



COMPARISON OF RETINOCHOROIDAL THICKNESS MEASUREMENTS OBTAINED WITH ENHANCED DEPTH IMAGING OPTICAL COHERENCE TOMOGRAPHY AND B-SCAN ULTRASONOGRAPHY IN HEALTHY ADULTS

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ABSTRACT

Conventional optical coherence tomography (OCT) enables detailed assessment of retinal thickness, whereas enhanced depth imaging OCT (EDI-OCT) improves visualization of the choroid and enables measurement of choroidal thickness. B-scan ultrasonography (B-scan USG) provides complementary imaging of the posterior ocular wall, although its thickness measurements may differ from those obtained using EDI-OCT. Choroidal thickness varies with physiological factors, including age, circadian rhythms, pregnancy, and physical activity. This study aimed to compare retinochoroidal complex thickness measurements obtained using EDI-OCT and B-scan USG and to assess their correlation and agreement in healthy adults. To compare retinochoroidal thickness measurements obtained using both techniques; a prospective, observational, analytical, cross-sectional study was conducted on 50 eyes of healthy subjects over the age of 18 years old. After applying selection criteria, 41 eyes were included for statistical analysis. Retinochoroidal complex thickness was measured using both techniques in one eye per participant, who attended the Ophthalmology Service in a tertiary care hospital. Data distribution was assessed using the Shapiro-Wilk test. Comparisons were performed using the Wilcoxon signed-rank test, correlations using Spearman's rho, and agreement using Bland-Altman analysis. Measurements obtained via B-scan USG were significantly higher than those recorded by EDI-OCT ($1446.83 \pm 180.50 \mu\text{m}$ vs. $595.24 \pm 57.18 \mu\text{m}$; $Z = -5.579$; $p < 0.001$). A weak but statistically significant positive correlation was observed between the two methods ($\rho = 0.336$; $p = 0.032$). Bland-Altman analysis showed a mean bias of $851.6 \mu\text{m}$, with 95% limits of agreement between 485.0 and $1218.1 \mu\text{m}$, as well as a progressive proportional error as the mean of the measurements increased. No significant differences were found based on sex, eye laterality, or age. In healthy adults, B-scan USG and EDI-OCT measurements of retinochoroidal complex thickness showed limited agreement and were not interchangeable. EDI-OCT should be used for quantitative assessment, while B-scan USG may provide complementary structural information when optical imaging is unavailable or limited.

KEYWORDS: Ophthalmology, Retinochoroidal complex thickness, Choroidal thickness, Retinal thickness, B-scan ultrasonography, Enhanced Depth Imaging Optical Coherence Tomography.

1. INTRODUCTION

The assessment of the eyeball has undergone an unprecedented evolution due to the rise of new technologies, transforming the diagnosis, monitoring,

and prognosis of numerous ocular pathologies. Regarding the posterior segment, research has focused primarily on the retina, given its accessibility for visualization. In contrast, choroid has remained a

structure that is difficult to delineate precisely *in vivo* due to optical limitations.

The advent of new technologies such as Optical Coherence Tomography (OCT) has enabled the study of deeper layers for the first time, as it yields high-resolution cross-sectional images that delineate the choroid and sclera with micrometer-scale resolution. This is particularly true of Enhanced Depth Imaging Optical Coherence Tomography (EDI-OCT), which has facilitated the measurement of retinal and choroidal thickness as a key indicator in the study of various pathologies.

Nevertheless, B-scan ultrasonography (B-scan USG) remains a valuable complementary tool in ophthalmic evaluation, capable of visualizing structures through opaque media and providing a comprehensive topographic view of the posterior pole, including the measurement of retinochoroidal complex thickness.

The study of retinochoroidal thickness in a healthy population using these two procedures represents an area of significant scientific interest, offering a valuable opportunity to analyze the behavior of these measurements. Consequently, analyzing data obtained from healthy eyes using both platforms establishes a reference framework for evaluating performance under baseline conditions prior to their use in pathological contexts.

1.1. Anatomical aspects of the choroid and the retinochoroidal complex

The choroid constitutes the posterior vascular portion of the uvea. Histologically, it is organized into five layers: the inner basal lamina, the choriocapillaris, Sattler's layer, Haller's layer, and the outer suprachoroidal lamina.^[1] It provides 90% of intraocular blood flow, supporting the oxygenation and metabolism of the retinal pigment epithelium (RPE) and photoreceptors. In this study, the term "retinochoroidal complex" refers to the retina and choroid considered together, with thickness measured from the internal limiting membrane to the choroid-sclera interface.

In young adults without ocular abnormalities, reported central foveal retinal thickness ranges from 220 to 280 μm , while reported subfoveal choroidal thickness ranges from 250 to 350 μm .^[2,3] These reference values should be interpreted in relation to the OCT device, acquisition technique, and segmentation boundaries used, as differences in measurement protocols may affect the reported thicknesses.

1.2. Physiological factors affecting choroidal thickness

Choroidal thickness is a dynamic variable influenced by multiple physiological factors, including age,^[4] the circadian cycle, pregnancy, and physical activity; additionally, factors such as body position (e.g., recumbency), changes in blood pressure, variations in

intraocular pressure, and the menstrual cycle can transiently alter choroidal blood flow and, consequently, its thickness. Aging is associated with a progressive decrease in choroidal thickness, estimated at approximately 2.3 μm per year.^[4] Regarding circadian rhythms, significant diurnal variation has been documented, with peak thickness occurring in the early morning (~291 μm at 3:00 AM) and minimum thickness in the evening (~272 μm at 6:00 PM), reflecting the circadian oscillation of ocular perfusion.^[5]

Hormonal and vascular changes associated with pregnancy induce a transient thickening of the choroidal tissue. A meta-analysis reported a mean increase of approximately 29–34 μm compared to non-pregnant women.^[6]

Intense aerobic physical activity produces a temporary increase in choroidal thickness. A subfoveal increase of approximately 27 μm has been documented 5 minutes after exercise, with a return to baseline levels by 15 minutes.^[7]

1.3. B-scan ultrasonography (B-scan USG)

B-scan USG is a non-invasive diagnostic imaging tool of great utility in ophthalmological practice, particularly when direct visualization of the fundus is compromised by opaque media. Its ability to generate images despite these barriers allows for the reliable assessment of posterior segment pathologies.^[8] This ultrasound modality produces two-dimensional images (cross-sections) of the eyeball and orbits by converting ultrasonic echoes into points of light intensity proportional to the echo amplitude. Key advantages include its safety, accessibility, low cost, real-time assessment capability, and clinical utility across a wide range of conditions. However, its effectiveness depends significantly on operator expertise and the standardization of techniques to ensure reliable and accurate results.^[9, 10]

This technique utilizes acoustic waves with frequencies above 20 kHz.^[10] B-scan USG typically employs frequencies between 7.5 and 20 MHz to image the posterior segment.^[9] The use of high-frequency sound waves allows for good resolution of ocular structures.

B-scan imaging provides a spatial representation of the eye's internal structures, allowing for the visualization of their shape, size, and location. This two-dimensional view is crucial for diagnosing and monitoring various ophthalmic conditions. Image quality is influenced by factors such as frequency (higher frequency = better resolution, lower penetration), gain (echo amplification), and probe orientation (perpendicularity to the area of interest yields stronger echoes).^[8, 10]

1.4. Clinical indications of B-scan USG

B-scan USG is particularly recommended for examining intraocular structures when the optical media are

opaque—such as in cases of advanced cataracts, vitreous hemorrhage, dense corneal opacities, hyphema, or hypopyon—rendering direct fundus evaluation impossible.^[9] This imaging modality is also used to detect and differentiate retinal pathologies (retinal detachments, retinal tears) and vitreous pathologies (hemorrhage, inflammatory processes, or posterior vitreous detachment), to localize and characterize intraocular foreign bodies, and to investigate orbital abnormalities such as tumor masses or inflammatory processes.^[10]

1.5. Measurement of retinochoroidal thickness using B-scan USG

B-scan USG can be used to assess the posterior ocular wall when other imaging modalities are unavailable or unfeasible.^[11] The interpretation of posterior wall measurements requires attention to the structures included between the selected anatomical boundaries and to the acquisition technique.^[12 - 14] In healthy eyes, Singh *et al.* reported mean retinochoroidal thicknesses of $953 \pm 151.28 \mu\text{m}$ with transpalpebral ultrasonography and $617.17 \pm 95.22 \mu\text{m}$ with immersion ultrasonography.^[3] These results describe measurements obtained with specific techniques and should not be presented as a universal normal threshold for B-scan USG.

Precisely locating the fovea using B-scan USG can be difficult. Knowledge of posterior segment anatomy helps guide the examination, as the fovea lies approximately 3 mm from the optic disc margin.^[15] B-scan USG may also help assess suspected macular thickening when direct visualization is limited.^[16]

1.6. OCT and EDI-OCT in Ophthalmology

OCT is a technique that uses light to obtain highly detailed cross-sectional images of the eye's interior without requiring direct contact with the tissue.^[17] There are various modalities of this technique.^[16, 17] A beam of light is directed toward the eye, while another portion of that same light is sent toward a mirror at a known distance. When the two light beams recombine, they create an interference pattern. This pattern allows for the creation of an "A-scan," which shows how light reflection varies at different tissue depths. By assembling multiple A-scans side by side, a real-time, two-dimensional cross-sectional image of the eye—known as a B-scan—is constructed.^[16] All of this is made possible by a physical principle known as interferometry, which studies how two light beams interact after traveling along different paths.^[17]

EDI-OCT is an ophthalmic imaging technique used to improve the visualization of deeper ocular structures, particularly the choroid.^[18] EDI is a modality applied to spectral-domain OCT (SD-OCT) that involves positioning the device's objective lens closer to the eye during image acquisition.

1.7. Indications for OCT and EDI-OCT in the posterior segment

In the context of retinal diseases, OCT is indispensable for evaluating various macular pathologies.^[19] It is particularly useful for detecting and monitoring macular edema, which can be associated with conditions such as diabetic retinopathy, intraocular infections, systemic diseases, retinal vein occlusions, adverse drug effects, or postoperative complications. Specifically, EDI-OCT is clinically indicated for studying pathologies that predominantly affect the choroid, particularly those involving its vascular network.^[18] This technique is especially useful for obtaining measurements on choroidal and retinal thickness, which are useful for monitoring various pathologies.

However, since OCT uses light waves that must pass through the pupil to reflect off the retina, any opacity in the ocular media can compromise the quality of the resulting image. Consequently, OCT may have limited utility in patients with corneal opacities, severe cataracts, or vitreous hemorrhage, as these conditions can scatter or block the light, preventing clear visualization.^[20]

1.8. Measurement of retinochoroidal complex thickness using EDI-OCT

EDI-OCT is a diagnostic technique that has enabled the reliable measurement of both retinal and choroidal thickness—the latter being a deep vascular structure that is difficult to visualize using conventional methods. The implementation of EDI achieves this advance by bringing the choroid closer to the scanner's zero-delay line, thereby improving signal penetration.^[21] In healthy adults, subfoveal choroidal thickness typically ranges from 260 to 330 μm .^[22] In addition, central or foveal retinal thickness generally falls within the range of 220 to 260 μm ;^[23-27] therefore, total subfoveal retinochoroidal thickness is approximately 500 to 600 μm .^[28] The EDI-OCT technique has demonstrated good intra-observer and inter-observer repeatability, validating its use for the longitudinal monitoring of patients and the evaluation of treatments.^[29]

1.9. Medical relevance of retinochoroidal complex thickness

Assessing retinochoroidal complex thickness is crucial for understanding and diagnosing various ocular pathologies. B-scan USG and EDI-OCT are two imaging techniques used for this purpose, though they differ in their underlying principles and resolution capabilities. While B-scan USG offers a view of the posterior layers of the eye, its resolution is limited. In contrast, EDI-OCT provides high-resolution images of the retina and choroid, enabling detailed measurement of choroidal thickness.

A lack of comparative data creates uncertainty regarding the equivalence—or systematic differences—between measurements obtained via these two techniques, a factor that could influence result interpretation and clinical

decision-making. Therefore, it is necessary to investigate and compare retinochoroidal complex thickness measurements obtained using both techniques in specific populations, particularly among healthy Mexicans. Establishing normative values and understanding the relationship between measurements from both techniques in this group is of fundamental importance for the accurate interpretation of findings in both clinical practice and research studies.

The increasing use of EDI-OCT has enabled significant advances in characterizing choroidal thickness across various populations. A review of current scientific literature reveals few studies exploring retinochoroidal complex thickness in the Mexican population using EDI-OCT. Data directly comparing retinochoroidal complex thickness measurements obtained simultaneously via B-scan USG and EDI-OCT in a healthy Mexican population are scarce.

This study was designed to: 1. Establish reference values for retinochoroidal complex thickness as estimated by both techniques in a healthy Mexican population. 2. Evaluate the agreement and correlation between measurements obtained using B-scan USG and EDI-OCT in the same group of healthy Mexican individuals. 3. Provide a comparative perspective to help understand potential systematic differences or variations between measurements from both techniques within this specific population. 4. Analyze the influence of age and sex on retinochoroidal complex thickness as measured by both techniques in this population.

2. MATERIAL AND METHODS

A prospective, analytical observational, and cross-sectional study was conducted.

2.1. Participants

Eligible patients receiving medical care at the Ophthalmology Department of the Specialty Hospital at the Siglo XXI National Medical Center (Mexican Institute of Social Security). Participants were asked to sign an informed consent form and were provided with a data collection sheet to record general information as well as medical and ophthalmic history. There is no risk associated with this research protocol.

Unit of analysis: 1 eye per subject.

Period: December 2025–March 2026.

2.2. Selection criteria

The inclusion criteria were: (a) Mexican adults older than 18 years; (b) best-corrected visual acuity better or equal than 20/25; (c) axial length between 22 and 24 mm; (d) clear ocular media permitting adequate EDI-OCT imaging; and (e) written informed consent.

The exclusion criteria were: (a) retinal or choroidal disease; (b) a spherical equivalent outside the range of -3.00 to $+3.00$ diopters; and (c) previous ocular surgery.

Criteria for removal from the analysis were withdrawal of consent or EDI-OCT or B-scan USG images of insufficient quality to permit reliable identification of the measurement boundaries.

2.3. Equipment used

EDI-OCT imaging was performed using a REVO OCT system with a reported axial resolution of $5\ \mu\text{m}$ and an acquisition speed of up to 100,000 A-scans per second. The EDI mode was used to improve visualization of the choroid and the choroid–sclera interface.

B-scan ultrasonography was performed using a RetiWave 1000 ophthalmic A/B-scan ultrasound system (Kangyumed) equipped with a 10-MHz B-scan probe. According to the manufacturer's technical specifications, the system has an axial resolution of $\leq 0.2\ \text{mm}$ ($\leq 200\ \mu\text{m}$), a lateral resolution of $\leq 0.3\ \text{mm}$ ($\leq 300\ \mu\text{m}$), a scanning depth of $\geq 50\ \text{mm}$, and an adjustable gain range of 20–110 dB. A gain setting of 50 dB was used for the measurements in this study.

2.4. Measurement of retinochoroidal complex thickness

Retinochoroidal complex thickness was measured as follows:

With EDI-OCT, the procedure begins by obtaining an image centered on the fovea. Subsequently, retinochoroidal complex thickness is determined by drawing a perpendicular line from the internal limiting membrane at the fovea to the choroid-sclera interface.

B-scan USG was performed using contact ultrasonography with a 10-MHz probe by a single examiner with advanced training in ocular ultrasonography. The device was calibrated using its standard sound velocity setting for ocular measurements in healthy eyes. All examinations were performed using the contact technique. Measurements were obtained approximately 3 mm above the optic nerve head, where the posterior ocular wall could be visualized. Gain was set to 50 dB to improve visualization of the posterior ocular wall. The device's integrated software was used to measure thickness perpendicular to the posterior ocular wall, from the vitreoretinal interface to the sonographically visible choroid–sclera boundary.

2.5. Study Design

A non-probability, consecutive convenience sampling method was used. Only one eye per study subject was included to ensure the independence of sampling units, with the eye to be measured selected via simple random sampling. Recruitment ceased once the calculated total sample size of 50 eyes was reached.

2.6. Sample Size

The primary objective of the study was to evaluate the agreement between retinochoroidal complex thickness measurements obtained via B-scan USG and EDI-OCT, the latter being considered the gold standard. The sample

size was set at 50 eyes to ensure adequate statistical power to detect a clinically significant level of agreement. The sample size calculation to determine the significance of a coefficient correlation was based on Fisher's transformation formula. For a significance level (α) of 0.05 (95% confidence) and a statistical power of 90%, the calculated minimum sample size was 38 eyes.

To account for potential data loss, failure to acquire high-quality images, exclusion criteria, or dropouts—estimated at approximately 24%—the final sample size was increased to 50 eyes.

2.7. Statistical Analysis

Variables were described using measures of central tendency and dispersion:

a) For quantitative variables: mean, standard deviation, median, interquartile range, and minimum and maximum values. b) For categorical variables: absolute and relative frequencies (percentages).

Retinochoroidal complex thickness measured by both methods was expressed in micrometers (μm), with overall and subgroup (age, sex, or eye laterality) mean values reported.

Retinochoroidal complex thickness values obtained via EDI-OCT, and B-scan USG were compared using the paired Student's *t*-test or the Wilcoxon test, as appropriate. Correlation between the two methods was determined using the Pearson or Spearman correlation coefficient. Additionally, the intraclass correlation coefficient and Bland–Altman plots were used to determine the degree of agreement between measurements.

3. RESULTS

3.1. Study population

Fifty eyes from participants were initially evaluated, of which 9 were excluded for failing to meet the selection criteria. Consequently, 41 eyes were included in the statistical analysis. The primary reasons for exclusion were a spherical equivalent greater than ± 3.00 diopters and a history of prior refractive surgery.

The demographic characteristics of the study population are shown in Table 1. In the analyzed sample, a similar distribution by sex and eye evaluated was observed, with a slight predominance of females and left eyes.

Table 1: Demographic characteristics of the included and excluded population.

Variable	Included (n = 41)	Excluded (n = 9)
Age, mean $\pm$ SD (years)	26.3 $\pm$ 3.2	28.7 $\pm$ 4.4
Female, n (%)	21 (51.2)	7 (77.8)
Male, n (%)	20 (48.8)	2 (22.2)
Right eye, n (%)	20 (48.8)	5 (55.6)
Left eye, n (%)	21 (51.2)	4 (44.4)

3.2. Characteristics of retinochoroidal complex thickness

Descriptive statistics for the retinochoroidal complex thickness measurements obtained using B-scan USG and EDI-OCT are summarized in Table 2.

Table 2: Descriptive statistics of retinochoroidal complex thickness measurements.

Variable	Mean $\pm$ SD	Median (IQR)	Shapiro-Wilk (p)	Interpretation
GRC B-scan USG (μm)	1446.83 $\pm$ 180.50	1450 (220)	0.048	Non-normal distribution
GRC EDI-OCT (μm)	595.24 $\pm$ 57.18	618 (85)	0.068	Distribution consistent with normality

Normality assessment using the Shapiro-Wilk test revealed a non-normal distribution for measurements obtained via B-scan USG ($W = 0.945$; $p = 0.048$), whereas measurements obtained via EDI-OCT showed a distribution consistent with normality ($W = 0.950$; $p = 0.068$). Histograms, Q-Q plots, and box plots indicated slight skewness and the presence of outliers—particularly in the B-scan USG measurements—leading to the decision to use non-parametric tests for the inferential analysis.

3.3. Comparison of measurement methods

The comparison between measurements obtained using both methods was performed using the Wilcoxon signed-

rank test for related samples, due to the non-normal distribution of the variables. Statistically significant differences were found between the two methods ($Z = -5.579$; $p < 0.001$). In the 41 eyes analyzed, measurements obtained via EDI-OCT were consistently lower than those obtained via B-scan USG.

3.4. Correlation and agreement between measurement methods

Bland–Altman agreement analysis showed a mean bias of 851.6 μm , with limits of agreement between 485.0 and 1218.1 μm (Figure 1). A proportional trend was also observed, evidenced by an increase in the difference

between methods as the means of the measurements increased.

Spearman's correlation showed a weak, statistically significant positive correlation between the two measurement methods ($\rho = 0.336$; $p = 0.032$).

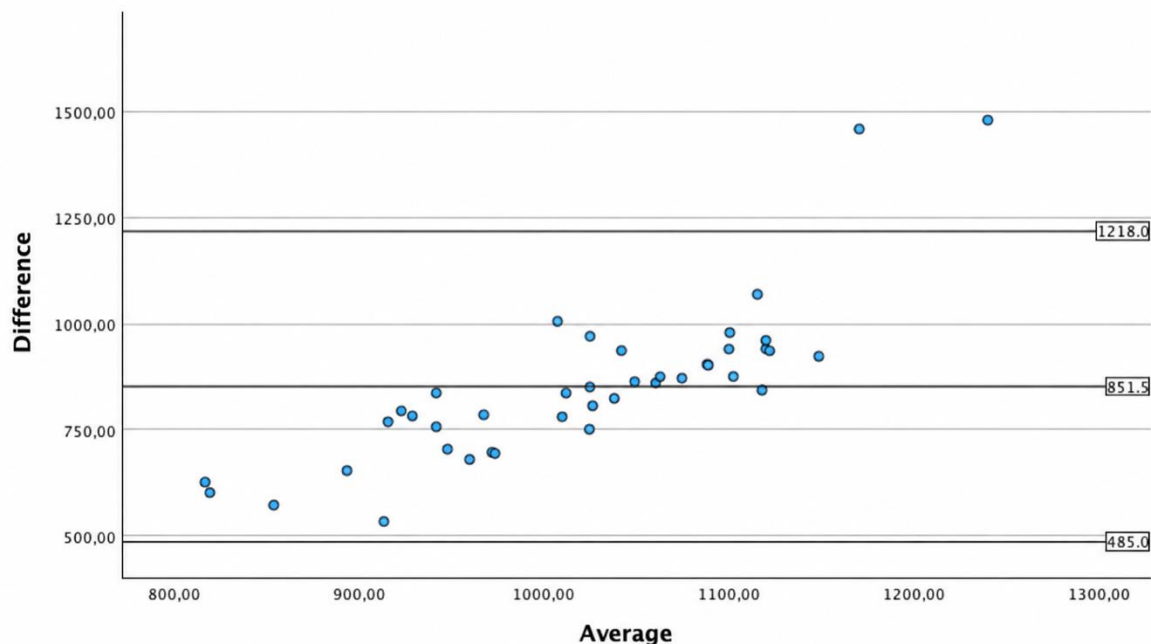


Figure 1: Bland–Altman plot showing agreement between retinochoroidal complex thickness measurements obtained via B-scan USG and EDI-OCT. The central line represents the mean bias, and the upper and lower lines represent the 95% limits of agreement.

3.5. Influence of demographic and ocular variables

In the secondary analysis by sex, no statistically significant differences were observed between men and women for retinochoroidal complex thickness obtained via B-scan USG ($U = 196.0$; $p = 0.714$) or EDI-OCT ($U = 202.0$; $p = 0.835$).

Similarly, no statistically significant differences were found between right and left eyes for measurements obtained via B-scan USG ($U = 194.0$; $p = 0.676$) or EDI-OCT ($U = 193.0$; $p = 0.657$).

Finally, no statistically significant correlation was observed between age and retinochoroidal complex thickness obtained via B-scan USG ($\rho = 0.218$; $p = 0.170$) or EDI-OCT ($\rho = -0.124$; $p = 0.440$).

4. DISCUSSION

The results of this study show that, although there is a positive correlation between the measurements recorded by both procedures—EDI-OCT and B-scan USG—retinochoroidal complex thickness measurements exhibit systematic and inter-individual differences. Spearman correlation analysis revealed a weak positive association between the two techniques, a finding supported by Bland-Altman analysis, which showed a mean difference of 851.6 μm with wide limits of agreement. These findings suggest that, although a weak positive correlation was observed, the measurement magnitudes are not interchangeable in a clinical setting. Consistent

with this, the error was dependent on the magnitude of the measurements and increased as the average value increased. This analysis confirms that B-scan USG consistently yields greater retinochoroidal complex thickness values than EDI-OCT, with the difference becoming more pronounced as the tissue thickness increases.

The difference between the two methodologies can be explained by physical principles, spatial resolution, and criteria for anatomical delineation. EDI-OCT employs an optical wavelength that allows for higher resolution and greater precision in delineating structures. Furthermore, it exhibits less data dispersion, with the data following a normal statistical distribution. In contrast, B-scan USG uses acoustic waves with lower spatial resolution, which limits the identification of distinct chorioretinal structures and increases the risk of including adjacent tissues or artifacts. Consequently, measurements showed greater dispersion and a skewed distribution, with some outliers observed.

Additionally, no statistically significant associations were detected between retinochoroidal complex thickness measurements and age, sex, or eye laterality. Given the lack of association with these factors, the observed difference may be related to differences in acquisition and anatomical delineation to the methodological characteristics of each instrument. The results indicate that EDI-OCT is a more precise and

specific optical method for measuring retinochoroidal complex thickness, whereas B-scan USG provides a general—and systematically higher—ultrasonographic estimate. Therefore, using both techniques interchangeably is not recommended for clinical follow-up or for direct quantitative comparisons of retinochoroidal complex thickness.

The methods employed in this study are not interchangeable in clinical practice. EDI-OCT values were consistently lower than those measured by B-scan USG. Although a weak positive linear relationship was observed between the two technologies ($\rho = 0.336$; $p = 0.032$), the resulting Bland–Altman analysis suggested a mean difference of $851.6 \mu\text{m}$ and substantial proportional bias—differences stemming from their distinct physical principles, spatial resolutions, and methods of delineating structures. It should be noted that this is due to the inherent characteristics of each imaging method.

The mean retinochoroidal complex thickness measured using contact B-scan USG in our study ($1446.83 \pm 180.50 \mu\text{m}$) was higher than the mean reported by Singh et al. for transpalpebral ultrasonography in healthy eyes ($953 \pm 151.28 \mu\text{m}$).^[3] This is a descriptive comparison between studies; no statistical test was performed to assess that difference. The lower spatial resolution of B-scan USG may also make these boundaries difficult to delineate, but the present study cannot establish the contribution of each factor. No statistically significant associations with age, sex, or eye laterality were detected in this sample. Published retinal OCT measurements in healthy Mexican eyes further illustrate the value of population- and device-specific reference data;^[13] however, those retinal measurements cannot be directly compared with the retinochoroidal thickness measured here.

Overall, the results demonstrate that EDI-OCT is a more precise and specific technique for measuring retinochoroidal complex thickness, making it the current gold standard. Conversely, since B-scan USG relies on different physical principles and lacks the same optical discrimination capability, the two methods should not be used interchangeably, nor should their results be compared quantitatively in clinical practice. However, in the absence of EDI-OCT, B-scan USG can serve as a useful complementary tool for observing general structural changes and significant variations in retinochoroidal complex thickness, provided the potential for overestimation is considered.

Among the limitations of this study—including the fact that the sample size comprised only 41 eyes—a potential selection bias is acknowledged, as subjects with a spherical equivalent of ± 3.00 diopters or a history of refractive surgery were excluded from our analyses. This implies that the results are more relevant to emmetropic populations or those with mild refractive errors;

consequently, their validity in cases of higher degrees of ametropia may be limited.

5. CONCLUSIONS

This study demonstrates that B-scan USG and EDI-OCT do not provide interchangeable measurements of retinochoroidal complex thickness in the healthy adults evaluated. Despite a weak correlation between the two techniques, the differences between their measurements were substantial and varied across the range of values observed. Therefore, measurements obtained with one method cannot be treated as equivalent to those obtained with the other or substituted for them during clinical follow-up. Within this sample, no significant association with age or difference by sex was detected. By establishing the extent of agreement between the two methods under the procedures used, this study addresses its central objective and provides a basis for interpreting their results in clinical practice. EDI-OCT remains the appropriate method when a quantitative measurement of retinochoroidal complex thickness is needed, whereas B-scan USG may offer complementary structural information when optical imaging is unavailable or limited. Further studies using standardized acquisition procedures are needed to determine whether these findings apply to other settings and populations.

Conflict of interest

The authors declare no conflict of interest.

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