



## Commentary

## Liver biopsy? Long life to the transjugular route

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Performing a biopsy in patients with severe liver disease or with severe comorbidities has always been a challenge because of the inherent bleeding risk associated to the percutaneous approach. This at-risk group is mainly composed of hematologic patients with peripheral blood disturbances (low platelet count) and of patients with severe liver disease (either acute or chronic), who, besides presenting a marked coagulopathy, can also present ascites, which, in itself, increases the risk of complications. These difficulties have been nicely overcome in the last decades by the transjugular approach to liver biopsy [1,2]. In the present issue of *Digestive and Liver Diseases*, Stift et al. report the outcomes of a large contemporary cohort of 445 patients undergoing transjugular liver biopsies (TJLB) regarding its diagnostic utility and safety profile [3]. The study shows a high diagnostic yield for the TJLB, since a histologic diagnosis could be established in 95% of patients.

In these patients, all biopsies were performed with the Menghini aspiration technique (as opposed to the most frequently used nowadays Tru-Cut technique [1,4]). Even if these biopsies had a theoretical suboptimal median number of portal tracts (five), this was likely counterbalanced by an experienced pathologist to reach diagnosis [4]. This relatively low number of portal tracts is not surprising since 59% of the patients had cirrhosis and almost half of the cohort had clinically significant portal hypertension (PHT), defined as a hepatic venous pressure gradient (HVPG)  $\geq 10$  mmHg. The analysis of the correlation of PHT and HVPG with the quality and size of specimens shows very interesting findings: patients with higher HVPG values show lower number of portal tracts and diagnostic yield falls from 90% in HVPG values  $<10$  mmHg to 80% in HVPG values  $\geq 10$  mmHg. The number of portal tracts was clearly higher in patients with HVPG  $<10$  mmHg (7) as compared to patients with higher values (3–4 tracts). These findings advocate for the use of Tru-Cut systems in patients in whom HVPG values are high ( $>10$  mmHg). Tru-Cut needles, as compared to Menghini sys-

tem, have shown to obtain longer and less fragmented specimens with a higher number of portal tracts [1,4]. Furthermore, these cut systems allow a more “controlled” puncture as compared to needle-aspiration system. Therefore, even if the results presented in the study by Stift et al are excellent in terms of diagnostic yield, the use of the Tru-Cut technique in livers with more advanced cirrhosis would have likely improved the results in patients with clinically significant portal hypertension.

The other interesting finding of the study is the thorough data on the safety of TJLB. In this study, all procedures are performed by hepatologists (not radiologists) and data clearly show that TJB is a safe procedure. The incidence of major adverse events was of 0.7%, with no reported mortality, and the authors managed to treat and solve all complications. Major complications were two pneumothorax and one mediastinal hematoma. In two cases, the needle went inadvertently beyond the liver, resulting in renal biopsies that did not result in further complications. This further emphasizes the safety of the transjugular approach, even when unexpected punctures of the liver capsule occur. The most frequent events, hematomas or limited bleeding related to jugular vein puncture are most of the times minor events and, when minor, probably should not even be counted when reporting a percentage rate of complications. Nowadays, the worrisome risk of accidental carotid puncture is negligible with the US-guided jugular vein access. In summary, the safety profile of TJB is clearly depicted by the similar rate of complications as compared to percutaneous approach despite being performed in patients with contraindications for the percutaneous approach.

The only caveats of TJLB is the higher cost and longer duration of the procedure, which is operator-dependent and, when in experienced hands, is not much longer than a percutaneous biopsy. These look minor, since transjugular access allows not only the performance of a biopsy but also the measurement of HVPG, cardio-pulmonary pressures (and cardiac output with a Swan-Ganz catheter) and even the placement of a TIPS [5]. It is my view that all patients with advanced liver disease (not necessarily cirrhosis) in whom a biopsy is indicated, the transjugular route with additional

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measurements of HVPG should be considered when locally available. HVPG offers a capital prognostic and therapeutic information in liver diseases, it is a therapeutic target of pharmacologic therapy for variceal bleeding prophylaxis and of decompensation [5–7]. The transjugular approach is a highly dynamic process where the operator can decide to further study cardio-pulmonary pressures after observing, for example, elevated venous pressures. Hyperdynamic heart failure or portopulmonary hypertension are not unusual conditions in advanced cirrhosis which can be finely diagnosed by a transjugular study [8]. Even in non-liver diseases, for example hematologic patients, HVPG can add diagnostic information to specific entities like sinusoidal obstruction syndrome [9].

To summarize, this study provides additional evidence that TJLB is an extremely safe and useful procedure in patients with liver disease, with the advantage of allowing potential concomitant HVPG and cardio-pulmonary pressures measurement. Biopsies in this setting offer a high diagnostic accuracy, though Tru-Cut devices should probably be used instead of aspiration needle if cirrhosis or high HVPG values are present. Definitely, liver diagnosis is easier through the jugular route.

#### Conflict of interest

None declared.

#### References

- [1] Kalambokis G, Manousou P, Vibhakorn S, Marelli L, Cholongitas E, Senzolo M, et al. Transjugular liver biopsy – indications, adequacy, quality of specimens, and complications – a systematic review. *J Hepatol* 2007;47:284–94.
- [2] Ble M, Procopet B, Miquel R, Hernandez-Gea V, García-Pagán JC. Transjugular liver biopsy. *Clin Liver Dis* 2014;18:767–78.
- [3] Stift J, Semmler G, Walzel C, Mandorfer M, Schwarzer R, Schwabl P, et al. Transjugular aspiration liver biopsy performed by hepatologists trained in HVPG measurements is safe and provides important diagnostic information. *Dig Liver Dis* 2019. <http://dx.doi.org/10.1016/j.dld.2019.01.020>, pii: S1590-8658(19)30056-8. [Epub ahead of print].
- [4] Cholongitas E, Quaglia A, Samonakis D, Senzolo M, Triantos C, Patch D, et al. Transjugular liver biopsy: how good is it for accurate histological interpretation? *Gut* 2006;55:1789–94.
- [5] Bosch J, Abraldes JG, Berzigotti A, García-Pagan JC. The clinical use of HVPG measurements in chronic liver disease. *Nat Rev Gastroenterol Hepatol* 2009;6:573–82.
- [6] Reiberger T, Ulbrich G, Ferlitsch A, Payer BA, Schwabl P, Pinter M, et al. Carvedilol for primary prophylaxis of variceal bleeding in cirrhotic patients with haemodynamic non-response to propranolol. *Gut* 2013;62:1634–41.
- [7] Villanueva C, Graupera I, Aracil C, Alvarado E, Miñana J, Puente Á, et al. A randomized trial to assess whether portal pressure guided therapy to prevent variceal rebleeding improves survival in cirrhosis. *Hepatology* 2017;65:1693–707.
- [8] Krowka MJ, Fallon MB, Kawut SM, Fuhrmann V, Heimbach JK, Ramsay MAE, et al. International Liver Transplant Society Practice Guidelines. *Transplantation* 2016;100:1440–52.
- [9] Carreras E, Grañena A, Navasa M, Bruguera M, Marco V, Sierra J, et al. On the reliability of clinical criteria for the diagnosis of hepatic veno-occlusive disease. *Ann Hematol* 1993;66:77–80.