

## 造血幹細胞移植後の遅発性肝類洞症候群／中心静脈閉塞症の診断・経過観察に超音波検査（肝硬度測定）が有用であった1例

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### 抄 録

症例は32歳女性、急性骨髄性白血病の治療のため同種造血幹細胞移植が施行された。入院時の肝硬度（liver stiffness: LS）は3.5 KPaであった。移植後、第67病日から体重増加、腹痛、血清ビリルビン値の上昇を認め、腹部超音波検査（Ultrasonography: US）、肝硬度測定を実施した。LSは42.2 KPaと著明に上昇、US検査では肝腫大、腹水貯留、門脈血流低下を認め、遅発性の肝類洞閉塞症候群／中心静脈閉塞症（sinusoidal obstruction syndrome/veno-occlusive disease: SOS/VOD）と診断された。遺伝子組み換えトロンボモジュリン、新鮮凍結血漿、低分子ヘパリン投与後、肝硬度低下とともに門脈血流は改善、血清ビリルビン値も減少した。LSは第114病日25.4 KPa、第342病日には4.9 KPaに低下した。SOS/VODの診断は主に臨床症状からなされ、欧州血液骨髓移植学会による遅発性SOS/VOD診断基準（2016年）では肝血行動態を含むUS所見が記載された。しかしながらドブラ血流測定には検者の熟練と時間を要する。肝硬度は検者を選ばず、短時間に、簡便に、繰り返し測定が可能である。遅発性SOS/VODの診断、経過観察に肝硬度測定の有用性が示唆された。

### A case of late-onset hepatic sinusoidal obstruction syndrome/veno-occlusive disease after hematopoietic stem cell transplantation: usefulness of ultrasonography (liver stiffness measurement) for diagnosis and follow-up

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#### Abstract

A 32-year-old woman had undergone allogeneic hematopoietic stem cell transplantation for the treatment of acute myeloid leukemia. Liver stiffness (LS) at admission was 3.5 KPa. Weight gain, abdominal pain, and elevated serum total bilirubin level were observed approximately 67 days after transplantation. Ultrasonography (US) and LS measurement (LSM) were performed. LS was markedly high (at 42.2 KPa), and US revealed hepatomegaly, ascites, and decreased portal venous flow. The patient was diagnosed with late-onset sinusoidal obstruction syndrome/veno-occlusive disease (SOS/VOD). After administration of recombinant thrombomodulin, fresh frozen plasma, and low-molecular-weight heparin, LS decreased, portal blood flow improved, and serum bilirubin level decreased. Moreover, LS decreased to 25.4 and 4.9 KPa after 115 and 342 days, respectively. The diagnosis of SOS/VOD was based on clinical symptoms and US findings, and the hepatic hemodynamics were included in the diagnostic criteria for late-onset SOS/VOD (European Society for Blood marrow transplantation, 2016). However, Doppler blood flow measurement is skill-dependent and time-consuming. LS can be measured quickly, easily, and repeatedly, even by unskilled examiners. Therefore, LSM may be useful for the diagnosis and follow-up of late-onset SOS/VOD.

#### Keywords

liver stiffness, transient elastography, hematopoietic stem cell transplantation (HSCT), sinusoidal obstruction syndrome (SOS), veno-occlusive disease (VOD)

### 1. はじめに

肝硬度は肝線維化の指標として知られているが、肝の炎症やうっ血によっても上昇するとされる<sup>1-3)</sup>。

造血幹細胞移植（hematopoietic stem cell transplantation: HSCT）は白血病などの造血器腫瘍の根治的治療であるが、HSCT後には感染症、移植片対宿主病（graft versus host disease: GVHD）、薬剤性肝障

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