

# Evidence and Consensus-based Imaging Guidelines in Birdshot Chorioretinopathy: Multimodal Imaging in Uveitis (MUV) Taskforce Report 8



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- **PURPOSE:** To develop consensus-based imaging guidelines for diagnosing and monitoring birdshot chorioretinopathy (BSCR).
- **DESIGN:** Consensus-based approach guided by literature and an expert committee using a nominal group technique (NGT).
- **METHODS:** An expert committee of 5 international uveitis specialists reviewed 15 well-documented representative BSCR cases with comprehensive imaging data. Cases with active and inactive disease were included. Imaging, including color fundus photography (CFP), fundus fluorescein angiography (FFA), indocyanine green angiography (ICGA), optical coherence tomography (OCT), fundus autofluorescence (FAF), and OCT angiography (OCTA) were reviewed. Using a structured NGT approach, consensus-based recommen-

dations were developed for specific disease characteristics, biomarkers of activity, and complications. The recommendations were voted upon by members of the full task force.

- **RESULTS:** For the diagnosis of BSCR, CFP, FFA, and ICGA were identified as the key imaging modalities. ICGA was identified as a key imaging modality for assessing the presence of choroidal lesions. FFA was deemed crucial for monitoring retinal vascular leakage and assessing the treatment response. OCT, while not essential for diagnosis, was valuable for detecting complications such as cystoid macular edema and retinal thinning. The committee did not reach a consensus on the role of FAF and OCTA for the diagnosis or monitoring of BSCR.

- **CONCLUSIONS:** The MUV consensus-based imaging guidelines for BSCR expand the Standardization of Uveitis Nomenclature (SUN) classification criteria by reaffirming the critical role of ICGA and providing a standardized guidelines for using other imaging modalities in the diagnosis and monitoring of BSCR. These guidelines are expected to facilitate monitoring of disease activity and complications using multimodal imaging. (Am J Ophthalmol 2025;278: 271–281. © 2025 The Author(s). Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>))

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## INTRODUCTION

**B**IRDSHOT CHORIORETINOPATHY (BSCR) IS A CHRONIC posterior uveitis characterized by multifocal, cream-colored or yellow-orange choroidal lesions, often arranged in a pattern radiating from the optic nerve or scattered in the posterior pole.<sup>1-6</sup> These lesions are generally bilateral, and symmetric; typically, there is no anterior segment inflammation and minimal to no vitreous haze. While

multiple terms—including birdshot uveitis, chorioretinitis, and retinochoroiditis—have been used historically, we adopt the term 'birdshot chorioretinopathy' classification to reflect the predominant retinal and choroidal involvement in this posterior uveitis entity.

The Standardization of Uveitis Nomenclature (SUN) Working Group developed classification criteria for diagnosing BSCR using machine learning, focusing on key clinical and imaging features.<sup>7</sup> The SUN Group observed that bilateral cream-colored choroidal spots, a hallmark of BSCR, should be classified based on their distinct appearance on multimodal imaging, particularly fundus fluorescein angiography (FFA), and indocyanine green angiography (ICGA), without significant anterior chamber inflammation. Differential diagnoses, such as sarcoidosis and tuberculosis, must be excluded with appropriate laboratory testing and clinical evaluation to confirm BSCR.<sup>1,2,7</sup> However, significant variability exists in the imaging modalities used for diagnosis, monitoring, and managing disease activity and complications. Current knowledge on imaging characteristics in BSCR is predominantly derived from retrospective studies, individual case series, and clinical cohort studies, which vary significantly in methodology and reporting standards. Key studies in BSCR imaging have underscored several critical gaps, such as a lack of standardized definitions for imaging features of disease activity, a limited consensus on the optimal imaging modalities necessary for diagnosis and longitudinal management, and insufficient clarity in distinguishing active lesions from chronic scars, particularly using advanced modalities like ICGA.<sup>1-5,7,8</sup> This lack of clear, consensus-based imaging criteria has hindered diagnostic consistency, complicating disease monitoring and potentially delaying timely intervention. Furthermore, this ambiguity creates significant barriers to meaningful comparative research, multi-center clinical trials, and the development of standardized treatment protocols.<sup>9-17</sup>

Thus, a comprehensive literature review was performed by the Multimodal Imaging in Uveitis (MUV) task force, initiated by the International Uveitis Study Group (IUSG). This review evaluated the clinical utility of MMI to diagnose and understand disease processes, assess activity, monitor course, and manage complications in non-infectious posterior uveitis addressed by SUN II including BSCR. The strength of recommendations were graded based on the quality of the published evidence and this review underscored a clear unmet need: the absence of universally agreed-upon imaging guidelines in BSCR that can complement SUN II criteria, thereby justifying the current consensus-building initiative (Data under review).

The primary objectives of this study are to develop consensus-based Imaging Statements on the use of multimodal imaging in BSCR and to provide recommendations on the Minimal Imaging Set (MIS) required for diagnosis, monitoring disease activity, and detecting complications during follow-up.

## METHODS

The Multimodal Imaging in Uveitis (MUV) task force, initiated by the International Uveitis Study Group (IUSG), aligns with the SUN's structured methodology. To include cases for imaging analysis, the MUV task force leveraged SUN's established criteria for diagnosing and confirming BSCR. This study adhered to the principles outlined in the Declaration of Helsinki, and no clinical or identifying patient data, including demographics, were shared. The study received an exemption from the Institutional Review Board (IRB).

• **SUBCOMMITTEE FORMATION:** The MUV task force established a subcommittee comprising 5 experts specializing in uveitis. All the experts were IUSG members and fulfilled the following explicit criteria: (1) completion of formal uveitis fellowship training at accredited international; (2) a minimum of 10 years clinical experience in managing uveitis patients, with substantial experience specifically in diagnosing and managing BSCR cases; (3) active clinical practice involving a significant volume of BSCR cases (>50 BSCR cases managed); (4) Recognized scholarly contributions to the literature, demonstrated by at least 5 peer-reviewed publications specifically focused on multimodal imaging and/or BSCR. These strict criteria ensured subcommittee members were highly qualified to interpret multimodal imaging features and provide expert consensus on the condition.

Subcommittee members were purposefully selected to represent distinct global regions with substantial clinical exposure to BSCR. The subcommittee thus comprised specialists from North America and Europe, reflecting regions with reported high prevalence or substantial research activity related to BSCR. Such geographic diversity ensured representation of varied clinical presentations and disease phenotypes. The 5 experts comprising the BSCR subcommittee were E.M., D.G., S.S., A.B., B.B.

A nonvoting moderator/facilitator was appointed (FP).

The subcommittee mission was to select BSCR cases with comprehensive imaging and to achieve 2 main objectives:

- 1) To define specific consensus-based Imaging Statements on use of multimodal imaging in BSCR;
- 2) To establish consensus-based MIS for diagnosing, monitoring disease activity and complications such as cystoid macular edema and epiretinal membrane."

Before initiating the study, subcommittee members conducted an extensive literature review. They agreed to use at least 15 well-documented cases to aid in formulating imaging criteria. We followed the principles of Standards for Reporting Qualitative Research: A Synthesis of Recommendations (SRQR)<sup>18</sup> for reporting the results of our study.

- **CASE SELECTION:** The subcommittee chose cases representing both active and inactive BSCR, ensuring that each case included a full set of imaging studies such as color fundus photography (CFP) as a clinical examination proxy, OCT, FFA, FAF, ICGA, and, where available, OCT angiography (OCTA). All selected cases fulfilled the SUN Working Group's classification criteria for BSCR, including mandatory HLA-A29 positivity. Cases lacking HLA-A29 or with infectious or alternative inflammatory etiologies were excluded. Members of the MUV task force shared de-identified images, and a final set was prepared and approved by more than 75% of the subcommittee.

To mitigate potential circularity, all cases were required to meet the SUN Working Group's classification criteria for BSCR. Only after consensus was reached on case inclusion—based on a structured review of de-identified clinical and imaging data—did the subcommittee begin discussion of characteristic imaging findings. The process was explicitly structured to prevent using imaging criteria to define case inclusion, and instead, to use consensus-based case inclusion to study and standardize the interpretation of imaging features already in clinical use.

For this study, active BSCR was defined as the presence of one or more of the following findings: (1) retinal vascular leakage on fundus FFA; (2) active hypofluorescent lesions on ICGA; (3) CME on OCT; or (4) clinical signs of active inflammation. Quiescent disease was defined as the absence of all of these features, with no signs of active leakage, new lesions, or macular edema on imaging, and no active inflammation on examination.

- **NOMINAL GROUP TECHNIQUE:** The nominal group technique (NGT) was chosen for developing consensus-based guidelines in BSCR.

While the Delphi method is widely used in consensus-building, the NGT offers distinct advantages in situations requiring rapid decision-making, structured discussion, and equitable participation. The NGT process used in this study was chosen as it allows structured face-to-face (virtual) interaction, which is particularly valuable for reaching consensus on nuanced image-based interpretation, while achieving faster consensus than multi-round Delphi surveys, which was critical given the clinical urgency and the task force's international composition.

The NGT utilized a structured and systematic approach designed explicitly to minimize individual biases and ensure equal participation from all subcommittee members. To reduce the risk of bias from strongly opinionated members, equal and uninterrupted speaking time for each subcommittee member was ensured as well as anonymous electronic voting to prevent undue influence or dominance.

This process was conducted in 4 well-defined stages:

*Stage 1 – Independent Ideation:*

Each subcommittee member reviewed the literature and the 15 de-identified BSCR cases and independently generated their own list of proposed imaging features and

modality-specific recommendations based on the case data and their clinical expertise.

*Stage 2 – Aggregated Presentation of Recommendations (Facilitated):*

In an online meeting, a neutral facilitator (FP) compiled and presented the anonymized recommendations submitted by all subcommittee members. This allowed all ideas to be reviewed objectively and equally, without personal attribution. The group then engaged in a structured clarification discussion to ensure full understanding of each proposed item.

*Stage 3 – Structured Group Discussion:*

Following the presentation of compiled items, a structured nominal group discussion was conducted to elaborate and clarify recommendations. The facilitator ensured equitable participation and prevented any individual from dominating the discussion.

*Stage 4 – Anonymous Voting and Prioritization:*

Subcommittee members voted anonymously on each recommendation using a 1-5 Likert scale, with 5 indicating strong agreement. Recommendations achieving a mean score of  $\geq 4$  were advanced to the broader MUV taskforce for final consensus."

The subcommittee was presented with the following explicit research questions:

- What is the role of several modalities in multimodal imaging to establish diagnosis of BSCR?
- Which imaging modalities provide reliable indicators of disease activity in patients with BSCR?
- Which imaging modalities are essential for detecting and monitoring disease-related complications (e.g., cystoid macular edema, epiretinal membrane, and retinal atrophy) in BSCR?
- What are the Minimal Imaging Criteria for diagnosis, activity and monitoring structural complications for complications.

Each subcommittee member independently considered these questions to ensure comprehensive evaluation of diagnostic criteria and monitoring guidelines.

- **ESTABLISHMENT OF CONSENSUS:** The subcommittee members drafted guidelines for using imaging to diagnose and monitor BSCR and its complications. Subsequently, the MUV taskforce (comprising 49 members; Appendix I) from diverse geographical regions and subspecialty training in uveitis - reviewed the draft. Using an online survey system, the taskforce members assessed the recommendations, and any requested modifications were discussed collaboratively among the team members. Finally, a consensus was achieved by all the members of the MUV taskforce, defined as follows:

Unanimous consensus: 100% participants agree

Strong consensus: >95% vote

Consensus: 75-95% vote

Majority agreement: > 50-75% vote

No consensus: <50% vote (lack of agreement or divided votes)

The percentage thresholds for consensus derived by voting were reported as per the guidelines of various international associations, including Guidelines International Network (GIN),<sup>19</sup> European League Against Rheumatism (EULAR),<sup>20</sup> and Association of Scientific Medical Associations of Germany (AWMF).<sup>21</sup> In case there was no consensus achieved (<50% vote), the guidelines were rejected. Study data were collected and managed using REDCap electronic data capture tools hosted at Vanderbilt University Medical Center.<sup>22,23</sup> REDCap (Research Electronic Data Capture) is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and interoperability with external sources.

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## RESULTS

Among the 15 cases reviewed by the subcommittee, 8 were classified as active and 7 as quiescent at the time of imaging, based on the predefined criteria. Both active and quiescent cases were intentionally included to allow comparative analysis of imaging features across disease states.

**Table 1** summarizes the consensus-based statements for imaging modalities used in BSCR proposed by the subcommittee group.

- **IMAGING FEATURES OF EARLY AND LATE STAGES BIRD-SHOT CHORIORETINOPATHY (BSCR): Color Fundus Photography:** The subcommittee analyzed imaging characteristics and confirmed that the clinical diagnosis of BSCR as per SUN classification aligns with typical CFP findings. On CFP, BSCR typically presents as multifocal cream-colored choroidal lesions that are round or oval in shape, cream-colored, and predominantly located nasally (**Figure 1**). These lesions are generally between 250 and 500 microns. Healed lesions often exhibit varying degrees of atrophy and may coalesce over time (**Figure 2**).

- **Fundus Fluorescein Angiography:** FFA reveals vascular leakage from veins and capillaries and may show late phase hyperfluorescence at the margins of active lesions (**Figure 1**). Although optic disc leakage was noted in several active cases on FFA, the study cohort did not include cases with clinically apparent disc edema. This likely reflects the limited sample size and retrospective nature of the case set.

- **Inactive BSCR lesions** show early hypofluorescence and a late window-defect. In late stages of BSCR, the caliber of the venous vessels often becomes irregular on FFA (**Figure 2**).

- **Indocyanine Green Angiography:** ICGA shows extensive multifocal early hypofluorescent choroidal lesions that often extend beyond what is clinically visible (**Figure 1**). In the late stages of BSCR, the lesions on ICGA are hypofluorescent early with late iso- or hypofluorescence and are predominantly located near large choroidal vessels. Areas of choroidal atrophy appear as hypofluorescent regions, while underlying large choroidal vessels may be overly visible.

- **Other Imaging Modalities:** On OCT, active BSCR presents with vitreous cells visible as hyper-reflective dots in the vitreous, and photoreceptor layer disruption. With immunosuppressive therapy, there may be resolution of the photoreceptor layer disruption on OCT. However, experts agreed that imaging modalities including FAF, OCT and OCTA do not provide imaging diagnostic clues of early or late BSCR.

- **DETERMINATION OF ACTIVITY AND COMPLICATIONS:**

The features of active BSCR can include vitreous inflammation, CME, retinal vascular leakage, and active chorioretinal lesions imaged on CFP, FFA and ICGA. Apart from clinical features of active disease, the subcommittee proposed that FFA and ICGA were important imaging tools for assessing disease activity in BSCR. FFA can help assess presence of active retinal vascular leakage, an important sign of disease activity, along with macular leakage and CME. Active chorioretinal birdshot lesions appear hypofluorescent on ICGA. With early aggressive immunosuppressive therapy, the chorioretinal birdshot lesions may completely disappear without residual scarring.<sup>24</sup> Thus, in such cases, ICGA may be useful to determine the disappearance of birdshot lesions, as well as detection of new lesions in cases of a relapse. However, ICGA may not be effective in distinguishing between active chorioretinal lesions and chronic scars. While OCT did not reach a consensus as a mandatory imaging tool to detect activity, it remains helpful to assess complications, such as the presence of CME, epiretinal membrane (ERM) and retinal thinning with ellipsoid atrophy.

- **CONSENSUS-BASED RECOMMENDATIONS:** **Table 2** presents the recommendations formulated by the BSCR subcommittee and subsequently reviewed by the entire MUV task force. The table also includes the level of consensus achieved for each recommendation.

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## DISCUSSION

In alignment with our stated objectives, the BSCR MUV task force successfully established detailed consensus-based imaging guidelines for the diagnosis and monitoring of BSCR. These guidelines specify the recommended imaging modalities for assessing inflammatory activity and poten-

**TABLE 1. Imaging-Based Recommendation Criteria for Birdshot Chorioretinopathy Proposed by the Subcommittee Members**

Imaging Modality	Consensus Criteria	
	Early Stages	Late Stages
Color fundus photography	<ul style="list-style-type: none"> <li>- multifocal cream-colored</li> <li>- choroidal lesions</li> <li>- round or oval in shape</li> <li>- cream-colored</li> <li>- predominantly located nasally</li> <li>- typically between 250 and 500 microns</li> <li>- may enlarge and coalesce in late stages.”</li> </ul>	<ul style="list-style-type: none"> <li>- varying degrees of atrophy</li> <li>- may coalesce over time</li> </ul>
Fundus fluorescein angiography	<ul style="list-style-type: none"> <li>- vascular leakage from veins and capillaries</li> <li>- late-phase hyperfluorescence at the margins of active lesions</li> </ul>	<ul style="list-style-type: none"> <li>- early hypofluorescence and a late window-defect</li> <li>- the caliber of the venous vessels often becomes irregular</li> </ul>
Indocyanine green angiography	<ul style="list-style-type: none"> <li>- multifocal early hypofluorescence choroidal lesions that often extend beyond what is clinically visible</li> </ul>	<ul style="list-style-type: none"> <li>- lesions are hypofluorescent early with late iso- or hypo-fluoresce</li> <li>- predominantly located near large choroidal vessels</li> <li>- Areas of choroidal atrophy appear as hypofluorescent regions</li> <li>- underlying large choroidal vessels may be overly visible</li> </ul>

**TABLE 2. MUV Task Force Voting Results and Priority Scores on Imaging Recommendations for Birdshot Chorioretinopathy<sup>a,b</sup>**

No.	Recommendations	Strength of Consensus
1.	CFP to demonstrate typical lesions of active and healed BSCR ( <b>consensus</b> )	92.5%
2.	FFA in the assessment of active BSCR ( <b>unanimous</b> )	100%
3.	ICGA in the assessment of active BSCR ( <b>strong consensus</b> )	97.5%
4.	OCT in active or inactive BSCR to assess the macular health ( <b>consensus</b> )	92.5%
5.	FAF to demonstrate changes related to atrophy and late stages of the disease ( <b>consensus</b> )	77.5%
6.	FFA to demonstrate retinal vascular leakage ( <b>strong consensus</b> )	97.5%
7.	ICGA to demonstrate chronic or healed disease ( <b>consensus</b> )	87.5%
8.	OCT to determine presence of complications such as CME, ERM or retinal atrophy ( <b>unanimous</b> )	100%
9.	OCTA to assess the macular perfusion ( <b>majority agreement</b> )	72.5%

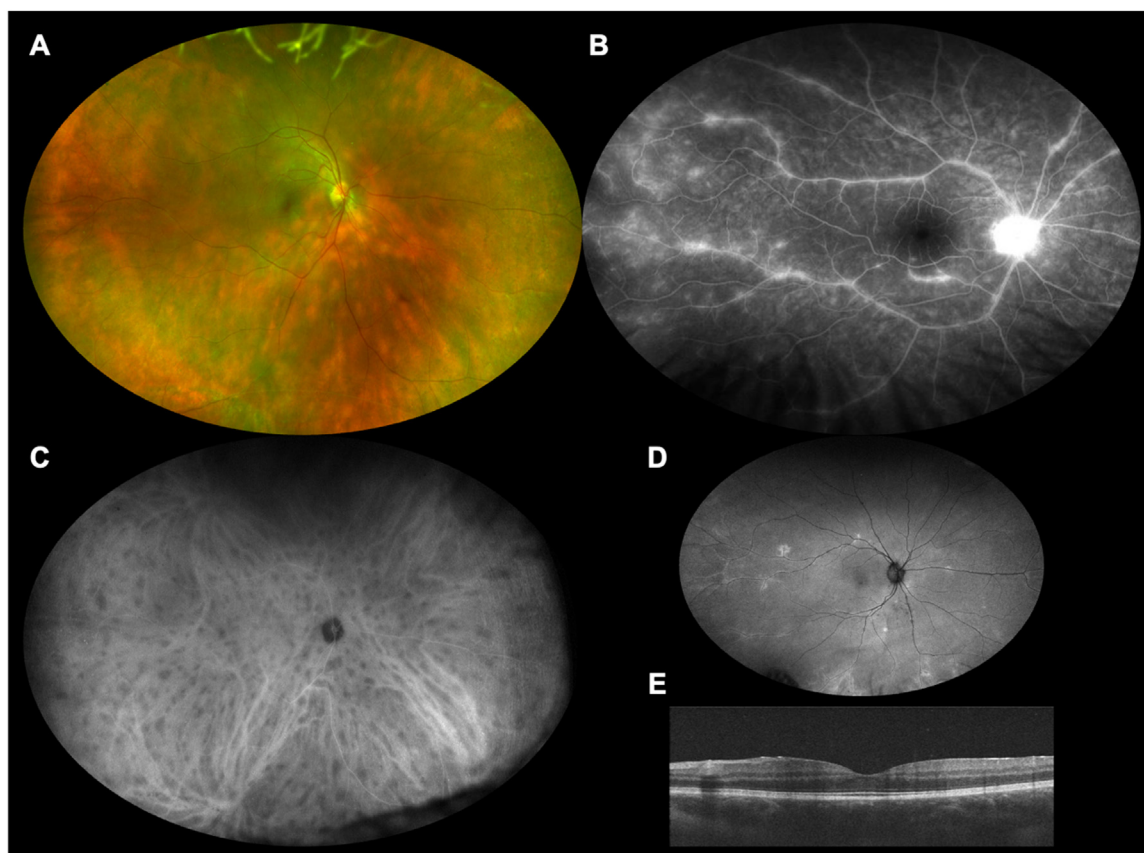
<sup>a</sup>The 5 members of the expert subcommittee did not cast their votes.

<sup>b</sup>Only the final recommendations that met prioritization criteria (subcommittee score  $\geq 4$ ) were included and were formally reviewed by the MUV taskforce. Preliminary or overlapping suggestions that did not meet scoring thresholds were excluded for clarity and to avoid redundancy. CFP = color fundus photography; CME = cystoid macular edema; FA = fluorescein angiography; ICGA = indocyanine green angiography; OCT = optical coherence tomography; BSCR = Birdshot chorioretinopathy.

tial structural complications, facilitating consistent clinical practice and research protocols.

These objectives complement the SUN classification criteria for BSCR<sup>7</sup>, which were developed using machine learning to identify the most distinctive clinical and imag-

ing features of the disease. While machine learning offers powerful tools for disease classification our study serves a distinct and complementary purpose: to bridge the gap between classification and clinical implementation. By providing consensus-based definitions for multimodal imag-



**FIGURE 1.** The figure shows a case of active birdshot chorioretinopathy (BSCR) with multimodal imaging. The fundus (A) shows typical oval cream-colored birdshot lesions predominantly in the inferonasal quadrant. The fundus fluorescein angiography (FFA) (B) shows leakage from retinal vessels (venular) along with optic nerve head hyperfluorescence. The indocyanine green angiography (ICGA) (C) shows extensive hypofluorescent choroidal lesions, much more extensive than those seen clinically. The fundus autofluorescence (D) shows non-specific changes and the optical coherence tomography (OCT) (E) does not show cystoid macular edema.

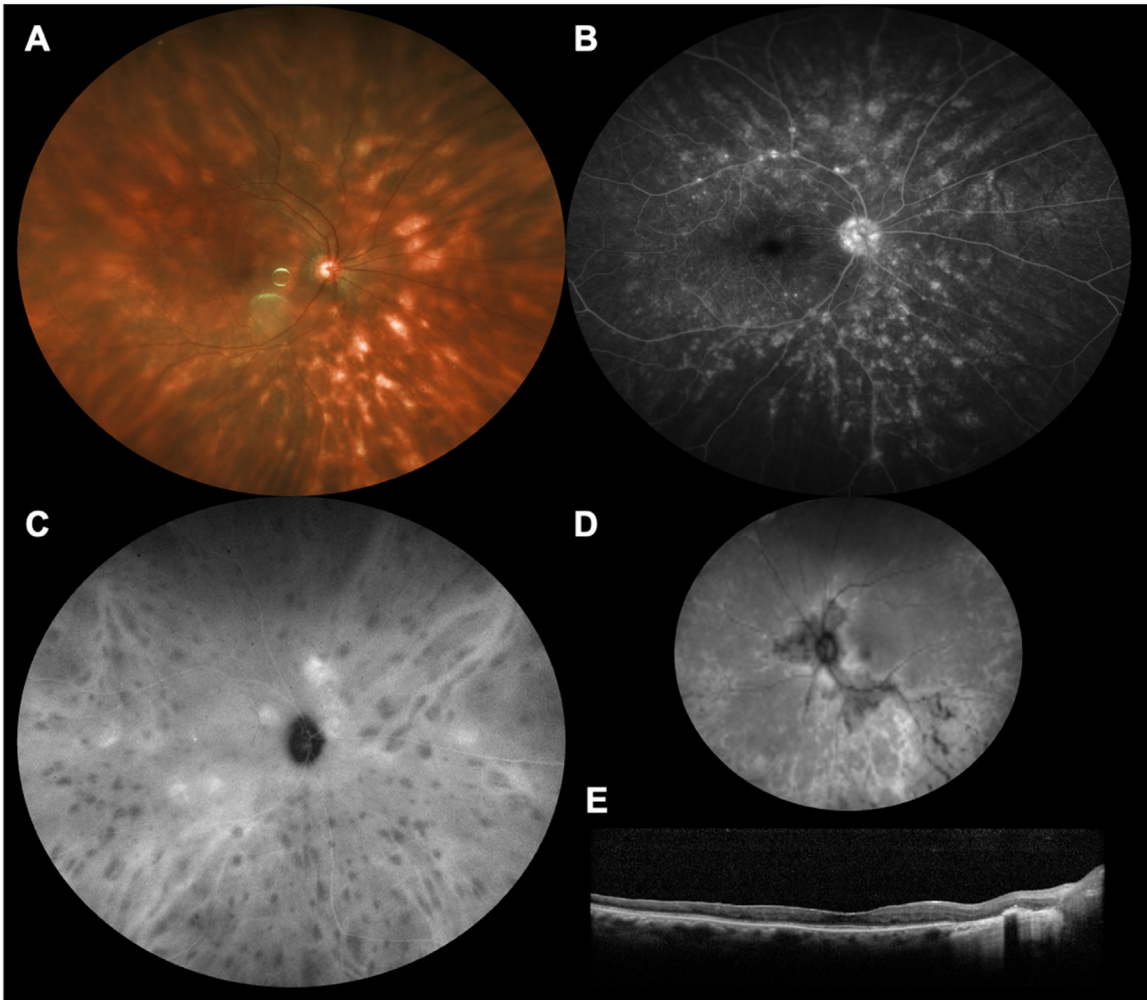
ing features in BSCR, this work offers practical, standardized guidance that enhances clinical consistency, facilitates comparative research, and supports the integration of imaging into longitudinal disease monitoring. While the SUN criteria establish a standardized diagnostic framework based on features such as bilateral cream-colored choroidal lesions and absence of anterior inflammation, our study expands upon this foundation by defining how multimodal imaging modalities—including ICGA, FFA, OCT, FAF, and OCTA—should be optimally used to identify, monitor, and assess disease activity and complications. Thus, our work operationalizes and enhances the imaging components of the SUN criteria through expert consensus, offering a practical tool for clinical implementation.

Despite growing recognition of the importance of multimodal imaging in BSCR, no prior consensus-based guidelines exist to standardize how and when to use specific imaging modalities in diagnosis, disease activity assessment, or monitoring complications. Current practice varies widely across centers and continents, resulting in incon-

sistent use of ICGA or FAF, subjective interpretation of disease activity, and variable thresholds for treatment decisions.

Our study, through structured consensus, is the first to define clear criteria for multimodal imaging patterns in both early and late BSCR, to stratify the clinical value of each modality for assessing activity and complications, and to offer a practical, consensus-driven framework that can harmonize clinical practice and facilitate standardized reporting in research and clinical trials.

The MUV consensus guidelines underscore the importance of clinical and imaging features in the evaluation of activity in BCSR. Active disease presents with vitreous cells and haze, CME, and retinal vascular leakage on FFA. ICGA, on the other hand, is useful in determining the disappearance of hypofluorescent chorioretinal lesions with aggressive therapy, and detection of new lesions in cases of relapse. However, ICGA may not be useful in differentiating active chorioretinal lesions from chronic scars, in particular.



**FIGURE 2.** The figure shows a patient with late-stage birdshot chorioretinopathy (BSCR) with healed lesions on multimodal imaging. The fundus photograph (A) shows multiple healed lesions of BSCR with discrete borders, atrophy, and yellowish-white appearance rather than the cream-colored active lesions seen in [Figure 1](#). The fundus fluorescein angiography (FFA) (B) shows early hyperfluorescence and window defects due to atrophy in the areas of the birdshot lesions. There is no evidence of retinal vasculitis. The indocyanine green angiography (C) shows persistent hypofluorescent lesions in the late phase, and mid-peripheral patches of choroidal atrophy. The fundus autofluorescence (FAF) imaging (D) shows irregular hyper- and hypo-autofluorescence. Optical coherence tomography (OCT) (E) shows chorioretinal thinning and atrophy, and absence of cystoid macular edema.

FFA is recognized in literature and by the SUN Group as an effective tool for monitoring the activity of phlebitis and to assess treatment response as well. Our findings are consistent with the established features of posterior involvement in BSCR; however, the limited number of cases may have underrepresented less common findings, such as optic disc edema. As recent studies have shown,<sup>24</sup> optic nerve involvement warrants greater attention in future prospective imaging studies. In addition, our study did not systematically assess peripapillary venous leakage as a separate imaging biomarker, and this feature was qualitatively observed in several active BSCR cases. Li et al<sup>25</sup> demonstrated that a contiguous perineural leakage pattern has a high positive predictive value for BSCR. Future

studies with prospective image grading and control groups are needed to validate its specificity in broader clinical contexts.

ICGA complements it by revealing more extensive hypofluorescent oval lesions that may not be visible clinically. Diffuse choroidal atrophy in late stages makes large choroidal vessels become more prominent in these regions.<sup>3,9,14,16</sup> While FAF, OCT, and OCTA contribute valuable information, they were not considered mandatory for diagnosing BSCR or assessing lesion activity.

Although OCT is not deemed essential for diagnosing BSCR, it remains beneficial for assessing complications, such as CME, ERM, and retinal thinning.<sup>2,8,13,16,25-27</sup> OCT is also useful in determining outer retinal changes in

BSCR, such as photoreceptor disruption, which may be reversible following aggressive immunosuppressive therapy.<sup>28</sup> The MUV subcommittee noted that BSCR lesions, as highlighted by the SUN classification, typically exhibit a characteristic bilateral distribution and can evolve, a key factor in distinguishing it from other entities such as TB or sarcoid choroiditis.

Although the MUV committee on BSCR focused on multimodal imaging for BSCR, other modalities have been employed to assess the diffuse photoreceptor dysfunction in BSCR, including electroretinography and visual field testing incorporating both central and peripheral visual fields.<sup>29-31</sup> Certain studies have focused on structure-function correlation in BSCR. Areas with photoreceptor disruption on OCT and thinning of retinal pigment epithelium in eyes with BSCR may show reduced retinal sensitivity on microperimetry, and reduced amplitudes and increased implicit times on retinotopically matched points on electroretinography.<sup>32</sup> However, how multimodal imaging modalities correlate with changes seen on multimodal in BSCR remains to be determined.

By establishing expert consensus on imaging criteria and use of specific modalities in BSCR, this work lays the foundation for harmonized clinical practice. These guidelines are particularly valuable for training programs, uveitis centers without access to all imaging technologies, and international multi-center trials. Standardizing how we use imaging for BSCR improves early recognition, enables objective disease activity monitoring, and reduces misclassification of similar entities like sarcoidosis or tuberculosis. The expert subcommittee consisted of participants from diverse geographic regions, representing a broad spectrum of phenotypic diseases, which facilitated the creation of broadly applicable imaging guidelines.

However, despite the strengths of this collaborative approach, several limitations must be recognized. Since BSCR has protean manifestations, it is pertinent to rule out other causes of uveitis including infectious causes. Syphilis and tuberculosis can mimic the manifestations of BSCR.<sup>1,2,5,7,8</sup> Late stages of BSCR may be difficult to study on imaging due to widespread changes in the retinochoroid. Prospective validation studies are needed to establish the reliability and accuracy of imaging guidelines in the diagnosis and follow-up of BSCR.

In conclusion, the novelty of the MUV task force lies in its formalization of expert consensus around the interpretation and use of multimodal imaging in BSCR. While individual imaging features have been described in retrospective studies and case series, this is the first initiative to systematically evaluate these findings through a structured consensus process involving international uveitis specialists. The result is a set of standardized imaging recommendations that complement and extend the SUN classification by providing practical guidance on how to use imaging in both diagnosis and disease monitoring. This effort not only consolidates prior knowledge but offers a harmonized

framework that can be used in clinical trials, training programs, and everyday clinical care. Lastly, our recommendations include imaging technology that is easily available in most retina/uveitis centers thereby making the recommendations generalizable globally.

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## CREDIT AUTHORSHIP CONTRIBUTION STATEMENT

**FRANCESCO PICHI:** Writing – original draft, Visualization, Validation, Resources, Methodology, Formal analysis, Data curation, Conceptualization. **ELISABETTA MISEROCCHI:** Writing – review & editing, Visualization, Supervision, Methodology, Formal analysis, Data curation. **DILRAJ S. GREWAL:** Writing – review & editing, Visualization, Supervision, Resources, Methodology, Formal analysis, Data curation. **SUMIT SHARMA:** Writing – review & editing, Visualization, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation. **ANTOINE P. BRÉZIN:** Writing – review & editing, Visualization, Validation, Methodology, Formal analysis, Data curation. **BAHRAM BODAGHI:** Writing – review & editing, Visualization, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation. **ANIRUDDHA AGARWAL:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Formal analysis, Data curation, Conceptualization. **DOUGLAS A. JABS:** Writing – review & editing, Visualization, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **AMANI FAWZI:** Writing – review & editing, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation. **DAVID SARRAF:** Writing – review & editing, Validation, Supervision, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **VISHALI GUPTA:** Writing – review & editing, Visualization, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation.

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## APPENDIX I

### Multimodal Imaging in Uveitis Task Force Members

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