SKLEROHOROIDALNA KALCIFIKACIJA – DIFERENCIJALNO-DIJAGNOSTIČKA DILEMA: PRIKAZ SLUČAJA

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CASE REPORT

SCLEROCHOROIDAL CALCIFICATION MIMICKING CHOROIDAL OSTEOMA: A CASE REPORT

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SAŽETAK

Uvod: Sklerohoroidalne kalcifikacije predstavljaju retke, benigne očne promene koje se karakterišu odlaganjem kalcijuma i fosfata u skleri i susednoj horioideji. Najčešće se otkrivaju tokom rutinskih oftalmoloških pregleda, naročito kod starijih osoba, a svojim kliničkim izgledom mogu da imitiraju ozbiljnije intraokularne tumore. Zbog toga je precizna dijagnoza od ključne važnosti.

Prikaz slučaja: Prikaz slučaja 62-godišnjeg muškarca upućenog na evaluaciju subretinalne lezije lokalizovane na periferiji očnog dna levog oka, koja je prvobitno otkrivena tokom rutinskog oftalmološkog pregleda. Pacijent nije imao tegobe niti promene u vidu. Pregled očnog dna otkrio je žućkastu, plakoidnu promenu sa nejasnim granicama, lokalizovanu suprapapilarno, između gornjih vaskularnih arkada. Ultrazvučni pregled (B-sken) potvrdio je prisustvo lezije visoke unutrašnje reflektivnosti uz prisutnu akustičnu senku, što ukazuje na kalcifikaciju. Fluoresceinska angiografija pokazala je hipofluorescentnu promenu bez propuštanja boje ili kasnog nakupljanja iste. Na osnovu kliničkog pregleda, ultrazvučnog nalaza i rezultata fluoresceinske angiografije, postavljena je dijagnoza sklerohoroidalne kalcifikacije.

Zaključak: Sklerohoroidalne kalcifikacije mogu klinički i ultrazvučno imitirati ozbiljnije intraokularne promene. Dodatna dijagnostika poput ultrazvuka oka i fluoresceinske angiografije, ima ključnu ulogu u razlikovanju ovih benignih lezija. Kod asimptomatskih pacijenata bez znakova progresije, preporučuje se praćenje na godišnjem nivou bez potrebe za terapijskom intervencijom.

Ključne reči: sklerohoroidalna kalcifikacija, osteom sudovnjače, fluoresceinska angiografija, kalcifikovane intraokularne lezije

ABSTRACT

Introduction: Sclerochoroidal calcifications are uncommon, benign ocular findings characterized by the deposition of calcium and phosphate within the sclera and adjacent choroid. These lesions are most frequently discovered incidentally during routine ophthalmologic evaluation, particularly in elderly individuals, and may resemble more serious intraocular pathologies.

Case report: We present the case of a 62-year-old male patient referred for evaluation of a subretinal lesion in the peripheral retina of the left eye, initially detected during a routine ophthalmologic examination. The patient was asymptomatic, with no visual complaints. Fundus examination revealed a yellowish, placoid lesion with indistinct borders located suprapapillary, between the superior vascular arcades. B-scan ultrasonography demonstrated high internal reflectivity with posterior acoustic shadowing. Fluorescein angiography revealed a hypofluorescent lesion without leakage or staining. The lesion remained stable over several years, and systemic workup showed no evidence of metabolic abnormalities. Based on clinical and imaging findings (B-scan ultrasonography and fluorescein angiography), the diagnosis of sclerochoroidal calcification was established.

Conclusion: Sclerochoroidal calcifications may clinically and ultrasonographically mimic more serious intraocular lesions. B-scan ultrasonography and fluorescein angiography, play a key role in distinguishing these benign findings from other conditions. In asymptomatic patients without signs of progression, annual follow-up is recommended, with no need for therapeutic intervention.

Keywords: sclerochoroidal calcification, choroidal osteoma, fluorescein angiography, calcified intraocular lesions

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UVOD

Sklerohoroidalne kalcifikacije su retka, benigna očna stanja, koje karakteriše abnormalno taloženje kalcijuma i fosfata unutar beonjače i susedne horioideje. Ove promene se najčešće uočavaju kod starijih osoba i obično se otkriju slučajno tokom rutinskih oftalmoloških pregleda ili snimanja koje se vrši zbog drugih tegoba. Sklerohoroidalna kalcifikacija diferencijalno-dijagnostički može da podseća na prvom mestu na osteom sudovnjače, u retkim slučajevima na amelanotični melanom sudovnjače ili inflamatornu patologiju (fokalne horioretinitise). Stoga je precizna dijagnoza od suštinskog značaja kako bi se izbegle nepotrebne intervencije [1,2].

Etiologija sklerohoroidalnih kalcifikacija može da bude idiopatska ili udružena sa sistemskim poremećajima metabolizma kalcijuma i fosfata, kao što su hiperparatireoidizam, hronična bubrežna bolest ili druge endokrine disfunkcije [3,4]. Klinički, ove lezije se manifestuju kao žućkaste, pločaste promene sa nejasnim granicama, najčešće lokalizovane između gornjih vaskularnih arkada. Često su obostrane i pokazuju visoku unutrašnju reflektivnost na ultrazvučnom B-skenu zbog prisustva kalcijuma, obično uz prisutno posteriorno akustično senčenje [5].

Ovaj prikaz slučaja opisuje pacijenta muškog pola kod koga je prethodno identifikovana stabilna subretinalna lezija na periferiji očnog dna levog oka. Kliničkim pregledom koji je obuhvatio oftalmoskopiju, ultrazvučnu dijagnostiku (B sken) i fluoresceinsku angiografiju (FA) uočena je lezija karakteristika sklerohoroidalne kalcifikacije. S obzirom na mogućnost da ovakve lezije oftalmoskopski mogu da liče pre svega na osteom sudovnjače, a daleko redje na amelanotični melanom sudovnjače, ovaj slučaj naglašava značaj detaljne kliničke procene u diferencijalnoj dijagnozi kalcifikovanih horoidalnih lezija.

PRIKAZ SLUČAJA

Pacijent muškog pola, star 62 godine, upućen je na Kliniku za očne bolesti Univerzitetskog Kliničkog centra Srbije radi procene tumorske lezije na periferiji levog očnog dna koja je prvobitno otkrivena u drugoj ustanovi 2019. godine tokom rutinskog oftalmološkog pregleda. Pacijent nije prijavio nikakve vidne smetnje, uključujući promene u oštrini vida, smetnje u vidnom polju ili pojavu fotopsija.

B-sken ultrazvuk levog oka (OS) pokazao je subretinalnu leziju lokalizovanu u gornjem delu očnog dna, spljoštenog izgleda, dimenzija baze 9,96 × 8,07 mm i prominencije od 1,05–1,54 mm. Lezija je pokazivala visoku unutrašnju reflektivnost i akustičnu senku, što ukazuje na gustu kalcifikaciju. Na osnovu ehografskih

INTRODUCTION

Sclerochoroidal calcifications are rare, benign ocular findings characterized by abnormal deposition of calcium and phosphate within the sclera and adjacent choroid. These lesions are most frequently observed in elderly individuals and are often identified incidentally during routine ophthalmic examinations or imaging performed for unrelated complaints. Although typically asymptomatic, their appearance may closely resemble more serious intraocular pathologies, including choroidal osteoma, amelanotic choroidal melanoma, metastatic tumors, or inflammatory granulomas. Therefore, accurate diagnosis is essential to prevent unnecessary interventions [1,2].

The etiology of sclerochoroidal calcifications can be idiopathic or associated with systemic abnormalities in calcium-phosphate metabolism, such as hyperparathyroidism, chronic kidney disease, or other endocrine disorders [3,4]. Clinically, these lesions present as yellowish, placoid areas with indistinct borders, most often located between the superior vascular arcades. They are frequently bilateral and demonstrate high internal reflectivity on B-scan ultrasonography due to calcium content, typically accompanied by posterior acoustic shadowing [5].

This case report describes a male patient with a previously identified, stable subretinal lesion in the peripheral retina of the left eye. Clinical evaluation, including ophthalmoscopy, B-scan ultrasonography, and fluorescein angiography (FA), revealed a lesion with features of sclerochoroidal calcification. Considering that such lesions may ophthalmoscopically resemble, most commonly, a choroidal osteoma and, much more rarely, an amelanotic choroidal melanoma, this case emphasizes the importance of detailed clinical assessment in the differential diagnosis of calcified choroidal lesions.

CASE REPORT

A 62-year-old male patient was referred to the Clinic for Eye Diseases, University Clinical Centre of Serbia, for evaluation of a tumorous lesion on the periphery of the left ocular fundus, which had been initially detected in another institution in 2019 during a routine ophthalmological examination. The patient reported no visual complaints, including changes in visual acuity, visual field disturbances, or photopsias.

B-scan ultrasonography of the left eye (OS) showed a subretinal lesion localized in the superior fundus, with a flattened appearance, measuring 9.96 × 8.07 mm in base and 1.05–1.54 mm in thickness. The lesion demonstrated high internal reflectivity and an acoustic shadow, indicating dense calcification. Based on

karakteristika, lezija je inicijalno smatrana osteomom sudovnjače.

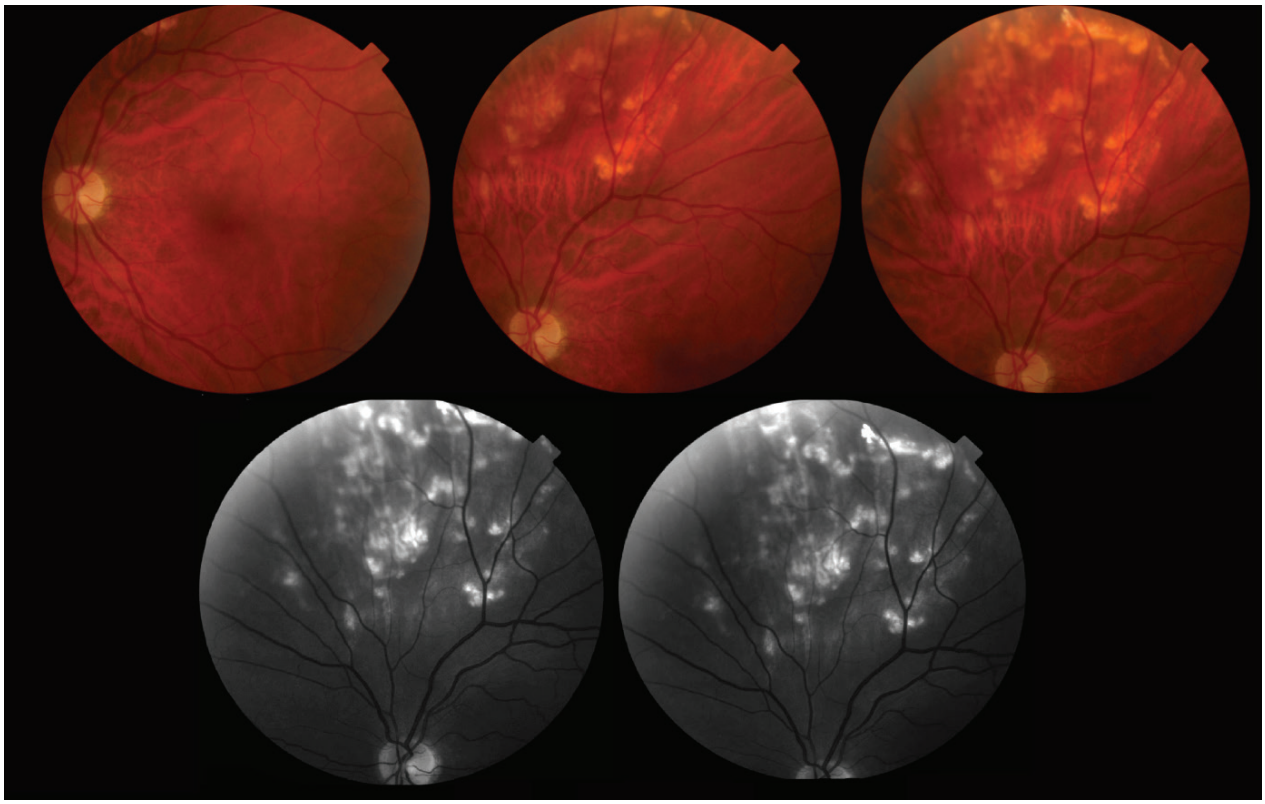
U oftalmološkoj anamnezi pacijent se leči od primarnog glaukoma otvorenog ugla zbog čega je na antiglaukomnoj terapiji u vidu kapi (Xalatan jednom dnevno). Nije bilo prethodne istorije povreda oka, upala ili hirurških intervencija. Od sistemskih bolesti, pacijent je imao hipertenziju i dijabetes melitus tip 2, koji su dobro regulisani. Takođe je zabeležena pozitivna porodična anamneza na glaukom.

Na pregledu, najbolja korigovana vidna oštrina iznosila je 0,8 na oba oka. Prednji segment oba oka bio je u granicama normale. Intraokularni pritisci bili su dobro kontrolisani uz postojeću antiglaukomsku terapiju (15 mmHg na desnom i 13 mmHg na levom oku). Oftalmološki pregled levog očnog dna otkrio je žućkastu subretinalnu leziju lokalizovanu suprapapilarno (Slika 1), između gornje-nazalne i gornje-temporalne vaskularne arkade. Lezija je imala nejasne granice i bila je blago izdignuta, bez pigmentacije ili eksudacije na njenoj površini. Okolna retina izgledala je normalno, a makula i papila vidnog živca nisu pokazivali patološke promene.

its echographic characteristics, the lesion was initially considered a choroidal osteoma.

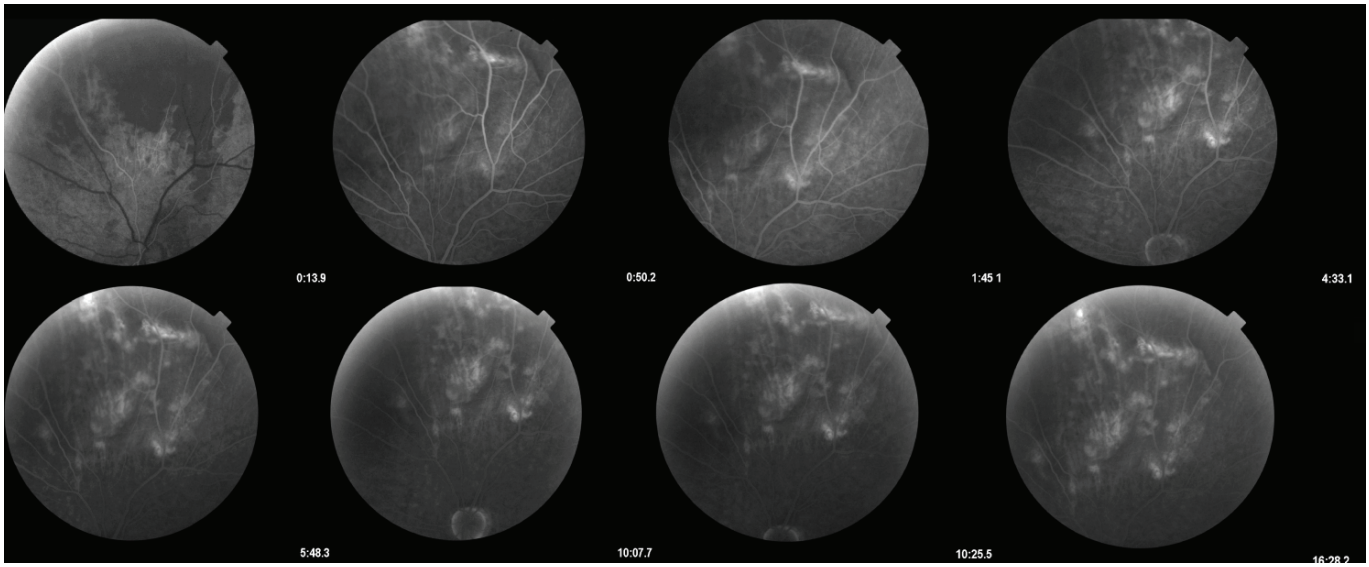
The patient's ophthalmological history included primary open-angle glaucoma diagnosed five years earlier, for which he was receiving topical antiglaucoma therapy (Xalatan once daily). There was no history of ocular trauma, inflammation, or surgery. His systemic medical history was notable for hypertension and type 2 diabetes mellitus, both well controlled under therapy. A positive family history of glaucoma was also noted.

On examination, best-corrected visual acuity was 0.8 in both eyes. The anterior segments were within normal limits. Intraocular pressures were well controlled under therapy (15 mmHg in the right eye and 13 mmHg in the left eye). Fundus examination of the left eye revealed a yellowish subretinal lesion located suprapapillary (Figure 1), between the superior-nasal and superior-temporal vascular arcades. The lesion had indistinct borders and was slightly elevated, without pigmentary changes or exudation on its surface. The surrounding retina appeared normal, and the macula and optic disc were unremarkable.



Slika 1. Fotografija očnog dna levog oka prikazuje žućkastu, pločastu subretinalnu leziju sa nejasnim granicama, lokalizovanu suprapapilarno, između gornje-nazalne i gornje-temporalne vaskularne arkade. Lezija odgovara sklerohoroidalnoj kalcifikaciji, deluje izdignuto, bez prisustva subretinalne tečnosti, krvarenja ili pigmentnih promena. Okolno retinalno tkivo, makula i papila vidnog živca izgledaju uredno

Figure 1. Fundus photograph of the left eye demonstrating a yellowish, placoid subretinal lesion with indistinct borders located suprapapillary, between the superior nasal and superior temporal vascular arcades. The lesion is consistent with sclerochoroidal calcification and appears elevated, without associated subretinal fluid, hemorrhage, or pigmentary changes. The surrounding retinal tissue, macula, and optic disc appear unremarkable



Slika 2. Fluoresceinska angiografija levog oka prikazuje hipofluorescentnu subretinalnu leziju lokalizovanu suprapapilarno, između gornjih vaskularnih arkada. Lezija ne pokazuje prisustvo curenja ili zadržavanja boje ni u ranim ni u kasnim fazama, što je u skladu sa benignim, avaskularnim procesom kao što je sklerohoroidalna kalcifikacija

Figure 2. Fluorescein angiography of the left eye showing a hypofluorescent subretinal lesion located suprapapillary, between the superior vascular arcades. The lesion demonstrates absence of leakage or staining in both early and late phases, consistent with a benign, avascular process such as sclerochoroidal calcification

Fluoresceinska angiografija (FA) prikazala je uglavnom hipofluorescentnu leziju u ranim fazama, bez značajnog curenja ili zadržavanja boje u kasnijim fazama (Slika 2). Na površini lezije uočene su žućkaste pločaste promene, bez prisustva subretinalne tečnosti ili horoidalne neovaskularizacije. Retinalni krvni sudovi i papila vidnog živca bili su uredni.

Na osnovu oftalmoskopskog pregleda i dodatnih snimanja (ultrazvuk oka (B sken) i fluoresceinska angiografija) utvrđeno je da lezija najviše odgovara sklerohoroidalnoj kalcifikaciji. Ipak, diferencijalna dijagnoza obuhvata na prvom mestu osteom sudovnjače, amelanotični melanom sudovnjače, hemangiom sudovnjače, metastatske lezije sudovnjače ili inflamatornu patologiju (fokalne horioretinitise).

Pacijentu je preporučeno da nastavi sa redovnim oftalmološkim kontrolama na godišnjem nivou radi praćenja eventualnih promena u veličini lezije ili pojave komplikacija.

DISKUSIJA

Sklerohoroidalne kalcifikacije se često otkrivaju kao slučajni nalaz, ali mogu da predstavljaju dijagnostički izazov jer klinički mogu da liče na druge entitete kao što su osteom sudovnjače, amelanotični melanom sudovnjače, metastatske lezije sudovnjače, hemangiomi sudovnjače ili granulomatozne infiltracije povezane sa inflamatornim ili hematološkim oboljenjima [1,2]. Za preciznu dijagnozu neophodna je korelacija oftalmoskopskog, ultrazvučnog i angiografskog nalaza.

Fluorescein angiography (FA) showed a predominantly hypofluorescent lesion in the early phases, without significant leakage or staining in the later phases (Figure 2). Yellowish placoid changes were observed on the lesion surface, without subretinal fluid or choroidal neovascularization. The retinal vessels and optic disc were normal.

Based on ophthalmoscopy and additional imaging (B-scan ultrasonography and FA), the lesion was most consistent with sclerochoroidal calcification. However, the differential diagnosis included, primarily, choroidal osteoma, as well as amelanotic choroidal melanoma, choroidal hemangioma, metastatic lesions, and inflammatory pathology (focal chorioretinitis). The patient was advised to continue annual ophthalmological follow-up to monitor for potential changes in lesion size or the development of complications.

DISCUSSION

Sclerochoroidal calcifications are often discovered incidentally, but may represent a diagnostic challenge because their clinical appearance can mimic other entities such as choroidal osteoma, amelanotic choroidal melanoma, metastatic choroidal lesions, choroidal hemangiomas, or granulomatous infiltrates associated with inflammatory or hematologic diseases [1,2]. For an accurate diagnosis, correlation of ophthalmoscopic, ultrasonographic, and angiographic findings is required.

In our patient, the lesion was localized in the peripheral fundus and remained stable over time. On

Lezija kod našeg pacijenta bila je lokalizovana na periferiji očnog dna i ostala je stabilna tokom vremena. Na ultrazvuku je prisutna visoka unutrašnju reflektivnost uz prisustvo posteriorne akustične senke, što su karakteristike kalcifikovanih intraokularnih lezija [3]. Fluoresceinska angiografija prikazala je uniformno hipofluorescentan obrazac bez curenja ili zadržavanja boje, što ukazuje na ne-vaskularnu i benignu prirodu lezije [4]. Odsustvo prateće subretinalne tečnosti ili promena na pigmentnom epitelu retine dodatno smanjuje verovatnoću maligne ili inflamatorne etiologije.

U okviru diferencijalne dijagnoze, osteom sudovnjače je posebno važno razmotriti zbog sličnih karakteristika na snimanjima. Ipak, osteomi sudovnjače se obično javljaju kod mlađih osoba, najčešće su lokalizovani u peripapilarnom ili makularnom regionu, i mogu da budu praćeni oštećenjem vida, naročito kada su komplikovani horoidalnom neovaskularizacijom ili dekalcifikacijom tumora [5]. Nasuprot tome, sklerohoroidalne kalcifikacije se češće javljaju kod starijih pacijenata, obično su periferno smeštene i retko utiču na oštrinu vida [6].

Udruženost sklerohoroidalne kalcifikacije sa sistemskim poremećajima metabolizma kao što su hiperparatireoidizam, hronična bubrežna bolest i drugi poremećaji koji utiču na ravnotežu kalcijuma i fosfata, je moguća pa je neophodno pacijenta ispitati i u pravcu tih oboljenja. Detaljna laboratorijska dijagnostika obuhvata određivanje ukupnog i jonizovanog kalcijuma, fosfata, paratiroidnog hormona (PTH), 25(OH) vitamina D, $1,25(OH)_2$ vitamina D, kreatinina, uree, procene eGFR (izračunate na osnovu kreatinina), alkalne fosfataze, kao i osnovnih elektrolita – natrijuma, kalijuma, hlorida i magnezijuma [7,8]. Kod našeg pacijenta, sprovedena laboratorijska ispitivanja nisu ukazala na poremećaj u metabolizmu kalcijuma i fosfata, što ukazuje na primarni ili uzrastom uslovljen oblik bolesti.

S obzirom na njihov benigni tok, sklerohoroidalne kalcifikacije retko zahtevaju terapijsku intervenciju. Ipak, preporučuje se dugoročno praćenje kako bi se uočile eventualne morfološke promene. U ovom slučaju, odsustvo progresije i izostanak promena u vidu potvrdili su dijagnozu sklerohoroidalne kalcifikacije, a ne osteoma sudovnjače ili nekog drugog od već pomenutih diferencijalno-djagnostičkih entiteta.

Sukob interesa: Nije prijavljen.

ultrasonography, it showed high internal reflectivity with posterior acoustic shadowing, features characteristic of calcified intraocular lesions [3]. Fluorescein angiography demonstrated a uniformly hypofluorescent pattern without leakage or staining, indicating the non-vascular and benign nature of the lesion [4]. The absence of subretinal fluid or retinal pigment epithelial changes further reduced the likelihood of malignancy or inflammation.

Within the differential diagnosis, choroidal osteoma is of primary importance due to overlapping imaging characteristics. However, choroidal osteomas typically occur in younger patients, are most often localized in the peripapillary or macular regions, and can be associated with visual impairment, particularly when complicated by choroidal neovascularization or tumor decalcification [5]. In contrast, sclerochoroidal calcifications usually appear in older patients, are often located peripherally, and rarely affect visual acuity [6].

Sclerochoroidal calcifications may be associated with systemic disorders of calcium-phosphate metabolism, including hyperparathyroidism, chronic kidney disease, and other metabolic disturbances. Therefore, systemic evaluation is mandatory. A detailed laboratory work-up should include measurement of total and ionized calcium, phosphates, parathyroid hormone (PTH), 25(OH) vitamin D, $1,25(OH)_2$ vitamin D, creatinine, urea, estimated GFR (calculated from serum creatinine), alkaline phosphatase, and basic electrolytes such as sodium, potassium, chloride, and magnesium [7,8]. In our patient, laboratory testing revealed no abnormalities in calcium-phosphate metabolism, suggesting a primary or age-related form of the disease.

Given their benign course, sclerochoroidal calcifications rarely require therapeutic intervention. Nevertheless, long-term monitoring is recommended to detect potential morphological changes. In this case, the absence of progression and lack of visual symptoms confirmed the diagnosis of sclerochoroidal calcification rather than choroidal osteoma or any of the other aforementioned differential diagnoses.

Conflict of interest: None declared.

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