ISSN Print: 2664-8733
ISSN Online: 2664-8741
Impact Factor (RJIF): 8.35
IJRMS 2025; 7(2): 314-316
www.medicalpaper.net
Received: 04-08-2025
Accepted: 07-09-2025

Dr. Erandi Daniela Jauregui Ledezma
Instituto Mexicano del Seguro Social/ Benemérita Universidad Autónoma de Puebla, Puebla, Puebla, México

Dr. Uriel Figueroa Quiñones
Instituto Mexicano del Seguro Social/ Benemérita Universidad Autónoma de Puebla, Puebla, Puebla, México

Dr. Joshua Saldaña Villanueva
Instituto Mexicano del Seguro Social/ Benemérita Universidad Autónoma de Puebla, Puebla, Puebla, México

Dr. Jorge Ayon Aguilar
Instituto Mexicano del Seguro Social/ Benemérita Universidad Autónoma de Puebla, Puebla, Puebla, México

Corresponding Author:
Dr. Erandi Daniela Jauregui Ledezma
Instituto Mexicano del Seguro Social/ Benemérita Universidad Autónoma de Puebla, Puebla, Puebla, México

Gallbladder wall thickening and its association with hospital stay at General Hospital Zone Number 20 "La Margarita”

Erandi Daniela Jauregui Ledezma, Uriel Figueroa Quiñones, Joshua Saldaña Villanueva and Jorge Ayon Aguilar

DOI: https://www.doi.org/10.33545/26648733.2025.v7.i2e.168

Abstract
Gallbladder wall thickening is a clinically significant finding, commonly detected through imaging studies such as ultrasound or magnetic resonance imaging. This thickening can indicate inflammation or damage to the gallbladder and is often associated with conditions like acute cholecystitis, gallstones, and infections. Proper evaluation is crucial for accurate diagnosis, appropriate treatment, and patient prognosis.
The objective of this study was to determine the association between gallbladder wall thickening and the length of hospital stay at the General Hospital of Zone No. 20 "La Margarita" located in Puebla, Mexico. A descriptive, observational, retrospective, and cross-sectional study was conducted by reviewing medical records from the general surgery department. The study included male and female patients over 18 years old who had undergone an ultrasound showing gallbladder wall thickness and who had been hospitalized within six months after protocol approval by the Local Ethics and Research Committees.
The study sample included 265 patients. The analysis showed no significant difference between genders regarding the average length of hospital stay. However, patients with greater wall thickening tended to have longer hospitalizations, reaching up to 15 days. Statistical analysis using the Chi-square test yielded a p-value of 0.003, indicating a significant correlation between gallbladder wall thickening and increased length of hospital stay.
In conclusion, a significant relationship was found between gallbladder wall thickening and prolonged hospitalization at the General Hospital of Zone No. 20, "La Margarita".

Keywords: Gallbladder, wall thickening, length of hospital stay

Introduction
Gallbladder wall thickening is a common imaging finding, particularly in abdominal ultrasonography, and has been extensively investigated due to its association with a variety of biliary and systemic pathologies. It is frequently linked to acute cholecystitis, cholelithiasis, infections, and systemic conditions such as hepatic or cardiac failure. Several studies, including those by Cho *et al*. (2015) and Lee *et al*. (2018) [1, 2], have emphasized its clinical significance, particularly as a marker of disease severity in acute cholecystitis. As such, it has been proposed as a potentially valuable predictor for biliary complications.
Hospital length of stay (LOS) is another clinically relevant metric, widely studied due to its implications for patient prognosis and hospital resource utilization. Factors associated with prolonged include advanced age, comorbidities, surgical complications, and complex intraoperative findings. However, the specific association between gallbladder wall thickening and prolonged hospitalization remains underexplored in the medical literature, highlighting a gap that warrants further investigation. Ultrasonography remains the first-line diagnostic tool for biliary pathology due to its wide availability, non-invasive nature, and high sensitivity and specificity (>90%). Characteristic sonographic findings in gallbladder disease include wall thickening (commonly >4 mm), gallbladder distension, intraluminal stones, echogenic bile (suggestive of sludge, pus, or hemorrhage), pericholecystic fluid collections or abscesses, and the positive sonographic Murphy sign.

While not pathognomonic, these findings have high diagnostic utility when interpreted in the context of clinical presentation.

Recent evidence suggests that gallbladder wall thickening may correlate with more severe clinical presentations, increased surgical complexity, and, consequently, prolonged hospitalization. Studies by Vega-Castillo *et al*. (2018) and Helizalde *et al*. have identified this parameter as a significant contributor to extended hospital stays, especially in the context of acute lithiasic cholecystitis. Elevated levels of leukocytes and C-reactive protein in conjunction with wall thickening have been associated with unfavorable clinical and histopathological outcomes, leading to a greater likelihood of requiring urgent surgical intervention.

In Latin America, gallstone disease is highly prevalent, with Mexico reporting an estimated 14.3% prevalence among adults, with a higher incidence in women. This underscores the clinical and economic burden of biliary diseases, which are among the top five indications for surgical intervention globally and represent one of the most expensive procedures within the realm of digestive diseases in Western countries.

Despite the frequency and diagnostic utility of gallbladder wall thickening, its predictive value for hospital stay duration has not been adequately studied in specific clinical settings. This study aims to bridge that gap by evaluating the association between gallbladder wall thickening and length of stay in a defined patient population. Ultimately, the goal is to develop a practical, non-invasive, reproducible, and cost-effective clinical tool for early identification of patients at risk for prolonged hospitalization, thereby enabling timely, targeted, and resource-efficient management strategies.

Materials and Methods

A descriptive, observational, retrospective, and cross-sectional study was conducted.

The study was conducted using the clinical records of the general surgery service at the General Hospital of Zone Number 20 "La Margarita," located in the city of Puebla de Zaragoza, Puebla. Men and women over 18 years of age were included, who had an ultrasound that showed gallbladder thickness, and who had been hospitalized within 6 months of the approval of this protocol by the Local Ethics and Research Committees. Statistical analysis using the Chi-square test was considered significant at a p value of ≤ 0.05.

Results

The study population consisted of 265 patients. Male and female genders did not differ in terms of average hospital stay days. It was also shown that in the case with the most days of EIH, 15 days, the wall thickness was associated with greater morbidity and longer stays. It was demonstrated by Chi square with a p value of 0.003 between the correlation of gallbladder wall thickening and days of hospital stay.

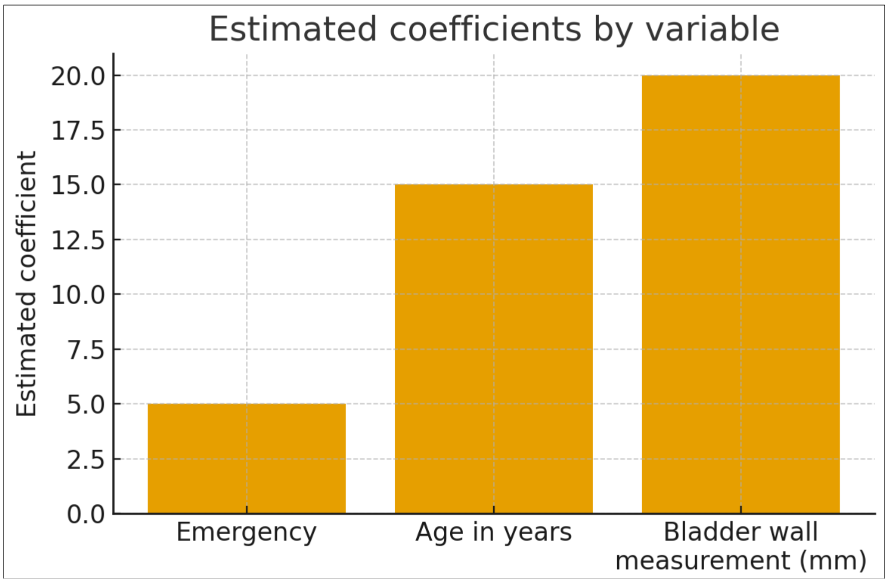

Fig: Impact of variables on hospital stay days

Discussion

Gallbladder wall thickening has long been studied as a relevant ultrasound finding in patients with suspected acute biliary disease. Multiple investigations agree that this sign not only reflects local inflammation but may also indicate systemic conditions that prolong hospital stay. The present study confirms this association, showing that patients with thickening ≥4 mm had a significantly longer average hospitalization. Yacelga *et al*. (Ecuador, 2019) demonstrated that wall thickness greater than 4 mm is associated with more severe cases of acute calculous cholecystitis, doubling the length of stay compared to patients without thickening. Similar results were reproduced in this thesis. González-Moreno *et al*. (Mexico, 2020) noted that this finding may also reflect systemic diseases such as heart failure or cirrhosis, which complicate clinical management and extend recovery.

Ramos-Peña *et al*. (Peru, 2018) highlighted that gallbladder wall thickening increases the need for prolonged antibiotic therapy, urgent surgery, and advanced postoperative care, all of which contribute to longer hospital stays. Likewise, a meta-analysis by Nassour *et al*. (USA, 2021) confirmed that thickness ≥4 mm predicts complications such as empyema, perforation, and gangrenous cholecystitis, which were associated with longer hospitalizations and higher readmission rates. In a prospective study, Di Mauro *et al*. (Italy, 2020) reported average stays of 8.2 days in patients with thickness >5 mm compared to 4.6 days in those without, as well as higher conversion rates from laparoscopic to open surgery, which further delayed recovery. In resource-limited settings, Villalobos-Camargo *et al*. (Colombia, 2017) emphasized the usefulness of this parameter for anticipating surgical complexity and optimizing hospital resource management.

Finally, it is important to acknowledge limitations inherent to ultrasound measurement and clinical factors that may alter values. Nonetheless, the findings reinforce that gallbladder wall thickening should be regarded as a valuable prognostic marker, capable of guiding diagnostic, therapeutic, and hospital planning decisions.

Conclusion

The study concluded that a significant association exists between gallbladder wall thickening and the length of hospital stay at General Zone Hospital No. 20, La Margarita.

Acknowledgments

The author wishes to express sincere gratitude to the faculty and staff of *General Zone Hospital No. 20, La Margarita*, for their invaluable support and collaboration throughout the development of this study. Special thanks are extended to the medical and nursing teams who facilitated access to clinical data and provided guidance during the research process. The author is also deeply thankful to the academic advisors and professors who generously shared their knowledge, constructive feedback, and encouragement, which were fundamental in refining the objectives and methodology of this work.

References

1. Cho JH, Kim TN, Kim SB. Clinical significance of gallbladder wall thickening on computed tomography in patients with acute cholecystitis. World J Gastroenterol. 2015 Jan 14;21(2):573-80. doi:10.3748/wjg.v21.i2.573.
2. Lee SP, Nicholls JF, Park HZ. Biliary sludge as a cause of acute pancreatitis. N Engl J Med. 1992 Apr 2;326(14):589-93. doi:10.1056/NEJM199204023261403.
3. Escobar-Vidarte MF, Moreno-Casbas T, Canet-Vélez O, *et al*. Factores asociados a la prolongación de la estancia hospitalaria en pacientes con enfermedades crónicas. Enferm Clin. 2019 Jul-Aug;29(4):232-7. doi:10.1016/j.enfcli.2019.01.007.
4. Kim SY, Lee SS, Byun JH, *et al*. Usefulness of the gallbladder wall thickening ratio determined by transabdominal ultrasound for the differential diagnosis of various gallbladder lesions. Ultrasonography. 2017 Jan;36(1):73-80. doi:10.14366/usg.160315.
5. Rosen M, Brody F, Ponsky J. Predictive factors for conversion of laparoscopic cholecystectomy. Am J Surg. 2002;184:254-8. doi:10.1016/S0002-9610(02)00934-0.
6. Smith A, Johnson B, Williams C, *et al*. Gallbladder wall thickening: a potential indicator of acute cholecystitis. J Radiol. 2016;23(5):350-5. doi:10.1016/j.jradiol.2016.05.007.

How to Cite This Article

Ledezma EDJ, Quiñones UF, Villanueva JS, Aguilar JA. Gallbladder wall thickening and its association with hospital stay at General Hospital Zone Number 20 "La Margarita". International Journal of Research in Medical Science 2025; 7(2): 314-316.

Creative Commons (CC) License

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms