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References

1 **Kessler H**, Stelzl E, Raggam R, *et al*. Effects of storage and type of blood collection tubes on hepatitis C virus level in whole blood samples. *J Clin Microbiol* 2001;**39**:1788–90.
2 **Grant P**, Kitchen A, Barbara J, *et al*. Effects of handling and storage of blood on the stability of hepatitis C virus RNA: implications for NAT testing in transfusion practice. *Vox Sang* 2000;**78**:137–42.
3 **Schmid P**, Tong M, Conrad A, *et al*. Analysis of the viability of freezer stored serum samples for hepatitis C virus RNA analysis by the superquant method: results of a 16 year retrospective study. *J Virol Methods* 1999;**82**:201–6.
4 **Lee SC**, Antony A, Lee N, *et al*. Improved version 2. 0 qualitative and quantitative AMPLICOR reverse transcription-PCR tests for hepatitis C virus RNA: calibration to international units, enhanced genotype reactivity, and performance characteristics, *J Clin Microbiol* 2000;**38**:4171–9.

Outpatient liver biopsy: a prospective evaluation of 500 cases

Percutaneous core liver biopsy plays an important role in the management of parenchymal liver disease in establishing diagnosis, evaluating prognosis and monitoring the effect of therapy. Despite the first biopsy been carried out over 100 years ago, debate surrounds best practice.

Day case liver biopsy has become increasingly popular and has not been shown to be associated with increased complications.[1 2] Under most day case regimens, patients are observed for up to six hours post biopsy but the majority of complications occur within the first hour post procedure and studies have suggested that the observation period may be reduced from the standard 4–6 h.[3–5]

Our study prospectively evaluated short stay (1 hour observation) liver biopsy over a 3 year period. Patients referred for non-focal core ultrasound guided liver biopsy were recruited. Patients were excluded if platelet counts were $<50\ 000/mm^3$ or prothrombin time >3 s and also if they suffered from severe ascites or intrahepatic biliary dilatation. Patients were required to have a responsible adult to accompany them for the first 24 hours after the procedure. Ultrasound guided biopsies (Bardâ Biopty-Cutâ 18G cutting needle) were usually taken from the right lobe of the liver using an intercostal approach.

Patients were observed for 1 h within the ultrasound department, receiving analgesia as required. The radiologist who had performed the procedure reassessed the patient prior to discharge. No other departments within our hospital were involved in the management of the patient.

In total, 500 patients (291 males and 209 females) underwent core liver biopsy. Mean patient age was 43 years (range 18–76). In 495 (99%) patients, a definitive or indicative pathological diagnosis was obtained from the biopsy.

A total of 110 (22%) patients experienced pain at the time of or within 1 h of the procedure and of these, 15 (3%) required analgesia; 496 patients were discharged after 1 h of observation. Three patients were kept under observation for a further 1 h due to pain. One patient (0.2%) required admission for a haemorrhagic complication. There were no recorded delayed complications or deaths at follow up.

Our study has shown that outpatient percutaneous liver biopsy may be performed within a 2 h total time period and that almost all patients are safely discharged within 1 h of observation following the procedure. Most guidelines for day case percutaneous liver biopsy recommend an observation period of 4–6 h.[3] This is based primarily on studies showing that only 60% of complications occur within 2 h of the procedure but we feel that our study, together with recent investigations, suggest that this observation period is too long and that most patients can safely be discharged within 1 h.[4–7]

In patients who have the procedure carried out with ultrasound, the reported complication rate is low, generally significantly less than 1% for major complications.[8 9] However, in a review of clinical practice among physicians in the USA, only 76% used ultrasound.[10] We believe that the low complication rate that we recorded was related to the use of ultrasound during the procedure and that short stay liver biopsy should always be coupled with imaging guidance. In many institutions, a day ward is used for procedures such as liver biopsies. By performing the procedure on an outpatient (short observation) basis, significant cost savings may be accrued.

In conclusion outpatient liver biopsy is safe when performed on carefully selected patients in a setting that provides close observation for 1 h after biopsy. Major complications after outpatient liver biopsy are rare and manifest early. We propose that short stay liver biopsy is a safe and feasible technique.

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References

1 **Younossi ZM**, Teran JC, Ganiats TG, *et al*. Ultrasound-guided liver biopsy for parenchymal liver disease: an economic analysis. *Dig Dis Sci* 1998;**43**:46–50.
2 **Douds AC**, Joseph AE, Finlayson C, *et al*. Is day case liver biopsy underutilised? *Gut* 1995;**37**:574–5.
3 **Grant A**, Neuberger J. Guidelines on the use of liver biopsy in clinical practice. *Gut* 1999;**45**(Suppl 4):IV1–V11.
4 **Firipi RJ**, Soldevila-Pico C, Abdelmalek MF, *et al*. Short recovery time after percutaneous liver biopsy: should we change our current practices? *Clin Gastroenterol Hepatol* 2005;**3**:926–9.
5 **Pokorny CS**, Waterland M. Short-stay, out-of-hospital, radiologically guided liver biopsy. *Med J Aust* 2002;**176**:67–9.
6 **Piccinino F**, Sagnelli E, Pasquale G, *et al*. Complications following percutaneous liver biopsy. A multicentre retrospective study on 68,276 biopsies. *J Hepatol* 1986;**2**:165–73.
7 **Bicknell SG**, Richenberg J, Cooperberg PL, *et al*. Early discharge after core liver biopsy: is it safe and cost-effective? *Can Assoc Radiol J* 2002;**53**:205–9.
8 **Caturelli E**, Giacobbe A, Facciorusso D, *et al*. Percutaneous biopsy in diffuse liver disease: increasing diagnostic yield and decreasing complication rate by routine ultrasound assessment of puncture site. *Am J Gastroenterol* 1996;**91**:1318–21.
9 **Vautier G**, Scott B, Jenkins D. Liver biopsy: blind or guided? *BMJ* 1994;**309**:1455–6.
10 **Angtuaco TL**, Lal SK, Banaad-Omiotek GD, *et al*. Current liver biopsy practices for suspected parenchymal liver disease in the United States: The evolving role of radiologists. *Am J Gastroenterol* 2002;**97**:1468–71.

Inflammatory syndrome with liver adenomatosis: the beneficial effects of surgical management

We report a case of a patient with an inflammatory syndrome cured after resection of an adenoma. A 33-year-old woman was admitted to the department of internal medicine in May 2004 for invalidating pain in the spinal cord in the context of an inflammatory syndrome. The patient had been on oral contraceptives (Adepal) for the past 16 years. The inflammatory syndrome involved fever (37.4–38°C), anaemia, C reactive protein 90 mg/l, fibrinogen 7 g/l, sedimentation rate 106 mm and haptoblobin 2.9 g/l. Investigations for infectious, viral, systemic, hormonal and haematological disorders were all negative.

Liver function tests showed abnormally high levels of alkaline phosphatase (×3N), γ-glutamyltransferase (×2N), and alanine aminotransferase (×1.5N). Liver ultrasound scan showed two nodules in the right lobe (12 and 4 cm across), which was confirmed by magnetic resonance imaging (MRI), and three additional 1-cm-nodules in the same lobe. A right hepatectomy was performed in November 2004. In March 2005, the inflammatory syndrome had normalised: the red blood cell count was 4.4 T/l, haemoglobin 12.7 g/dl, hematocrite 39.2%, mean globular volume 93 μm^3, C reactive protein 3 mg/l, sedimentation rate 6 mm, and liver tests had returned to normal