Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr ICV 2018= 82.06

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Retrospective evaluation of 138 percutaneous liver biopsy cases: An observational study

(Lt Col) Raja Chaterjee[1], (Lt Col) Neetu Singh[2]

[1]Classified Specialist Pathology, Military Hospital Secundrabad,
[2]Classified Specialist Pathology, Command Hospital Udhampur.

ABSTRACT:
Background: Liver biopsy (LB) is one of the most specific tests to assess the nature and severity of liver diseases. Percutaneous LB can be done using three different techniques: Palpation/Percussion method, Imaging-guided, and Real-time image-guided. Hence; the present retrospective study was planned for assessing 138 percuta,eous liver biopsy cases. **Materials & methods:** Data records of a total of 138 patients were analysed. A master chart was prepared and all the clinical and laboratory findings of all the patients were recorded. As per data records, in the patients, the biopsy was performed transcostally by the Menghini technique with a 1.4 mm needle in exhalation. Also separate analysis of the data records was done for assessing the incidence of associated complications. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. **Results:** The incidence of occurrence of complications associated with percutaneous liver biopsy done according to Menghini technique was 10.14 percent. Most common associated complications were pain, vasovagal reaction and cough found to be present in 6, 3 and 2 patients respectively. Thrombosis, allergic reaction and mild bleeding were found to be present in 1 patient each. **Conclusion:** The percutaneous liver biopsy is a safer technique and is particular helpful in cases where clinical diagnosis is non-conclusive.
Key words: Biopsy, Liver, Percutaneous.

Received: 19 April, 2019 Revised: 27 July 2019 Accepted: 28 July 2019

Corresponding Author: Dr. Lt Col) Neetu Singh, Classified Specialist Pathology, Command Hospital Udhampur.

This article may be cited as: Chaterjee R, Singh N. Retrospective evaluation of 138 percutaneous liver biopsy cases: An observational study. J Adv Med Dent Scie Res 2019;7(8): 140-143.

INTRODUCTION

Liver biopsy (LB) is one of the most specific tests to assess the nature and severity of liver diseases. It can also be useful in monitoring the efficacy of various treatments. It is the most common procedure performed in clinical hepatology. Since Paul Ehrlich performed the first needle LB in Germany in 1883, the medical community has continued to refine and modify the indications, peri procedure care and technical aspects of this invasive procedure. Liver biopsy is performed using the percutaneous, transvenous or laparoscopic technique.[1-3] The techniques for the transvenous and laparoscopic methods are well standardized and the indications to choose them over the percutaneous approach are adequately established. LB remains an invaluable tool in the management of liver diseases.[4, 5]While the procedure is relatively safe, the patient needs to be monitored by the nurse afterward. The key complication is bleeding which can present up to 24 hours after the procedure. Percutaneous LB can be done using three different techniques: Palpation/Percussion method, Imaging-guided, and Real-time image-guided.[6]Hence; under the light of above mentioned data, the present retrospective study was planned for assessing 138 percutaneous liver biopsy cases.

MATERIALS & METHODS

The present study included assessment of 138 percutaneous liver biopsy cases. Ethical approval was obtained from institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol. Data records of a total of 138 patients were analysed. A master chart was prepared and all the clinical and laboratory findings of all the patients were recorded. As per data records, in the patients, the biopsy was performed transcostally by the Menghini technique with a 1.4 mm needle in exhalation. Also separate analysis of the data records was done for assessing the incidence of associated complications. All the results were recorded in Microsoft excel sheet and were analysed

by SPSS software. Univariate regression curve was used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

RESULTS

In the present study, data of a total of 138 patients whounderwent percutaneous liver biopsy done according to Menghini technique were analysed. Mean age of the patients of the present study was 46.8 years. 76 patients in the present study were males while the remaining 60 were females. The incidence of occurrence of complications associated with percutaneous liver biopsy done according to Menghini technique was 10.14 percent.

In the present study, the most common associated complications were pain, vasovagal reaction and cough found to be present in 6, 3 and 2 patients respectively. Thrombosis, allergic reaction and mild bleeding were found to be present in 1 patient each.

In the present study, most of the cases were of non-viral origin while among viral cases, majority of them were of hepatitis B (32 cases), followed by hepatitis C (29 cases). There were two cases of EBV hepatitis.

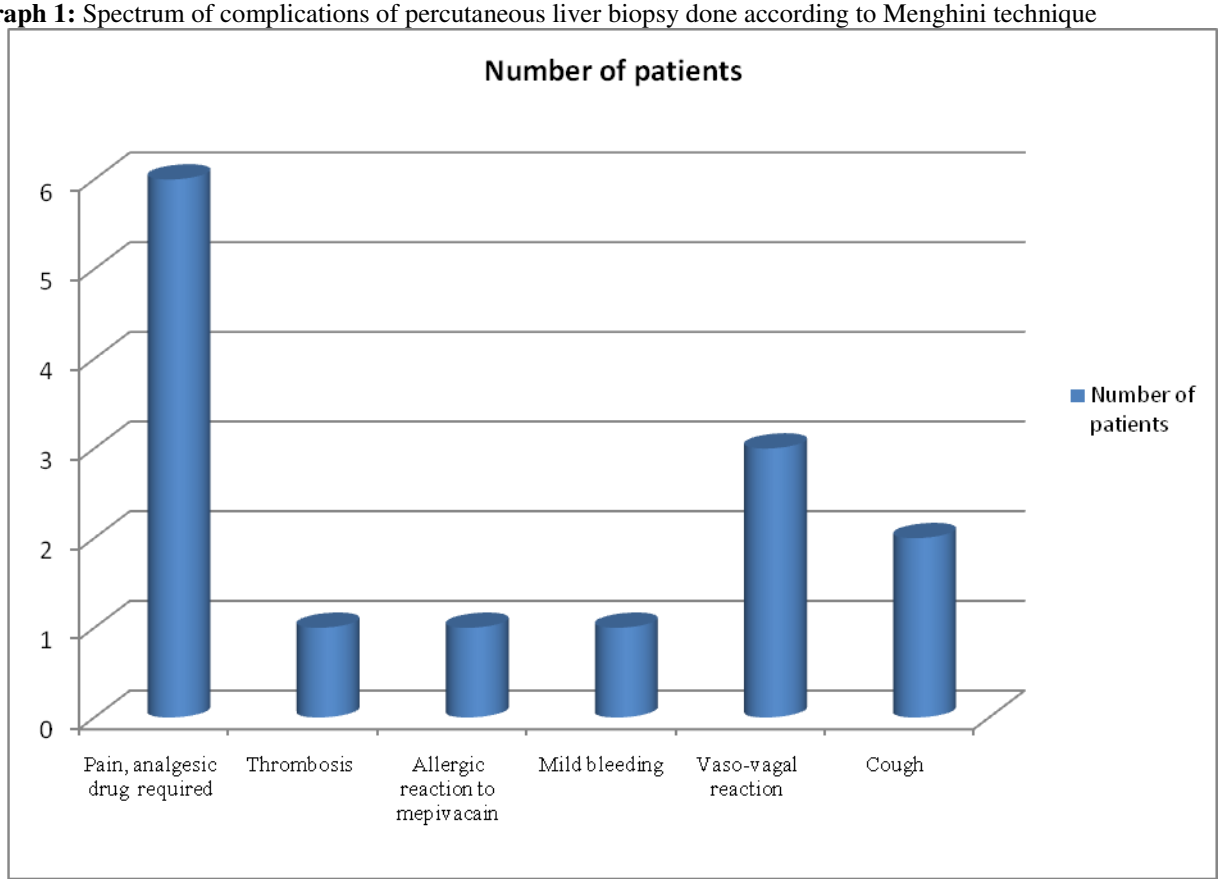
Table 1: Complications of percutaneous liver biopsy done according to Menghini technique

Complications	Number of patients	Percentage of patients
Pain, analgesic drug required	6	4.35
Thrombosis	1	0.72
Allergic reaction to mepivacain	1	0.72
Mild bleeding	1	0.72
Vaso-vagal reaction	3	2.17
Cough	2	1.45
Total	14	10.14

Table 2: Diagnosis of patients undergoing percutaneous liver biopsy

Diagnosis	Number of patients	Percentage of patients
Hepatitis B	32	23.19
Hepatitis C	29	21.01
EBV-hepatitis	2	1.45
Non-viral	75	54.35
Total	138	100

Graph 1: Spectrum of complications of percutaneous liver biopsy done according to Menghini technique



DISCUSSION

Liver biopsy remains the gold standard in the diagnosis of several liver disorders. With refinement in techniques, it has emerged as a safe, useful tool for hepatologists managing the gamut of liver pathologies. There are many indications for liver biopsy. They include diagnosis of the etiology of chronic hepatitis, cirrhosis, storage diseases, unexplained hepatomegaly or enzyme elevations, post-liver transplant liver-enzyme abnormalities, space-occupying lesions, intrahepatic cholestasis, and drug-induced liver injury.[4,6] Menghini described the one-second percutaneous suction liver biopsy and the needle that bears his name and revolutionized the practice of hepatology. He described some refinements a few years later but the technique has changed little since then. It is, therefore, timely to re-evaluate the place of this time-honoured diagnostic test, given the tremendous changes that have revolutionized hepatology since then.[4, 5]

Better diagnostic tests for many diseases have led to a decreased need for biopsy to make a diagnosis in many patients. The increasing resolution and sophistication of imaging modalities, such as ultrasound, computed tomography and magnetic resonance imaging, have decreased the need for obtaining liver tissue for histological examination in some patients, particularly those with focal liver lesions. However, three developments in hepatology have increased the need for biopsy.[6]Hence; under the light of above mentioned data, the present retrospective study was planned for assessing 138 percutaneous liver biopsy cases.

In the present study, data of a total of 138 patients whounderwent percutaneous liver biopsy done according to Menghini technique were analysed. Mean age of the patients of the present study was 46.8 years. 76 patients in the present study were males while the remaining 60 were females. The incidence of occurrence of complications associated with percutaneous liver biopsy done according to Menghini technique was 10.14 percent. Percutaneous liver biopsy (PLB) is the standard procedure for obtaining hepatic tissue for histopathological examination, and remains an essential tool in the diagnosis and management of parenchymal liver diseases. The use of liver biopsy (LB) is increasing with the advent of liver transplantation and the progress being made in antiviral therapeutic agents. While blind percutaneous needle biopsy is the traditional technique, the use of ultrasound (US) guidance has increased considerably.[7, 8]The size of the biopsy specimen varies between 1 and 4 cm in length and between 1.2 and 1.8 mm in diameter and represents 1/50,000 of the total mass of the liver. British guidelines on liver biopsy consider that most hepatopathologists are satisfied with a biopsy specimen containing at least six to eight portal triads, especially in cases of chronic liver disease (CLD) in which the extent of injury may vary among portal triads. An adequate specimen is provided when Menghini needles used measure up to 2 mm in diameter.[8- 10]

In the present study, the most common associated complications were pain, vasovagal reaction and cough found to be present in 6, 3 and 2 patients respectively. Thrombosis, allergic reaction and mild bleeding were found to be present in 1 patient each. The safety of outpatient blind percutaneous liver biopsy (BPLB) in infants and children with chronic liver disease (CLD) was investigated by El-Shabrawi MH et al. BPLB was performed as an outpatient procedure using the aspiration Menghini technique in 80 infants and children, aged 2 months to 14 yrs, for diagnosis of their CLD. Patients were divided into three groups: Group 1 (<1 year), group 2 (1–6 yrs), and group 3 (6–14 yrs). No mortality or major morbidities were encountered after BPLB. The rate of minor complications was 17.5% including irritability or "pain" requiring analgesia in 10%, mild fever in 5%, and drowsiness for >6 hrs due to oversedation in 2.5%. There was a statistically significant rise in the 1-hr post-biopsy mean heart and respiratory rates, but the rise was non-significant at 6 and 24 hrs except for group 2 where heart rate and respiratory rates significantly dropped at 24 hrs. No statistically significant difference was noted between the mean pre-biopsy and the 1, 6, and 24-hrs post-biopsy values of blood pressure in all groups. The 24-hrs post-biopsy mean hemoglobin and hematocrit showed a significant decrease, while the 24-hrs post-biopsy mean total leucocyte and platelet counts showed non-significant changes. The 24-hrs post-biopsy mean liver enzymes were non-significantly changed except the 24-hrs post-biopsy mean PT which was found to be significantly prolonged, for a yet unknown reason(s). Outpatient BPLB performed by the Menghini technique is safe and well tolerated even in infants and young children.[11]

In the present study, most of the cases were of non-viral origin while among viral cases, majority of them were of hepatitis B (32 cases), followed by hepatitis C (29 cases). There were two cases of EBV hepatitis. The complications following liver biopsy in in- and outpatients were compared in a previous study by Weigand K et al. All patients undergoing percutaneous liver biopsy at a teaching hospital between January 1990 and April 2005 were evaluated for indications, complications and impact of histology. Liver biopsy was performed in 287 inpatients and 428 outpatients with a success rate of 99.4%. The total complication rate was 6.3% in inpatients and 11% in outpatients. Despite normal alanine aminotransferase (ALT) levels advanced liver fibrosis was found in 9.3%, 2.6%, and 5.4% of all patients with HBV-, HCV infection, and non viral liver diseases, respectively. In 3% of all patients evaluated a previously unrecognized second liver disease was found. In 21.4% of the patients alkaline phosphatase (AP) levels were elevated, and in more than 90% of these patients liver biopsy led to the final diagnosis. Liver biopsy is safe in in- and outpatients.[12]

CONCLUSION

Under the light of above obtained results, the authors concluded that the percutaneous liver biopsy is a safer technique and isparticular helpful in cases where clinical diagnosis is non-conclusive. However; further studies are recommended.

REFERENCES

1. Hederstrom E, Forsberg L, Floren CH, Prytz H. Liver biopsy complications monitored by ultrasound. J Hepatol. 1989;8:94–8.
2. Raines DR, Van Heertum RL, Johnson LF. Intrahepatic hematoma: A complication of percutaneous liver biopsy. Gastroenterology. 1974;67:284–9.
3. Lebensztejn DM, Kaczmarski M, Sobaniec-Łotowska M, Barwijuk-Machała M. Blind liver biopsy in children–diagnostic significance and complications in authors' own material. Med SciMonit. 2000;6:1155–8.
4. Cadranel JF, Rufat P, Degos F. Practices of liver biopsy in France: Results of a prospective nationwide survey.For the Group of Epidemiology of the French Association for the study of the liver (AFEF) Hepatology. 2000;32:477–81
5. Menghini G. One-second needle biopsy of the liver. Gastroenterology. 1958;35:190–9.
6. Menghini G. One-second biopsy of the liver – problems of its clinical application. N Engl J Med. 1970;283:582–5.
7. Sherman M, Bain V, Villeneuve JP, et al. The management of chronic viral hepatitis: A Canadian consensus conference 2004. Can J Gastroenterol. 2004;18:715–28.
8. Sporea I, Popescu A, Sirli R. Why, who and how should perform liver biopsy in chronic liver diseases. World J Gastroenterol. 2008;14:3396–402.
9. Garcia-Tsao G, Boyer JL. Outpatient liver biopsy: How safe is it? Ann Intern Med. 1993;118:150–3.
10. 22. Brown KE, Janney CG, Brunt EM. Liver biopsy: Indications, technique, complications, and interpretation. In: Bacon BR, Di Bisceglie AM, editors. Liver disease: Diagnosis and management. New York: Churchill Livingstone; 2000. p. 47
11. El-Shabrawi MH, El-Karaksy HM, Okahsa SH, Kamal NM, El-Batran G, Badr KA. Outpatient blind percutaneous liver biopsy in infants and children: is it safe?. Saudi J Gastroenterol. 2012;18(1):26–33.
12. Weigand K1, Weigand K. Percutaneous liver biopsy: retrospective study over 15 years comparing 287 inpatients with 428 outpatients. J GastroenterolHepatol. 2009 May;24(5):792-9.