DISCUSSION

Serpiginous choroiditis is believed to be an autoimmune disease. Also other studies have reported that one patient was found to have serpiginous choroiditis coexisting with acute retinal necrosis\textsuperscript{63} and another patient with Eales disease \textsuperscript{64}. Patients particularly in tuberculosis endemic areas may have fundus changes that resemble serpiginous choroiditis but may show evidence of mycobacterial DNA in the aqueous humour. Some patients with evidence of active or latent tuberculosis present with serpiginous like clinical features that can resemble the autoimmune type. A substantial contribution may be from an underlying infection and the likelihood of this being tuberculosis is high. Our study showed that in a country like India which is endemic for tuberculosis, the incidence of serpiginous like choroiditis and multifocal choroiditis due to tuberculosis is higher than a non-tubercular or autoimmune aetiology.

In our study, the most frequent age group affected was found to be patients in the 3\textsuperscript{rd} decade followed by those in their 4\textsuperscript{th} decade of life. No significant difference was noted in gender distribution. Defective vision was the most common symptom in serpiginous choroiditis due to TB and non TB, however floaters were seen predominantly in patients with TB. Anterior chamber cells were
observed in a small proportion of patients even in the non TB group which could be a chance variation. Vitreous cells and geographic choroiditis were a feature of tubercular multifocal choroiditis in a significant number of our study patients. Kimura and associates proposed a 5-level scale of vitreous haze based on the ophthalmoscopic clarity of the ocular fundus in 1959. To improve grading reproducibility for clinical trials, Nussenblatt and associates published clinical photographs illustrating 6 grades of vitreous haze in 1985. Visibility of the optic nerve head, retinal vessels, and nerve fiber layer defined the scale grades. The Nussenblatt scale has been used widely, and the Standardization of Uveitis Nomenclature Working Group consensus document on uveitis nomenclature accepted the scale for grading vitreous haze in 2005, with the exception that the grade of trace was converted to 0.5+ to allow numeric scoring. It is easy to use, reproducible and currently accepted by the Food and Drug Administration for use in clinical trials. Compared to the classic variety of serpiginous choroiditis, there was no significant difference in anterior segment inflammation or vitritis in ampiginous choroiditis. However the central foveal involvement was less in ampiginous choroiditis thus causing lesser symptoms. In those with an aetiology of tuberculosis, the distribution of lesions was predominantly multifocal choroiditis which resembled the ampiginous variant of serpiginous choroiditis. In the
non-tubercular group, it was mostly peripapillary in location with or without eventual spread to the macula but primary involvement was seen only in few. Purified protein derivative tests were unreliable. ESR, QFT-G test, HRCT and PCR helped in arriving at the diagnosis in isolation in only a few patients but proved to be very useful when used in combination. The role of HRCT has been reported in uveitis and we found that it has a significant role to play in diagnosis of SC due to TB\textsuperscript{65}.

In the case of a family history of TB or history of pulmonary tuberculosis the chances of TB as an aetiology is highly likely in the presence of

- Unilateral involvement
- Multifocal lesions involving the mid periphery and periphery. The ampiginous type needs to be viewed with suspicion than the peripapillary type.
- An inflammatory reaction in the anterior chamber seen as cells and flare.
- Vitreous haze is a better indicator of active inflammation than are vitreous cells.
- Improvement with ATT.
Secondary objectives: Other features observed were as follows

- Resolution of lesions was faster with serpiginous choroiditis than tubercular multifocal choroiditis.
- Recurrence was a feature of serpiginous choroiditis due to non-tubercular aetiology.
- Specific differences were noted in the development of complications.
- Mutifocal choroiditis due to TB can be due to active infection but can occur from allergy to the tuberculosis DNA.
- Aqueous humour analysis by Real time PCR may be valuable in identifying DNA of MTB bacilli even when PCR and other systemic investigations are negative. It can be recommended as a routine in patients with serpiginous choroiditis. Besides being conclusive it can also be contributory and can serve as a supplement to other systemic investigations.
- The ease of obtaining aqueous humour makes it an important sample to be used to perform analysis as it can provide an etiological diagnosis even in posterior uveitis.
- Angiography shows similar features in both and may not help in distinguishing the aetiology. However it plays a large role in confirming the activity of the lesion and has specific angiographic patterns in active and
inactive stages respectively. Besides it also identifies lesions that are not clinically evident and thus helps in determining the actual extent of the lesion.

- A combination of ocular and systemic investigations is required in most patients to detect active or latent TB
- Real time polymerase chain reaction detected mycobacterium tuberculosis DNA in the aqueous humour of two patients (of 28 eyes of 27 patients) which are described below:

**Patient1:** A 38 year old Asian Indian male presented to the uveitis clinic with a history of gradual diminishing vision for one month. He was being treated with systemic corticosteroids prescribed elsewhere. Ocular examination revealed a best-corrected visual acuity of 6/60, N24 in the right eye and 6/6, N6 in the left eye. Slit lamp examination revealed no aqueous cells or flare and 1+ vitreous cells in the right eye. The left eye was normal. Intraocular pressure was 12 mmHg in both eyes. Fundus examination in the right eye revealed active choroiditis with geographic borders and a clinical diagnosis of serpiginous choroiditis was made. Chest X Ray and ESR were normal. Tuberculin skin test was negative. An anterior chamber tap was done in the right eye and the aspirate was subjected to direct
smear, culture, analysis by polymerase chain reaction (PCR) and RT-PCR for mycobacterium tuberculosis genome. RT-PCR performed on his aqueous aspirate showed 14,781 copies of mycobacterium tuberculosis (MTB) DNA. Direct smear and culture for MTB were negative. He had no symptoms of systemic tuberculosis (TB) but HRCT was positive. The patient was started on antituberculous treatment (ATT) and corticosteroids under supervision of an infectious diseases specialist. Follow up after 4 months showed that the lesions had started resolving and RT-PCR of aqueous was negative for MTB DNA Visual acuity had improved to 6/24, N12 in the right eye.

**Patient 2:** A 42 year old lady had floaters and defective vision for 10 days. Her best-corrected visual acuity of 6/24, N12 in the right eye and 6/6, N6 in the left eye. Slit lamp examination revealed no aqueous cells or flare and 2+ vitreous cells in the right eye. Intraocular pressure was 16 mmHg in the right eye and 14mm in the right eye. Fundus examination in the right eye revealed geographic helicoidalperipapillary choroiditis. Chest X Ray and ESR were normal. Tuberculin skin test was negative. QuantiFERON-TB Gold test and culture of aqueous were negative. RT-PCR on the aqueous aspirate showed 12,003 copies of mycobacterium tuberculosis (MTB) DNA. She had no systemic tuberculosis (TB).
Polymerase chain reaction was positive. The patient was started on ATT and corticosteroids in concurrence with an infectious diseases specialist. Follow up after 2 months showed that the lesions had resolved and RT-PCR of aqueous was negative for MTB DNA. Visual acuity had improved to 6/24, N12 in the right eye.

Control samples from 27 cases of anterior chamber aspirate of patients without uveitis undergoing phacoemulsification were subjected to RT-PCR. All were negative for MTB.

**ANGIOGRAPHY**

Fundus fluorescein angiography of active SC lesions display hypofluorescent patches with irregular, poorly defined borders during the early phase of fluorescein angiography. This results from choriocapillaries hypoperfusion and blocked fluorescence as a result of oedematous RPE\(^6\). In the mid-phase, hyperfluorescence may appear at the edges of the lesion probably due to leakage from choriocapillaries. In the late phases, the entire lesion shows a hyperfluorescence due to leaking choroidal vessels. Healed lesions in SC show angiographic evidences of destruction of the RPE and choriocapillaries. In the early and mid-phases, the lesions show hypofluorescence secondary to blockage due to RPE hyperplasia. The late phase shows staining and leakage but the above
mentioned patterns are dependent on the extent of subretinal fibrosis which occurs on healing and the severity of RPE atrophy and hyperplasia\textsuperscript{67}. 

ICG angiography in serpiginous choroiditis shows hypocyanescent areas beginning from early to late phase and a reduction in the size and number of the hypocyanescent spots or complete resolution of these angiographic lesions. The various appearances on indocyanine green angiography has been outlined by Giovannini et al who supported a classification which had four stages \textsuperscript{68,69}. The advantages noted were that during the subclinical phase, in which the inflammation is limited to the choriocapillaries without involvement of RPE. ICG can still reveal hypocyanescent patches suggestive of choriocapillaries nonperfusion. Also, choroidal neovascular membranes may be better differentiated in areas of scar since there is minimal to no staining of scar unlike FFA. ICG angiography was found useful in evaluating the natural course in patients with serpiginous choroiditis as well as to assess response to treatment in both the infective and autoimmune groups\textsuperscript{70}. 

Fundus autofluorescence (FAF) imaging is an \textit{in vivo} imaging method based upon mapping of lipofuscin distribution in retinal pigment epithelium (RPE) as well as of other fluorophores\textsuperscript{71}. It is non-invasive and provides clinically useful
information about several retinal diseases beyond that obtained by conventional imaging techniques. Previous studies have reported the role of FAF in various forms of retinal and inflammatory diseases. We noted a pattern of FAF findings which was previously described in another study during the entire course of evolution, progression and healing of SC lesions.

**Evolution**

During initial stages of evolution, the lesion was hyperautofluorescent extending over a large area and was predictive of the future extent of the lesion. This faint hyperautofluorescence might be representative of actual extent of RPE involvement, which is not yet clinically apparent. Thus, FAF can predict future evolution of a lesion quite accurately in initial stage.

**Progression**

Autofluorescence of the border indicates activity of the lesion. More hyperautofluorescent border represents the advancing lesion. This can be clinically useful to predict progression to the outer and inner segments, and the ELM in OCT scans.
Healing

Healing of the lesion was indicated on FAF by sharpening of hyperautofluorescent borders, followed by decreased width of hyperfluorescence. These are early signs that appear before the healing border became hypoautofluorescent. The pattern of healing is in order of evolution. The area of beginning of the lesion is the most hypofluorescent. Though the lesion becomes clinically healed, few specks of hyperautofluorescence are still present scattered within the hypoautofluorescent lesion. The development of complete hypoautofluorescence might need more time.

OPTICAL COHERENCE TOMOGRAPHY

High-resolution spectral domain-optical coherence tomography scans reveal a progressively changing pattern in eyes of patients with SC\textsuperscript{73}. In the acute lesions, a localized, fuzzy area of hyper-reflectivity was seen in the outer retinal layers involving the RPE, photoreceptor outer segment tips, photoreceptor inner segment–outer segment junction, external limiting membrane and the outer nuclear layer. As the lesions start healing, the spectral domain-optical coherence tomography scan shows irregular, hyper-reflective elevations of the outer retinal layers with ultimate loss of RPE, photoreceptor outer segment tips, inner
segment-outer segment junction and external limiting membrane. The increased choroidal hyperreflectivity is due to inflammatory cell infiltration in the active stage and enhanced light transmission through overlying atrophied RPE in the healed stage. OCT plays a crucial role in differentiating between active serpiginous choroiditis due to tubercular and autoimmune based on the layers involved. Changes were limited to the outer retina in serpiginous choroiditis due to autoimmune diseases but showed full-thickness retinal inflammation in SC due to tubercular aetiology.

All eyes with active lesions of SC in our patients illustrated the progressive changes in the outer retinal layers on OCT scans that correlated with the FAF changes. The FAF images obtained simultaneously demonstrated the transition from initial hyperautofluorescence of acute lesions to predominant hypoautofluorescence in the healed stage. Absence of any demonstrable changes in the inner choroid during the active stage of the lesion on OCT scans may suggest a primary involvement of the RPE and not the choroid in tubercular SC lesions. We observed that the structural changes on OCT scans occurring during the course of SLC followed a stepwise orderly sequence, similar to those as seen on the FAF images. Increased autofluorescence in the acute lesions seen as diffuse, subtle,
feeble hyperautofluorescence probably reflects retinal oedema which was structurally evident as hyperreflectivity spreading into the outer retinal layers in the OCT scans of our patients. This possibly suggests cellular infiltration or extracellular fluid accumulation in these layers due to inflammation. As the lesions started healing, hyperautofluorescence decreased and hypoautofluorescence increased due to loss of RPE. The outer retinal layers on OCT scans of our patients showed attenuation and progressive loss in the affected areas as the lesions healed. The FAF becomes increasingly hypoautofluorescent which indicates severe damage to RPE and photoreceptors. This was seen as an irreversible, collective loss of the outer retinal layers involving the RPE, photoreceptor.
TB is one of the causes of serpiginous choroiditis but serpiginous choroiditis due to autoimmune aetiology exists as an independent entity with distinct clinical characteristics. RT-PCR can detect active replicating TB bacilli and MTB DNA and a negative anterior chamber tap result can indicate the response to treatment. Serpiginous choroiditis in the Asian Indian population is seen in younger individuals with three distinct presentations that can resemble tubercular choroiditis. The ocular morbidity in Indian patients with active tuberculosis was reported as 1.39% and the most common ocular finding was bilateral healed focal choroiditis (50%) 75.

Patients with evidence of active or latent tuberculosis present with serpiginous like clinical features that can resemble the autoimmune type. This has been described as tubercular serpiginous like choroiditis. An atypical picture of serpiginous choroiditis has been reported in association with toxoplasmosis and herpes virus 76 suggesting that an aetiology of infection is indeed possible. The advantage of the ease of anterior chamber tap 77 to diagnose posterior segment inflammation can be of immense help in establishing the identity of tubercular posterior uveitis. Utility of QuantiFERON-TB Gold test positivity in serpiginous choroiditis indicating a latent tuberculosis has been reported 78, 79.
Apart from ESR, tuberculin skin test and QuantiFERON- TB Gold test a polymerase chain reaction on anterior chamber aspirate to identify the genome is recommended \(^8\). It has been reported that mycobacterium tuberculosis DNA was detected in the aqueous aspirate from a case of disseminated tuberculosis \(^9\).

**CHEST RADIOGRAPH AND HRCT**

In participants with normal CXR, lesions that were suggestive of active pulmonary TB were identified on HRCT scans in nine (29%). Although LTB is usually defined as a positive TST result with normal plain radiography findings, the results of our investigation cast doubt on the reliability of CXR for differentiation of active pulmonary TB from LTB. Among 33 participants with normal CXR, lesions that were suggestive of active pulmonary TB were identified in eleven (18%) participants. If HRCT scanning had not been performed in these nine patients with active TB, they would have been misdiagnosed and treated as LTB rather than as active TB. In patients such as these, treatment with the one or two drug regimen for LTB (isoniazid and rifampicin alone) may not only be ineffective but also may lead to the development of drug-resistant TB which can pose problems in a country endemic for TB. In addition, there is also another possibility that asymptomatic patients with normal CXR and negative sputum
smear and culture results may be adequately treated with preventive therapy for LTBI, even though they have trivial abnormalities on CT scanning. Investigation of TB in our patients showed that the addition of HRCT scanning could substantially increase the sensitivity of diagnosing active TB.

Chest radiography showed abnormality in 29.5%, and among these patients, hilar lymphadenopathy and parahilar opacities were the predominant lesions. Since CT scan detects subtle, early and small lesions, it is very useful in detecting mediastinal lymphadenopathy. Out of the total patients, CT chest picked up abnormality in patients who had otherwise normal chest x-ray, the findings being: calcified of lymph nodes in two patients, pulmonary fibrosis in two patients and pleural thickening in one patient, all suggesting inactive tuberculosis lesions. Pulmonary infiltration suggesting an active lesion was seen only in 2 patients. None of our patients had HIV infection.

**MANTOUX TEST**

Classification of patients based on Mantoux test reading did not reveal any significant difference in disease characteristics across the groups. Since many patients with Mantoux test positivity had no evidence of systemic tuberculosis,
none of them had anterior segment inflammation or vitritis and had serpiginous instead of multifocal arrangement of lesions; antituberculous treatment was not instituted for the management in our patients based on this test alone. Redundancy of Mantoux test in the management of retinal vasculitis has been reported in past, and the same may be applicable to serpiginous choroiditis.

**Erythrocyte Sedimentation Rate**

The increased percentage of normal range of E.S.R. in patients suffering from serpiginous choroiditis in those due to TB and NTB aetiologies confirmed the view that E.S.R. may have a bigger role in diagnosis of general body infections but plays little or no role in differentiating the diagnosis of posterior uveitis. In those with elevated ESR, an analysis of the data of this investigation indicates an increase in the incidence in serpiginous choroiditis due to TB than in those with non- tubercular aetiology. The sedimentation rate is not diagnostic of any specific disease, it is of great help in evaluating the presence of infection in the body and the active stages of certain diseases. This hypersensitive reaction of the eye is probably not similar to the hypersensitivity of other systemic diseases because that would retard the E.S.R. rather than increase it. Hence it is more likely that very
high levels of ESR is associated with TB but one should not consider that all elevated ESR values are due to TB. Our study on 126 patients with serpiginous choroiditis showed that the ESR tended to be higher for subjects with TB and lower in patients with non TB. Besides, patients under 30 years old tended to have ESR levels. Hence distinguishing between latent and non TB groups may not be possible based on ESR alone.

**QuantiFERON-TB GOLD**

From our data, the sensitivity and the specificity of this test to pick up active systemic TB is 69% and 80% respectively. A negative IFN-γ release assay result would not conclusively rule out active disease in an individual suspected to have active systemic TB. Our study showed that the QFT-G test is very useful in the diagnosis and management of suspected ocular TB. We may infer that QuantiFERON- TB Gold test alone in only a few situations may not be of value in the diagnosis of ocular TB. This is in concurrence with previous reports.  

Following analysis of our data we may speculate that a combination of positive PPD test and QuantiFERON- TB gold test in addition to the clinical presentation may be more useful in picking up ocular TB. The number of cases who were both PPD test and QuantiFERON- TB gold tests positive and who had
intraocular TB was 29 while the number of cases who were both PPD test and QuantiFERON- TB gold tests positive and who did not have intraocular TB was one. The sensitivity of a combination of positive PPD and QuantiFERON- TB gold tests in picking up a case of intraocular TB was 74% and the specificity of the combination of the above tests in intraocular TB was 95%. A negative QFT-G test can also be used as an adjunct before initiation of systemic steroids or immunosuppressives in uveitic patients particularly in an endemic setting like India. It was found to be very sensitive in identifying latent TB patients who, upon treatment, had a significantly reduced frequency of recurrences. It was more sensitive than the Mantoux test and is not significantly affected by previous treatment with systemic steroids or immunosuppressives. Several reports about the usefulness of positive QuantiFERON – TB gold in-tube test in countries nonendemic for tuberculosis. Ocular features of patients with idiopathic uveitis and positive QuantiFERON were diverse, but retinal occlusive vasculitis and serpiginoid choroiditis were common has been an observation that has been reported. The Quantiferon levels were usually highly elevated and 33% of patients exhibited lymphadenopathy, suggesting frequently the diagnosis of sarcoidosis. Ocular inflammation reacted favorably to antituberculosis treatment, although only a small minority had documented (prior) tuberculosis. Discordance of IGRA
and TST results is common and requires further study. In our study in patients with uveitis, we found that age, and type of uveitis were some significant factors associated with discordance between Mantoux test and QuantiFERON TB Gold test which may need to be taken into consideration when interpreting these results. A survey was performed on the perspectives of QuantiFERON TB Gold test among Indian practitioners. Within this group of specialists dealing with different forms of tuberculosis, perspectives of this test and preferences are many. The increased cost and limited data from India with respect to interpretation of the results are the most common limiting factors in using this test. Results of anti-tuberculosis treatment were encouraging in QuantiFERON-TB Gold-positive ocular inflammation, especially with values over 2 IU/mL in our study, suggesting that a higher cut-off value than that given by the manufacturer should be considered to better identify ocular inflammation that can benefit from full anti-tuberculosis treatment. To evaluate clinical and paraclinical parameters for the indirect diagnosis of tuberculosis-related uveitis (TRU). A study has reported that in a Western urban multi-ethnic population, patients from Asia, TB history or contact in the past and vasculitis are at higher risk of tuberculosis related uveitis. Tuberculin skin test and QuantiFERON TB Gold F are complementary to support the diagnosis.
PCR

Tubercle bacilli may be the inciting agents for this immune process either through active proliferation or through induction of an immune response against MTB DNA. Such an immune response may also target the uvea and retina through a process of molecular mimicry. Although pathogenesis, aetiology and differential diagnosis of SC remains a challenge, PCR studies to detect microbial DNA reveal that mycobacterium tuberculosis and herpes zoster infection may play a role in the subset of patients with SC of infective origin. Macular involvement can occur in and has been reported in many of untreated patients with SC. Also, in long-standing, untreated cases, the lesions extend to the equator. Patients with SC are otherwise healthy but associations with conditions such as diabetes mellitus, systemic lupus erythematosus, Crohn disease, hypertension, non Hodgkin lymphoma, auto immune thrombocytopenic purpura, celiac disease, extrapyramidal dystonia, lung carcinoma, antiphospholipid antibody syndrome, vitamin A deficiency, sarcoidosis and organisms such as bartonella henslea appears to have been reported.
The use of techniques based on DNA amplification to detect small amounts of genomic sequences from fluids or tissues allows us to diagnose or confirm infections that were previously difficult to detect. Polymerase chain reaction is one such technique. Mycobacterium tuberculosis DNA has been detected in many body sites such as central nervous system (CNS), liver, and joints as well as in ocular fluids. The first use of PCR in detecting mycobacterium tuberculosis from the eye was reported from aqueous samples of two patients with active retinal vasculitis. However, in ocular fluids, and in uveitis experience is still limited. Thus, this study by using techniques such as PCR, nested PCR and RT-PCR to detect MTB DNA with in aqueous of patients with serpiginous choroiditis helps in providing an insight of the underlying aetiology. In the population studied, PCR detected the DNA of the pathogen but it did not confirm an active infection. Vitreous fluid samples were subjected to multitargeted polymerase chain reaction (PCR) for a M. tuberculosis assay, the Gene Xpert MTB/RIF assay (Cepheid, Sunnyvale, CA), and a line probe assay (GenoTypeMTBDRplus; Hain Lifescience, GmbH, Nehren, Germany). The samples with positive results were subjected to rpoB gene sequencing to demonstrate rifampicin resistance. We detected the M. tuberculosis genome in the vitreous fluid of eyes with MSC using 3 different molecular techniques. Rifampicin resistance was detected for the first time in eyes
with MSC \textsuperscript{101}. To study infectious agents associated with multifocal serpiginoid choroiditis (MSC) based on polymerase chain reaction (PCR) evaluation and specific anti-microbial therapy. TB is the most important etiology for MSC in endemic countries. The role of herpes viruses in MSC remains unclear and needs further investigation\textsuperscript{102}.

**NESTED PCR**

Specific diagnosis of the cause of infectious uveitis is extremely difficult because of volume available from ocular samples for diagnostic evaluation. In the past, identification of tuberculous uveitis was difficult and treatment often delayed. DNA amplification methods may allow early detection of small amounts of Mycobacterium tuberculosis DNA to afford the possibility of prompt diagnosis\textsuperscript{103}. Detection of DNA in aqueous samples by nested PCR showed that this DNA amplification technique further corroborates the diagnosis. Our data showed the results obtained were sufficiently accurate to corroborate initial clinical suspicion in cases and was also useful and safe to rule out this diagnosis among controls. Application of nested polymerase chain reaction \textsuperscript{104} using primers has been studied extensively in various specimens and reported to be useful in detection of mycobacterium tuberculosis\textsuperscript{105} and protozoa such as toxoplasmosis \textsuperscript{106}. 

REAL TIME PCR

In our study, both patients who had positive RT-PCR had latent tuberculosis. Besides early and fast diagnosis of MTB, RT-PCR was helpful to quantify the mycobacterial load using quantitative PCR amplification technique in these patients. The results obtained by quantitative PCR correlated with clinical diagnosis of tubercular uveitis in our patients. The finding of high mycobacterial loads in the ocular fluids indicates that mycobacterial replication takes place in the eye, suggesting a direct pathogenic role in intraocular inflammation. Though the inflammation in these eyes is clinically evident in retina and uvea, the evidence of their isolation from the RPE suggests their preferential localization in these cells. Further, their isolation directly from the RPE may yield a higher bacterial load as compared to when they are extracted from the ocular fluids of eyes with posterior uveitis as seen in our patients. RT PCR is a reliable investigation in infectious posterior uveitis as apart from providing evidence of MTB DNA it detects absence of bacilli in a few months and thus helps to assess response to treatment at a very early stage.

TREATMENT
In our study, a total of 25 participants were diagnosed with LTB. Twenty-two of these had completed 3 months of treatment with isoniazid and rifampicin. However, three participants refused the treatment. Amongst our patients, we found that ampiginous choroiditis is most commonly due to TB is a separate disease entity due to its distinct clinical features. It is a disease with multiple relapses, which can be effectively controlled with a combination of immunosuppressive therapy, and a good visual acuity can be maintained on long-term follow-up.

A SUGGESTED ALGORITHM IN TYPICAL SERPIGINOUS CHOROIDITIS AND SERPIGINOUS LIKE CHOROIDITIS DUE TO TUBERCULOSIS