



Letter to the Editor: Three questions to be answered when evaluating a super obese patient for urgent liver transplant

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Peer review: Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's classification

Scientific quality: Grade B

Novelty: Grade B

Creativity or innovation: Grade C

Scientific significance: Grade C

P-Reviewer: Liu TQ, PhD, Professor, China

Received: October 24, 2025

Revised: November 19, 2025

Accepted: January 19, 2026

Published online: June 18, 2026

Processing time: 218 Days and 15.8 Hours

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Abstract

We read with interest the study by Cigrowsky *et al* published in the *World Journal of Transplantation*. Obesity is a common and serious health issue worldwide. Its incidence has been rapidly and continuously increasing. Obesity causes extensive and heterogeneous comorbidities affecting nearly all organs, including the liver. Severe obesity (SO) has historically been considered a contraindication for liver transplantation due to the increased risk of perioperative complications, mortality, and graft failure. However, recent studies have shown that SO is not associated with worse post-transplant outcomes but rather with higher waiting list mortality. Therefore, severely obese patients should be considered potential candidates and, conversely, prioritized.

Key Words: Super-obesity; Metabolic dysfunction-associated steatotic liver disease; Comorbidities; Body mass index; Urgent liver transplant; Bariatric surgery

Core Tip: Perioperative management of super-obese patients eligible for liver transplantation (LT) remains an area with limited evidence and largely depends on the organizational policies of each transplant center. Each case of super-obese patients with severe liver disease undergoing LT is unique and deserves literature reporting to enhance the collective knowledge. Bariatric surgery may be considered before or after LT to improve outcomes in selected cases. This manuscript reports a series of dilemmas arising from the case of a super obese patient undergoing urgent LT.

Citation: Baggio L, Gianni S, De Carlis R, Valsecchi MAM, Barbaglio C, Brunetti A, Perricone G, Lauterio A, Monti G. Letter to the Editor: Three questions to be answered when evaluating a super obese patient for urgent liver transplant. *World J Transplant* 2026; 16(2): 115352

URL: <https://www.wjgnet.com/2220-3230/full/v16/i2/115352.htm>

DOI: <https://dx.doi.org/10.5500/wjt.v16.i2.115352>

TO THE EDITOR

A 30-year-old male patient with a body mass index (BMI) of 52 kg/m² (weight 180 kg, height 185 cm), was evaluated to liver transplantation (LT) due to end stage decompensated cirrhosis [model for end-stage liver disease (MELD) score 40, MELD-Na score 40] because of metabolic dysfunction-associated steatotic liver disease (MASLD)[1] and Wilson disease. The patient was previously deemed ineligible for LT due to unacceptable surgical and anesthesiologic risk in another transplant center.

The pre-LT evaluation revealed a para-physiological left ventricular hypertrophy, a severe obstructive sleep apnea syndrome coexisting with a mild restrictive deficit with a slight reduction in the diffusion capacity of carbon monoxide in the lungs. The patient did not show any symptoms of coronary artery disease and a pharmacological stress echocardiogram for inducible regional cardiac ischemia produced negative results. Due to a rapid decline in liver function, his expected 3 months mortality was expected to be more than 80%. Consequently, a multidisciplinary team (MDT) including the treating surgeon, hepatologist and anesthesiologist concluded to candidate the patient for LT. The MDT decided to candidate the patient to LT without the need of Hospital Ethic Committee approval. The combination of bariatric surgery (BS) and LT was excluded by a multidisciplinary assessment due to cirrhosis severity and high likelihood of futility resulting from the patient's dietary habits. The donor was a 55-year-old man without comorbidities, with a BMI of 27, who had passed away due to a subarachnoid hemorrhage. The course of surgical procedure was uneventful. Porto-caval clamp was well tolerated. No reperfusion syndrome was observed. Total blood loss was 4 liters, and around 20 liters of ascites were drained. Total surgery time was 420 minutes with a cold ischemic time of 384 minutes.

The patient was extubated on the first postoperative day and placed on non-invasive ventilation. Liver graft function improved gradually to reach normal levels before the patient was discharged from intensive care unit (ICU) on the seventh day. During the hospital stay, he required a relaparotomy due to biliary leakage and surgical wound dehiscence.

As result, he developed an intra-abdominal infection requiring ICU admission and antibiotic therapy. Early mobilization, physiotherapy and a nutritional plan were implemented during hospitalization. The patient was extremely motivated and engaged. He experienced a significant weight loss, with a BMI reaching 35 kg/m² one year after LT. Additionally, he regained a good performance status with an Eastern Cooperative Oncology Group performance status score calculated in 1.

IS BMI MEASURE ACCURATE IN PATIENTS WITH DECOMPENSATED LIVER DISEASE?

BMI is used to evaluate obesity severity and is calculated as the result of the body mass in kilograms (kg) divided by the square of the body height in meters (m). World Health Organization defines obesity as a BMI ≥ 30 kg/m², severe obesity (35-39.9 kg/m²) and morbid obesity (> 40 kg/m²). Recent developments in the condition have required the definition of additional categories, including super obesity as a BMI ≥ 50 kg/m², and super-super obesity as a BMI ≥ 60 kg/m². In an obese patient with decompensated liver disease the result of this value is necessarily influenced by the amount of ascites.

There are some radiological methods[2,3] to estimate, with a computed tomography scan, the amount of ascites but none of these have been validated to correct the actual BMI value. For this reason, the risk of overestimating the severity of obesity is real. In this case the amount of ascites led to overestimating the BMI by 6 points.

SHOULD SUPER OBESE PATIENTS BE PUT ON WAITING LIST FOR LIVER TRANSPLANTATION?

BMI alone is an inadequate predictor of risk in patients with obesity and cirrhosis. Outcomes are more strongly influenced by obesity-related factors such as sarcopenia, visceral adiposity, and associated comorbidities. In particular, sarcopenic obesity is associated with poorer prognosis and increased pre- and post-LT mortality, while visceral fat-rather than peripheral adiposity-is linked to higher cardiovascular events and mortality after LT[4]. The excess mortality observed in obesity appears largely driven by complications, especially diabetes and cardiovascular disease, as obesity

itself is not independently associated with worse outcomes after multivariate adjustment[5]. Therefore, LT risk assessment should be based on a comprehensive evaluation of complications and comorbidities, and when the overall risk is acceptable, patients with obesity, even if morbid, should be appropriately prioritized on the transplant waiting list[6-8].

WHETHER AND WHEN TO CONSIDER BARIATRIC SURGERY?

Cigrowsky *et al*[9] published a study in the *World Journal of Transplantation*, which highlights several key challenges in the post-LT management of morbid obesity, ranging from individualized immunosuppressive strategies to the role of bariatric surgery.

Literature report that existing non-surgical treatment for individuals with a BMI ≥ 35 kg/m² are not successful in achieving a significant and lasting weight reduction[10]. In patients with MASLD, the 10% weight reduction required to induce improvement or resolution of the disease is difficult to achieve and rarely sustained in the long term. BS has proven to be a more effective strategy for weight reduction and reducing the incidence of obesity-related comorbidities, including MASLD[11]. In the setting of LT, a recent global survey highlighted that only one-third of centers had any experience of LT combined with BS, with sleeve gastrectomy (SG) being the preferred technique[12]. Zamora-Valdes *et al* [13] compared 29 patients undergoing BS during LT to 45 patients undergoing isolated LT: Despite a significant difference in the reduction of mean BMI and obesity-related comorbidities in the bariatric-combined surgery group, no significant difference in long-term survival was observed. The best moment to perform BS in these patients has yet to be established. A systematic review of the literature showed that in 52% of cases BS was performed after LT, 29% simultaneously, and 19% before LT[14]. Each strategy has potential benefits and drawbacks that need to be carefully evaluated on a case-by-case basis. One potential benefit of the most common approach would be to avoid a BS intervention in patients who experience a significant weight reduction post LT. Whereas these data come mainly from the United States context, a recent European study has highlighted that the LT-SG procedure is not risk-free and that weight loss maintenance is a difficult goal to achieve in the long term[15]. The multidisciplinary assessment, including psychiatric and nutritional evaluation, in a highly specialized center is pivotal to ensure effectiveness and safety.

CONCLUSION

Management of super-obese patients eligible for LT remains an area with limited evidence and largely depends on the experience and organizational policies of each transplant center. BS may be considered before or after LT to improve outcomes only in highly selected cases. Each patient requires a careful and personalized multidisciplinary evaluation in a highly specialized center. The short-term outcome of this super obese patient conducted to LT was favorable without BS. Interestingly, the patient underwent a significant weight loss with a good recovery of performance status. In selected cases, delaying the timing of BS can be a reasonable choice, especially in emergency situations or when there are doubts about its actual usefulness. Close follow-up of liver pathology and obesity will help to identify the feasibility of BS in future.

REFERENCES

- 1 **European Association for the Study of the Liver (EASL); European Association for the Study of Diabetes (EASD); European Association for the Study of Obesity (EASO).** EASL-EASD-EASO Clinical Practice Guidelines on the management of metabolic dysfunction-associated steatotic liver disease (MASLD). *J Hepatol* 2024; **81**: 492-542 [RCA] [PMID: 38851997 DOI: 10.1016/j.jhep.2024.04.031] [FullText]
- 2 **Oriuchi N, Nakajima T, Mochiki E, Takeyoshi I, Kanuma T, Endo K, Sakamoto J.** A new, accurate and conventional five-point method for quantitative evaluation of ascites using plain computed tomography in cancer patients. *Jpn J Clin Oncol* 2005; **35**: 386-390 [RCA] [PMID: 15976067 DOI: 10.1093/jjco/hyi109] [FullText]
- 3 **Hou B, Lee S, Lee JM, Koh C, Xiao J, Pickhardt PJ, Summers RM.** Deep Learning Segmentation of Ascites on Abdominal CT Scans for Automatic Volume Quantification. *Radiol Artif Intell* 2024; **6**: e230601 [RCA] [PMID: 38900043 DOI: 10.1148/ryai.230601] [FullText] [Full Text(PDF)]
- 4 **Bambha KM, Dodge JL, Gralla J, Sprague D, Biggins SW.** Low, rather than high, body mass index confers increased risk for post-liver transplant death and graft loss: Risk modulated by model for end-stage liver disease. *Liver Transpl* 2015; **21**: 1286-1294 [RCA] [PMID: 26097202 DOI: 10.1002/lt.24188] [FullText]
- 5 **Adams LA, Arauz O, Angus PW, Sinclair M, MacDonald GA, Chelvaratnam U, Wigg AJ, Yeap S, Shackel N, Lin L, Raftopoulos S, McCaughan GW, Jeffrey GP;** Australian New Zealand Liver Transplant Study Group. Additive impact of pre-liver transplant metabolic factors on survival post-liver transplant. *J Gastroenterol Hepatol* 2016; **31**: 1016-1024 [RCA] [PMID: 26589875 DOI: 10.1111/jgh.13240] [FullText]
- 6 **Schlansky B, Naugler WE, Orloff SL, Enestvedt CK.** Higher Mortality and Survival Benefit in Obese Patients Awaiting Liver Transplantation. *Transplantation* 2016; **100**: 2648-2655 [RCA] [PMID: 27575690 DOI: 10.1097/TP.0000000000001461] [FullText]
- 7 **Moro G, Perfecto A, Encinas J, Ventoso A, Villota B, Ruiz P, Pascual T, Palomares I, Prieto M, Mambrilla S, García A, Gastaca M.** Morbid Obesity and Liver Transplant. *Transplant Proc* 2025; **57**: 52-54 [RCA] [PMID: 39779378 DOI: 10.1016/j.transproceed.2024.12.003] [FullText]
- 8 **Soma D, Park Y, Mihaylov P, Ekser B, Ghabril M, Lacerda M, Chalasani N, Mangus RS, Kubal CA.** Liver Transplantation in Recipients With Class III Obesity: Posttransplant Outcomes and Weight Gain. *Transplant Direct* 2022; **8**: e1242 [RCA] [PMID: 35018300 DOI: 10.1097/TXD.0000000000001242] [FullText] [Full Text(PDF)]

- 9 **Cigrovski Berkovic M**, Šeša V, Balen I, Lai Q, Silovski H, Mrzljak A. Key challenges of post-liver transplant weight management. *World J Transplant* 2024; **14**: 95033 [RCA] [PMID: 39697459 DOI: 10.5500/wjt.v14.i4.95033] [FullText] [Full Text(PDF)]
- 10 **Eisenberg D**, Shikora SA, Aarts E, Aminian A, Angrisani L, Cohen RV, De Luca M, Faria SL, Goodpaster KPS, Haddad A, Himpens JM, Kow L, Kurian M, Loi K, Mahawar K, Nimeri A, O'Kane M, Papasavas PK, Ponce J, Pratt JSA, Rogers AM, Steele KE, Suter M, Kothari SN. 2022 American Society for Metabolic and Bariatric Surgery (ASMBS) and International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO): Indications for Metabolic and Bariatric Surgery. *Surg Obes Relat Dis* 2022; **18**: 1345-1356 [RCA] [PMID: 36280539 DOI: 10.1016/j.soard.2022.08.013] [FullText]
- 11 **Romero-Gómez M**, Zelber-Sagi S, Trenell M. Treatment of NAFLD with diet, physical activity and exercise. *J Hepatol* 2017; **67**: 829-846 [RCA] [PMID: 28545937 DOI: 10.1016/j.jhep.2017.05.016] [FullText]
- 12 **Widmer J**, Eden J, Abbassi F, Angelico R, Rössler F, Müllhaupt B, Dutkowski P, Bueter M, Schlegel A. How best to combine liver transplantation and bariatric surgery?-Results from a global, web-based survey. *Liver Int* 2024; **44**: 566-576 [RCA] [PMID: 38082500 DOI: 10.1111/liv.15791] [FullText]
- 13 **Zamora-Valdes D**, Watt KD, Kellogg TA, Poterucha JJ, Di Cecco SR, Francisco-Ziller NM, Taner T, Rosen CB, Heimbach JK. Long-term outcomes of patients undergoing simultaneous liver transplantation and sleeve gastrectomy. *Hepatology* 2018; **68**: 485-495 [RCA] [PMID: 29457842 DOI: 10.1002/hep.29848] [FullText]
- 14 **de Barros F**, Cardoso Faleiro Uba PH. Liver transplantation and bariatric surgery: a new surgical reality: a systematic review of the best time for bariatric surgery. *Updates Surg* 2021; **73**: 1615-1622 [RCA] [PMID: 34118015 DOI: 10.1007/s13304-021-01106-3] [FullText]
- 15 **Manzia TM**, Sensi B, Gentileschi P, Quaranta C, Toti L, Baiocchi L, Dauri M, Angelico R, Tisone G. Safety and efficacy of simultaneous liver transplantation and sleeve gastrectomy in morbid obese patients with end-stage liver disease: The LT-SG study. *Liver Transpl* 2025; **31**: 770-780 [RCA] [PMID: 39451118 DOI: 10.1097/LVT.0000000000000522] [FullText]

FOOTNOTES

Specialty type: Transplantation

Country of origin: Italy

Author contributions: Baggio L and Gianni S performed conceptualization, investigation, writing – original draft, writing – review & editing; De Carlis R performed formal analysis, methodology, supervision, validation; Valsecchi MAM, Perricone G, Lauterio A, and Monti G performed supervision, validation; Barbaglio C and Brunetti A performed data curation, supervision.

Conflict-of-interest statement: All authors declare that they have no conflict of interest to disclose.

S-Editor: Liu JH

L-Editor: A

P-Editor: Zhang YL



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