Characteristics of Posterior Precortical Vitreous Pockets and Cloquet’s Canal in Patients with Myopia by Optical Coherence Tomography

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PURPOSE. To describe the morphological features of posterior precortical vitreous pockets (PPVP) and Cloquet’s Canal in patients with myopia using spectral-domain optical coherence tomography (SD OCT).

METHODS. A total of 96 eyes of 51 volunteers (range, 5–18 years) were enrolled in this study, and all individuals underwent OCT (Optovue Inc., Fremont, CA, USA) examinations. From the collected PPVPs images, the widths and heights of the PPVPs were measured, and connections between PPVPs and Cloquet’s Canal were identified. The PPVPs widths and heights, width:height ratios and proportions of connections were compared among different age (5–8, 9–14, 15–18 years), axial length (AL; 21–23, 23–25, 25–29 mm) and myopia groups (hyperopia, low to moderate myopia, high myopia); the group data were analyzed to determine their relationship with myopia.

RESULTS. PPVPs were identified in 89 of 96 eyes; 6 eyes were excluded for poor image quality. The PPVPs width was positively correlated with age, especially in the low to moderate myopia group (F = 7.715, P = 0.001). There was a significant difference in the PPVPs height between the refractive error groups in the 9 to 14 years group (F = 4.905, P = 0.005). The PPVPs width:height ratio was different among the refractive error groups in the 9 to 14 years group (F = 5.335, P = 0.041) and among the different age groups in the low to moderate myopia group (F = 6.077, P = 0.004). A total of 22 eyes (22.4%) were identified as having a connection between the PPVP and Cloquet’s Canal. The connections began to increase with AL at 5 to 8 years (χ² = 7.365, P = 0.025).

CONCLUSIONS. PPVPs existed in most myopia patients from 5 to 18 years old. PPVPs width was positively correlated with age, especially in the low to moderate myopia group. PPVPs height decreased in the 9 to 14 years group with myopia. An imbalance in the horizontal and vertical enlargement of PPVP was the main feature in the 9- to 14-year-old group with myopia. The connections between the PPVP and Cloquet’s Canal were associated with AL extension in the 5- to 8-year-old group.

Keywords: posterior precortical vitreous pockets, myopia, Cloquet’s Canal

Myopia has become a major public health problem; the population with myopia has been increasing in Asian countries, and 80% to 90% of myopia patients are children. Among them, 10% to 20% belong to the high myopia population. There is a key period of high myopia formation during the development of myopia may help us understand the mechanism of vitreoretinal lesions in patients with high myopia.

Recently, with the advent of spectral-domain optical coherence tomography (SD-OCT) with a resolution of 12 μm, the structure of the vitreoretinal interface can be clearly observed. In this study, we used this technology to observe the structures of PPVPs and Cloquet’s Canal in patients with myopia to analyze the characteristics of the vitreous structures during myopia progression.

MATERIALS AND METHODS

The study included 96 eyes of 51 volunteers (5–18 years) from the Affiliated Eye Hospital of Wenzhou Medical University and was approved by the Institutional Review Board. All the individuals were instructed on the content and purpose of

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the study before the examinations. Study subjects with macular
disease, amblyopia, cataracts, or glaucoma were excluded from
the study. Table 1 shows the basic demographic information of
the study participants.

### Comprehensive Ophthalmic Examinations

All the subjects underwent complete ophthalmic examinations,
including best corrected vision acuity (BCVA), axial
length (AL), cycloplegic refraction, color fundus photography,
and slit-lamp biomicroscopy examinations. AL was measured by
an (IOLMaster; Carl Zeiss, Jena, Germany). The pupil was
dilated with cyclopentane before refraction, and the BCVA was
measured with Snellen’s acuity test. Fundus photography was
dilated with cyclopentane before refraction, and the BCVA was
measured with Snellen’s acuity test. Fundus photography was
carried out after cycloplegia using a fundus camera (Retinal
Camera CR-DGi; Canon, Japan).

### Vitreous Image Acquisition and Analysis

Vitreous images were acquired by OCT (Optovue Inc.,
Fremont, CA, USA) with 12 μm enhanced high-density line
B-scans from different positions. Vertical and horizontal
scans through the fovea and optic disk were completed by
experienced technicians. Each position included 60 scans
that were montaged to produce the final image; only clear
images were utilized in the study. All patient examinations
were performed in a seated position, and the EVI model was
used to highlight the vitreous structure and choroid. The
EVI model software (RTVue XR OCT Avanti System, version
2016.1.0; Optovue Inc., Fremont, CA) automatically adjust-
ed the image contrast to obtain clear vitreous structure
images.

To analyze the vitreous structure, all the images were
analyzed by ImageJ (http://imagej.nih.gov/ij/; provided in the
public domain by the National Institutes of Health [NIH],
Bethesda, MD, USA). PPVPs were identified as a boat-shaped
empty space above the macula, and Cloquet’s Canal were
identified as a liquefied space above the optic disc. The widths
and heights of the PPVPs were measured by ImageJ (NIH,
Bethesda, MD, USA). The width of the PPVP was defined as the
longest horizontal distance of the PPVP, and the height of the
PPVP was defined as the vertical distance above the macular
foveal region. The PPVP width:height ratio was calculated. A
defect in the septum was considered a connection between
the PPVP and Cloquet’s Canal (Fig. 1).

### Statistical Analyses

The statistical analyses were carried out with statistics software
(IBM SPSS, version 20; IBM Corp., Armonk, NY, USA). The
distribution of data was tested for normality with the
Kolmogorov-Smirnov test. Means and standard deviations
(SDs) were calculated for the normally distributed data, and
medians, first quartiles, and third quartiles were calculated for
the nonnormally distributed variables. ANOVA was used for the
comparisons between groups, and the Tukey-Kramer honestly
significant difference (HSD) post hoc test was carried out to
adjust for various comparisons between groups. A χ² test was
used for nonnormally distributed variable comparisons be-
 tween groups. The relationship between groups was analyzed
using the Pearson correlation coefficient test. A value of P <
0.05 was considered statistically significant.

### RESULTS

#### Demographic Information of the Study Participants

A total of 96 eyes of 51 volunteers were enrolled in the study
(57 female, 39 male). The patients were aged from 5 to 18
years (mean ± SD: 9.64 ± 2.97 years, median, 9 years); 50 eyes
(52.1%) ranged from 5 to 8 years (mean ± SD: 7.64 ± 1.29
years, median, 8 years), 34 eyes (35.4%) ranged from 9 to 14
years (mean ± SD: 11.62 ± 1.28 years, median, 11.5 years),
and 12 eyes (12.5%) ranged from 15 to 18 years (mean ± SD:
17.00 ± 1.55 years, median, 18 years). The AL ranged from
22 to 23 mm (mean ± SD: 22.35 ± 2.12 mm; median,
22.50 mm; range, 21.50 to 22.83 mm), the AL of 50 eyes
(52.1%) ranged from 23 to 25 mm (mean ± SD: 23.91 ± 0.57
mm; median, 23.99 mm; range, 23.00 to 24.37 mm), and the AL
of 15 eyes (15.6%) ranged from 17.00 to 1.55 years (mean ± SD:
17.00 ± 1.55 years, median, 18 years). The AL ranged from
21.00 to 29.00 mm (mean ± SD: 24.45 ± 1.75 mm; median,
24.26 mm; range, 21.45 to 28.81 mm); the AL of 50 eyes
(52.1%) ranged from 22 to 23 mm (mean ± SD: 22.55 ± 0.49
mm; median, 22.50 mm; range, 21.45–22.83 mm), the AL of 50 eyes
(52.1%) ranged from 23 to 25 mm (mean ± SD: 23.91 ± 0.57
mm; median, 23.99 mm; range, 23.99–24.37 mm), and the AL
of 31 eyes (32.3%) ranged from 25 to 29 mm (mean ± SD:
26.35 ± 0.74 mm; median, 26.18 mm; range, 25.28–28.81
mm). The refractive error (RE) ranged from −10.75 to +6.75 D
(mean ± SD, −2.68 ± 2.81 D; median, −1.75 D); 34 eyes
(35.4%) were classified as having hyperopia (mean ± SD, 2.65
± 2.12 D; median, +2.00 D; range, +0.25 to +6.75 D); 50 eyes
(52.1%) were classified as having low to moderate myopia
(mean ± SD, −2.12 ± 1.45 D; median, −1.75 D; range, −5.50 to
−0.25 D), and 18 eyes (18.8%) were classified as having high

### Table 1. Clinical Characteristics of the Study Population

<table>
<thead>
<tr>
<th>Eye (96 eye)</th>
<th>N (%)</th>
<th>Mean</th>
<th>Median; Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y</td>
<td>96</td>
<td>9.64 ± 2.97</td>
<td>9; 5 to 18</td>
</tr>
<tr>
<td>5 to 8</td>
<td>50 (52.1)</td>
<td>7.64 ± 1.29</td>
<td>8; 5 to 8</td>
</tr>
<tr>
<td>9 to 14</td>
<td>34 (35.4)</td>
<td>11.62 ± 1.28</td>
<td>11.5; 9 to 14</td>
</tr>
<tr>
<td>15 to 18</td>
<td>12 (12.5)</td>
<td>17.00 ± 1.55</td>
<td>18.0; 15 to 18</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>39 (40.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>57 (59.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE (D)</td>
<td>96</td>
<td>−2.68 ± 3.63</td>
<td>−1.75; −10.75 to +6.75</td>
</tr>
<tr>
<td>Hyperopia</td>
<td>13 (13.5)</td>
<td>2.65 ± 2.21</td>
<td>+2.00; +0.25 to +6.75</td>
</tr>
<tr>
<td>Low to moderate myopia</td>
<td>65 (67.7)</td>
<td>−2.12 ± 1.45</td>
<td>−1.75; −5.50 to −0.25</td>
</tr>
<tr>
<td>High myopia</td>
<td>18 (18.8)</td>
<td>−8.60 ± 1.53</td>
<td>−8.63; −10.75 to −6.00</td>
</tr>
<tr>
<td>AL (mm)</td>
<td>96</td>
<td>24.45 ± 1.55</td>
<td>24.26; 21.45 to 28.81</td>
</tr>
<tr>
<td>22 to 23</td>
<td>15 (15.6)</td>
<td>22.35 ± 0.49</td>
<td>22.50; 21.45 to 22.83</td>
</tr>
<tr>
<td>23 to 25</td>
<td>50 (52.1)</td>
<td>23.91 ± 0.57</td>
<td>23.99; 23.00 to 24.37</td>
</tr>
<tr>
<td>25 to 29</td>
<td>31 (32.3)</td>
<td>26.35 ± 0.74</td>
<td>26.18; 25.28 to 28.81</td>
</tr>
</tbody>
</table>

D, diopter.
myopia (mean ± SD, −8.60 ± 1.53 D; median, −8.63 D; range, −10.75 to −6.00 D; Table 1).

**PPVP Width Increased With Age**

A PPVP appeared as a low reflective space in front of macula. PPVPs were not detected in nine eyes, and six eyes were excluded due to poor image quality. There was no clear anterior PPVP contour in one eye. Ages were divided into three groups: 5 to 8 years, 9 to 14 years, and 15 to 18 years. The mean PPVP width was 3.34 ± 0.94 mm, 4.07 ± 1.00 mm, and 3.86 ± 1.44 mm for each age group, respectively, \(F = 5.38, P = 0.006\) as shown in Figure 2A. The PPVP width was positively correlated with age (Pearson = 0.276, \(P = 0.010\)), as shown in Figure 2B. Representative B-scan images for each age group are presented in Figure 3.

To further analyze whether the refractive error had an effect on the results, PPVP size was classified based on age and refractive error, as shown in Table 2. The mean PPVP width was not significantly different between the refractive error groups among the age groups \((F = 0.165, P = 0.849, F = 2.088, P = 0.142, t = 7.215, P = 0.086)\). However, in each refractive error group, the relationship between age and PPVP size was inconsistent. In the hyperopia and high myopia groups, the PPVP width was not significantly different between the age groups \((F = 0.200, P = 0.667, F = 3.777, P = 0.051)\). In the low to moderate myopia group, the PPVP width increased with age from 5 to 18 years. \((F = 7.715, P = 0.001)\).

**PPVP Height Decreased With Myopia Degree**

The PPVP height was measured above the macular foveal region. The mean PPVP height was 0.64 ± 0.34 mm. The mean PPVP heights were 0.56 ± 0.37 mm, 0.70 ± 0.35 mm, and 0.47 ± 0.16 mm in the hyperopia, low to moderate myopia
and high myopia groups, respectively \((F = 3.597, P = 0.032;\) Fig. 4A).

To further exclude the effect of age on outcomes, we classified outcomes based on age, as shown in Table 2. The results indicated that the greatest effect of the refractive error on the PPVP height was mainly concentrated in the 9 to 14 years age group \((F = 4.905, P = 0.015);\) the PPVP height in the high myopia group was 0.49 \(\pm\) 0.18 mm, which was lower than that in the low to moderate myopia group among the 9 to 14 years age group \((P = 0.012).\) In other words, a decrease in the PPVP height in patients with myopia may occur mainly between the ages of 9 to 14 years.

**PPVP Width:Height Ratio Was Correlated With Myopia**

The PPVP width:height ratio was calculated in our study. The results indicated that the mean ratio was 7.79 \(\pm\) 5.06, 6.29 \(\pm\)

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**Table 2.** PPVPs Size Comparison by Age and Refractive Error

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>PPVPs Width, mm</th>
<th>P</th>
<th>PPVPs Height, mm</th>
<th>P</th>
<th>Ratio</th>
<th>P</th>
<th>AL (mm)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y</td>
<td>Hyperopia</td>
<td>3.23 (\pm) 1.57</td>
<td>0.61 (\pm) 0.39</td>
<td>7.69 (\pm) 5.72</td>
<td>22.76 (\pm) 0.62</td>
<td>21.55 (\pm) 0.71</td>
<td>0.001</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Low to moderate myopia</td>
<td>3.39 (\pm) 0.82</td>
<td>0.63 (\pm) 0.30</td>
<td>0.354 6.23</td>
<td>2.36</td>
<td>0.286 26.27</td>
<td>0.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Myopia</td>
<td>3.15 (\pm) 0.47</td>
<td>0.39 (\pm) 0.09</td>
<td>8.17 (\pm) 1.50</td>
<td>24.66</td>
<td>0.91</td>
<td></td>
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<tr>
<td>9 to 14</td>
<td>Low to moderate myopia</td>
<td>4.17 (\pm) 0.99</td>
<td>0.82 (\pm) 0.38</td>
<td>0.015 5.81</td>
<td>2.46</td>
<td>0.005 24.66</td>
<td>0.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Myopia</td>
<td>4.15 (\pm) 0.98</td>
<td>0.49 (\pm) 0.18</td>
<td>9.01 (\pm) 2.19</td>
<td>26.74</td>
<td>0.90</td>
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</tr>
<tr>
<td></td>
<td>Hyperopia</td>
<td>5.08 (\pm) 0.48</td>
<td>0.83 (\pm) 0.64</td>
<td>0.601 12.31</td>
<td>6.23</td>
<td>0.240 24.03</td>
<td>0.15</td>
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<tr>
<td>15 to 18</td>
<td>Low to moderate myopia</td>
<td>2.63 (\pm) 0.36</td>
<td>0.55 (\pm) 0.14</td>
<td>4.91 (\pm) 1.16</td>
<td>27.14</td>
<td>0.16</td>
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<tr>
<td></td>
<td>High Myopia</td>
<td>3.23 (\pm) 1.57</td>
<td>0.61 (\pm) 0.40</td>
<td>7.69 (\pm) 5.72</td>
<td>22.76</td>
<td>0.62</td>
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<tr>
<td></td>
<td>Low to moderate myopia</td>
<td>2.72 (\pm) 0.27</td>
<td>0.63 (\pm) 0.30</td>
<td>0.354 6.23</td>
<td>2.36</td>
<td>0.286 26.27</td>
<td>0.45</td>
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</tr>
<tr>
<td></td>
<td>High Myopia</td>
<td>4.17 (\pm) 0.99</td>
<td>0.82 (\pm) 0.38</td>
<td>0.118 5.81</td>
<td>2.46</td>
<td>0.004 24.66</td>
<td>0.91</td>
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<tr>
<td></td>
<td>Low to moderate myopia</td>
<td>5.08 (\pm) 0.48</td>
<td>0.83 (\pm) 0.64</td>
<td>12.31</td>
<td>6.23</td>
<td>0.240 24.03</td>
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<tr>
<td></td>
<td>High Myopia</td>
<td>3.15 (\pm) 0.46</td>
<td>0.39 (\pm) 0.09</td>
<td>8.17 (\pm) 1.50</td>
<td>26.27</td>
<td>0.43</td>
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</tbody>
</table>

Ratio means width/height.
* Stands for ANOVA analysis.
2.72, and 8.29 ± 2.30 for the hyperopia, low to moderate myopia and high myopia groups, respectively \((F = 3.335, P = 0.041)\) by ANOVA. The ratio in the high myopia group was higher than that in the low to moderate myopia group \((P = 0.019)\), as shown in Figure 4B.

To further analyze the causes of the changes, we classified them based on age and refractive error, as shown in Table 2. The results indicated that the effect of myopia on the width:height ratio was the greatest in the 9 to 14 years age group. The ratios were 8.21 ± 1.24, 5.81 ± 2.46, and 9.01 ± 2.19 in the hyperopia, low to moderate myopia and high myopia groups, respectively, and there was a significant difference between the refractive error groups according to age \((F = 6.507, P = 0.005)\). The ratio in the high myopia group was higher than that in the low to moderate myopia group \((P = 0.005)\). There was no significant difference between the refractive error groups in the 5 to 8 and 15 to 18 years groups \((F = 1.287, P = 0.286, F = 2.727, P = 0.240\), respectively). The ratio was significantly different between the age groups in the low to moderate myopia group. The ratios were 6.25 ± 2.36, 5.81 ± 2.46, and 12.31 ± 6.25 for the 5 to 8, 9 to 14, and 15 to 18 years groups, respectively \((F = 6.077, P = 0.004)\).

In summary, the PPVP width increased with age, especially in the low to moderate myopia group. The PPVP height decreased with myopia progression, especially in the 9 to 14 years group.

Connections Between PPVPs and Cloquet’s Canal

A total of 22 eyes (22.4%) had clear connection between the PPVPs and Cloquet’s Canal. The connection was classified by age and AL. The AL was divided into the following groups: 1 (median, 22.50; range, 21.45–22.85 mm), 2 (median, 23.99 mm; range, 23.00–24.37 mm), and 3 (median, 26.18 mm; range, 25.28–28.81 mm). The results showed that connections were 0%, 50%, and 50% for the AL groups, respectively, in the 5 to 8 years group \(\chi^2 = 7.565, P = 0.025\). The connections were 0%, 40% and 60% for the AL groups, respectively, in the 9 to 14 years group \(\chi^2 = 1.538, p = 0.465\), and the connections were 33.3%, 0%, and 66.7% for the AL groups, respectively, in the 15 to 18 years group \(\chi^2 = 0.667, p = 0.209\), as shown in Figure 5A. By controlling for AL in the analysis, it was found that age was not the cause of the differences in the connections \(\chi^2 = 6.964, P = 0.031\), \(\chi^2 = 2.286, P = 0.279\), \(\chi^2 = 0.301, P = 0.860\), respectively\) for each AL group, as shown in Figure 5B.

**DISCUSSION**

Our study indicated that the PPVP width increased with age and was not affected by myopia. The PPVP height was reduced in the high myopia group, especially in the 9 to 14 years high myopia group. Horizontal PPVP extension was related to age, while vertical PPVP shortening was associated with high myopia. The connections between PPVPs and Cloquet’s Canal were mainly associated with AL in early childhood.

PPVPs were first reported by Kishi and Shimizu\(^7\) who applied fluorescein to autopsy eyes. Stanga et al.\(^11\) found that bursa premacularis PPVPs were detected in 57.1% of eyes. Our study found that 92.9% of the eyes from 5 to 18 years presented PPVP structures, which was consistent with previous studies in which 97.3% of eyes in children presented PPVPs.\(^12\)

Li et al.\(^12\) examined children from 5 to 11 years old and found that the PPVP width increased with age. In our study, we found that age, not the degree of myopia, was the main factor for the increase of PPVP width. In addition, the effect of age on PPVP width was mainly observed in the low to moderate myopia groups and not in the hyperopia or high myopia groups. Figure 3 shows that the PPVP width increased with ages from 5 to 18 years in the low to moderate myopia group. This result suggested that PPVP width extension with age was the main change in the low to moderate myopia group.

In addition, our study indicated that the PPVP height decreased with myopia progression in the 9 to 14 years group. Larsen’s study reported that AL progressed through three important growth stages, as it increased rapidly after birth to age 1.5 years, increased slowly from 2 to 5 years, and the increased minimally from 6 to 13 years.\(^13\) The AL in the high myopia group was obviously longer than those in the other myopia groups in the 9 to 14 years group, as shown in Table 2. Based on the above results, we supposed that the decrease in PPVP height was mainly related to myopia progression during the ages of 9 to 14 years. This period is an important time period for “acquired high myopia.” Whether vitreous changes during this period were the cause of vitreoretinal interface changes in the high myopia group remains to be further studied.
Figure 6 shows vitreous structure changes associated with myopia; the PPVP width increased with age, and the PPVP height decreased with myopia degree. It was hypothesized that unequal expansion of PPVPs in the horizontal and vertical directions may be accompanied by the progression of myopia. The cause of the decrease in the PPVP height with the increase in the AL in the high myopia group was not clear. A previous hypothesis suggested that the bursa premacularis may protect the macular fovea from shear stress. Based on this hypothesis, we proposed that as the vertical distance of the PPVP decreased, the force of the vitreous body on the retina was applied rapidly and transversely to the retina; this might be an important reason for the tangential tension of the vitreoretinal interface, resulting in macular holes or retinoschisis. This hypothesis has not been reported yet, and further research is needed to support it.

A connection between the PPVP and Cloquet’s Canal was observed in 22.4% of the eyes in our study, which was lower than that in a previous study that found connections in 93.1% of adults. Age was regarded as the main factor for the

![Image](image-url)

**Figure 5.** Connections between PPVPs and Cloquet’s Canals by age and AL. The proportions of connections between PPVPs and Cloquet’s Canals by age and AL group. (A) The abscissa represents age, the ordinate represents proportion, and the histogram represents the proportions in the AL groups; the proportions of connections were 0%, 50%, and 50% for each AL group, respectively, in the 5 to 8 years group ($\chi^2 = 7.563$, $P = 0.025$); 0%, 40%, and 60% for the AL groups, respectively, in the 9 to 14 years group ($\chi^2 = 1.538$, $P = 0.463$); and 35.5%, 0%, and 66.7% for the AL groups, respectively, in the 15 to 18 years group ($\chi^2 = 0.667$, $P = 0.209$) by $\chi^2$ test. (B) The proportion of connections among the age groups after controlling for eye AL variables. The connections were 0%, 0%, and 100% for the age groups, respectively, in the 21 to 23 mm AL group; 0% ($\chi^2 = 6.964$, $P = 0.031$), 50%, and 50% for the age groups, respectively, in the 23 to 25 mm AL group ($\chi^2 = 2.286$, $P = 0.279$); and 32%, 55%, and 12.9% for the age groups, respectively, in the 25 to 29 mm AL group ($\chi^2 = 0.301$, $P = 0.860$).

**Figure 6.** Vitreous features that changed with the progression of myopia. Vitreous features varied with the progression of myopia by OCT. (A) is the image of a 9-year-old boy with an AL of 23.12 mm; the refractive error is $-0.25$ DS, the PPVP width is 3.361 mm, the PPVP height is 0.469 mm, and the width:height ratio is 7.12. (B) is the image of a 13-year-old boy with an AL of 23.8 mm; the refractive error is $-1.25$ DS, the PPVP width is 4.079 mm, the PPVP height is 0.814 mm, and the width:height ratio is 8.50. (C) is the image of a 12-year-old girl with an AL of 26.26 mm; the refractive error is $-7.00$ DS, the PPVP width is 4.174 mm, the PPVP height is 0.401 mm, and the width:height ratio is 10.4.
In our study, we found that relatively long ALs (25–28 mm) were more likely to be associated with connections in the young age group than relatively short ALs, as shown in Figure 5A. Larsen noted that connections may develop as the AL increases. Therefore, AL growth due to age or myopia may be an important factor for connection changes.

In conclusion, the PPVP width was mainly related to age, and the PPVP height was mainly related to myopia progression in the 9 to 14 years group. Figure 7 shows the changes in the widths and heights of PPVPs with myopia progression. The imbalance in the horizontal and vertical expansion of PPVPs may be the main feature of PPVPs in patients with high myopia. Increased ALs were associated with the likelihood of connections between PPVPs and Cloquet’s Canals. A large sample and a prospective study are needed to investigate the relationship between PPVP and vitreoretinal interface changes in the future.

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References

FIGURE 7. Diagram of PPVP enlargement with myopia development. The diagram shows the horizontal and longitudinal enlargement of PPVPs with the progression of myopia. (A) The vitreous morphology of a normal eyeball; P stands for PPVP, C stands for Cloquet’s Canal, the horizontal dashed line indicates the width of the PPVP, and the vertical dashed line indicates the height of the PPVP. (B) The morphologic features of PPVPs in myopia patients; the horizontal dashed line increased with age, while the vertical dashed line decreased with myopia degree.