



## Unravelling the Complexity of Spleen Evaluation: A Critical Analysis of Ultrasonography Studies

Dalak Değerlendirmesinin Karmaşıklığının Çözülmesi: Ultrasonografi Çalışmalarının Eleştirel Bir Analizi

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Dear Editor,

I am writing to offer my opinion and reflection on the article titled “Evaluation of Spleen with Ultrasonography: Single Measurement or Volume Detection” authored by Olga Metin and Defne Gurbuz, published in *Hitit Med J* 2023;5(2): 90-94(1). The study presents a thorough investigation into the relationship between splenic dimensions and volume among patients attending gastroenterology outpatient clinics. While the study demonstrates methodological integrity and provides valuable insights, several areas merit critical examination.

The methodology employed in the study, which involved ultrasonographic measurements conducted by a single skilled radiologist, ensures consistency and reduces inter-observer variability. However, the sample size of 245 patients, while not insignificant, may limit the generalizability of the findings. This limitation is particularly notable given the exclusion of individuals with known conditions that may induce splenomegaly, narrowing the applicability of the results to a broader clinical population. The study’s findings reveal significant correlations between splenic volume and factors such as height, weight, waist circumference, and body surface area (BSA), alongside a negative correlation with age. These results are consistent with existing literature, emphasizing the influence of anthropometric factors on splenic size (2). However, relying solely on correlation coefficients without deeper multivariate analysis could overlook potential confounding variables impacting these relationships.

Moreover, the observation of higher splenic volume in male patients compared to females, while aligning with some previous studies, lacks a comprehensive exploration of hormonal influences or lifestyle factors contributing to these differences. A more nuanced discussion on the biological underpinnings of gender disparities in splenic volume would strengthen the argument. The inverse relationship between splenic volume and age, though noteworthy, lacks exploration into the physiological mechanisms driving this change. An investigation into the role of aging on spleen functionality alongside volumetric changes would provide a more comprehensive understanding of the clinical implications of this finding. While the use of the prolate ellipsoid formula for calculating

splenic volume is well-established, acknowledging the limitations of ultrasonography as an operator-dependent technique is crucial. Future research should compare these findings with measurements obtained via more operator-independent modalities like CT or MRI to validate the accuracy and consistency of ultrasonographic assessments (3).

The discussion on racial and ethnic differences in spleen size and volume is pertinent, yet the article could delve further into socioeconomic and environmental factors influencing these metrics (4). Considerations of variations in diet, physical activity, and access to healthcare would enrich the discussion. In summary, while the article provides valuable insights into the relationship between splenic volume and anthropometric factors, a deeper exploration of physiological, hormonal, and environmental influences is warranted. Additionally, expanding the study to include a larger and more diverse population, alongside comparisons with other imaging modalities, would enhance the robustness and applicability of the findings.

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**Response From Editor:**

The spleen plays a critical role in maintaining overall health. It is mobile and its shape and position vary considerably among healthy individuals, which can complicate accurate measurement of its size and the interpretation of splenic conditions on different imaging modalities. Splenic size may differ depending on age, gender, body mass index, and racial differences. Metin & Gurbuz investigated the relationship between splenic dimensions and volume among patients attending gastroenterology outpatient clinics and concluded that splenic volume measurements correlated with width of spleen, and decreased with age, and was correlated with body surface area and weight. And herein, Sakarie Mustafe Hidig pointed out some potential confounding factors which might impact these relationships; mainly the sample size, need of deeper multivariate analysis, potential effects of hormonal influences, lifestyle, socioeconomic and environmental factors. Ultrasound is a non-invasive, low-cost method for assessing the spleen without ionizing radiation, capable of detecting various abnormalities. However, defining standards for spleen via sonography is challenging. This study of Metin & Gurbuz and fine contribution of Sakarie Mustafe Hidig will guide to the design of future prospective, multicenter, randomized, robust studies.

Ass. Prof. Dr. Tolga Düzenli (Editor of HMJ)