on liver biopsies performed at a teaching hospital over 42 months. Acceptability of day case biopsy was assessed by a questionnaire. A total of 182 of 546 biopsies were day cases (33%). The specimen quality was similar in both groups. The overall complication rate did not significantly differ between the two groups (2-7% day case v 3-3% inpatients). There were no deaths or episodes of haemorrhage in the day cases but one patient developed a pneumothorax. Some 91% of those who had a day case biopsy were satisfied with the procedure. Day case liver biopsy is safe, effective, and acceptable in selected patients.

(Gut 1995; 37: 574–575)

Keywords: needle biopsy, liver diseases, outpatient.

Percutaneous liver biopsy as a day case procedure was first described in the United States in 1978 but despite large studies suggesting its safety1 it would seem to be underutilised in the United Kingdom. A recent national audit of liver biopsies showed that less than 5% were performed as day case procedures.2 We have routinely undertaken outpatient liver biopsies since 1989 and thought it timely to audit this clinical practice to assess safety, efficacy, and patient acceptability.

Methods

Liver biopsies performed at St George's Hospital between November 1989 and March 1993 were retrospectively reviewed. The case notes were analysed for: age, sex, indication, day case or non-day case, biopsy technique, core size, and complications.

Patient selection

Patients were selected for day case biopsy according to the following criteria: (a) low risk of complications – no ascites, encephalopathy, coagulopathy (prothrombin time prolonged by less than four seconds), and platelets greater than 100×10^9/l; (b) a reliable relative, partner or friend stayed at patient's home overnight following biopsy; (c) proximity to the hospital (within 15 minutes by car or ambulance); (d) patient had access to a telephone.

Results

A total of 546 liver biopsies were performed over 42 months and 182 of these as day case procedures (33%). Some 453 case notes (83%) were retrieved for analysis. All 182 of the day case biopsy notes were obtained for review. Ninety three case notes (17%) were unobtainable. Table I summarises the demographic data, indications, biopsy techniques, core length, and complication rates. There was no significant difference in overall or individual complications between the day case and inpatient groups. Table II gives details of complications.

Patient acceptability

Forty four consecutive patients fully completed the patient questionnaire. Forty (91%) stated a preference for liver biopsy as a day case procedure. Four patients would have preferred to be

*Significantly different from non-day case group (p<0.0001); U/S=ultrasound; CT=computed axial tomography.

No core obtained in one day case biopsy despite four passes, therefore patient had ultrasound guided biopsy.

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**Table I** Characteristics of liver biopsy patients

<table>
<thead>
<tr>
<th>Demographics</th>
<th>No of subjects (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day case</td>
</tr>
<tr>
<td>Total</td>
<td>182</td>
</tr>
<tr>
<td>Male (%)</td>
<td>110 (60)</td>
</tr>
<tr>
<td>Female (%)</td>
<td>72 (40)</td>
</tr>
<tr>
<td>Mean age (range)</td>
<td>46 (20–78)*</td>
</tr>
<tr>
<td>Indications</td>
<td></td>
</tr>
<tr>
<td>Suspected chronic liver disease (%)</td>
<td>171 (90)*</td>
</tr>
<tr>
<td>Suspected malignancy (%)</td>
<td>7 (5)*</td>
</tr>
<tr>
<td>Other (%)</td>
<td>4 (5)</td>
</tr>
<tr>
<td>Biopsy techniques</td>
<td></td>
</tr>
<tr>
<td>Needle (%)</td>
<td>168 (92)*</td>
</tr>
<tr>
<td>U/S or CT guidance (%)</td>
<td>14 (8)*</td>
</tr>
<tr>
<td>Operative (%)</td>
<td>0*</td>
</tr>
<tr>
<td>Core obtained (%)</td>
<td>181 (99)*</td>
</tr>
<tr>
<td>Core length (mm)</td>
<td>16</td>
</tr>
<tr>
<td>Complications (%)</td>
<td>5 (2.7)</td>
</tr>
</tbody>
</table>

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**Table II** Complications of liver biopsy

<table>
<thead>
<tr>
<th>Complication</th>
<th>Day case</th>
<th>Non-day case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemorrhage (%)</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Side effects (%)</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Complications (%)</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

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*Significantly different from non-day case group (p<0.0001); U/S=ultrasound; CT=computed axial tomography.

No core obtained in one day case biopsy despite four passes, therefore patient had ultrasound guided biopsy.
admitted after biopsy as they were anxious about possible complications.

Discussion
This audit shows that day case liver biopsy in selected patients is a safe procedure in keeping with the results of previous studies.1-6 The selection criteria we used for day case biopsy were based on guidelines issued by the American Gastroenterological Association in 19897 and seemed to be good predictors of a low complication rate. Only 2.2% of patients in the day case group required admission for suspected complications and all were discharged the following day with no serious sequelae. One patient in the day case group developed a pneumothorax. This was not detected at the time of discharge but only when the patient returned to the hospital three days later. In the inpatient group one death was recorded but there was no significant difference in total or individual complication rates between the two groups. Serious complication rates following inpatient liver biopsy have ranged from 0-1 to 4-6%,8 which is comparable to our experience. Investigators have previously observed that complications, particularly haemorrhage, following liver biopsy most often occur within the first four to six hours.8 It is rare for complications to occur after this time although case reports exist of haemorrhage occurring 14 days post-biopsy.9

Our protocol includes close nursing observations for seven hours post-biopsy, which we feel is an optimal time to detect possible complications although other studies have advocated observation periods as short as three to six hours.1 5 6

Increasing the use of day case procedures is an important aspect of improving the cost-effectiveness of health care. Our experience confirms that day case liver biopsy is a feasible option and that most patients prefer the convenience of having liver biopsy as a day case procedure. The disparity between the current low national rate, less than 5%, and our own practice, greater than 30%, suggests that there is considerable scope for increasing the use of day case liver biopsy in the United Kingdom, with the potential for large cost savings.

In summary day case liver biopsy is safe, effective, and acceptable to patients. It is presently underutilised in the United Kingdom and we advocate its increased use in selected patients who require percutaneous liver biopsy.

Copies of the full report of this paper may be obtained from Dr A C Douds, Department of Gastroenterology, St George’s Hospital Medical School, Cranmer Terrace, London SW17 0RE.

Part of this work has been presented to the British Society of Gastroenterology, and published as an abstract in Gut 1993; 34 (suppl 4): S58.

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