

## Role of Investigations in Uveitis

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**Background:** To outline the need/use of investigations in cases of uveitis.

**Methods and Patients:** This study was carried out from April 2001 to July 2004 in Unit-I, affiliated to Services Institute of Medical Sciences, Lahore. Total duration was more than 3-years. All the patients underwent complete ophthalmological and medical evaluation. Eye examination included record of visual acuity, intraocular pressure, slit lamp biomicroscopy and examination of the posterior segment with indirect ophthalmoscope and 78D lens. Baseline screening tests were advised in all cases of uveitis. Special investigations were ordered only when there was high clinical suspicion of systemic diseases.

**Results:** 69 eyes of 42 patients of uveitis of different varieties were followed for more than 3 years. 71% of the patients were male while 29% were female. 60% of the patients belonged to younger age group between 20-39 years of age. Anterior uveitis was present in 69% of patients, 20% of these patients had unilateral recurrent anterior uveitis while 21% had posterior uveitis, and remaining 10% had other types of uveitis. Baseline screening investigations revealed raised ESR in all 42 patients and lymphocytosis in the patient with carcinoma of prostate. All other investigations whether baseline or specialized were negative.

**Conclusion:** We conclude that detailed investigations are not justified in all patients of uveitis and they should be ordered only when a reasonable chance exists that they will provide useful diagnostic information for a particular patient.

**Key Words:** Intermediate uveitis, pan uveitis, recurrent anterior uveitis, complicated cataract, and secondary glaucoma.

### Introduction

Uveitis is described as a broad-range of heterogenous ocular inflammatory diseases; it is characterized by classical features of inflammation, e.g. altered vascular permeability, cellular infiltration of uveal tracts and intra-ocular cavities. It mainly affects young adults. According to International Uveitis Study Group it is classified into anterior, intermediate, posterior<sup>1,2</sup> and pan uveitis; and according to duration into acute, chronic and recurrent uveitis. Epidemiology of uveitis varies widely.<sup>3</sup> Despite remarkable progress in diagnosis and treatment, uveitis remains one of the major causes of visual impairment in children and younger population.<sup>4,5,6</sup> As knowledge of the disease process grew and sophistication of immunological and microbiological testing increased the fact that uveitis entails a multitude of diseases became clear. Approximately 80% of cases of uveitis are idiopathic<sup>7,8</sup> and remaining 20% diagnosed as infection of different varieties e.g. toxoplasma, tuberculosis, toxocara, candida<sup>9</sup> etc. The recognition of uveitis is important to an ophthalmologist because patients with purely ocular inflammation can be intermixed with patients who

have previously undiagnosed systemic disease or infection. Although some diseases are local ocular immunological disorders, many of them are systemic diseases with ocular manifestation.

Because the spectrum of disease pathogenesis ranges from autoimmunity to neoplasia to viruses, the diagnostic process becomes difficult and laboratory tests are rarely useful as screening tools for this disease. Age, sex, race, geographic location, travel history, social habits and occupation, all contribute to the diagnosis.<sup>7,8,10,11,12,13,14</sup>

In general limited utility exists in ordering most routine laboratory tests as these usually do not provide any useful information with respect to possible causes for uveitis.

Investigations often entail considerable expense and therefore should be ordered only when a reasonable chance exists that they will provide useful diagnostic information for a particular patient.

### Materials and Methods

This study was conducted in eye unit-I Services Hospital Lahore affiliated to Services Institute of Medical Sciences, Lahore. A questionnaire was

completed for all patients at the time of presentation recording demographic, social details and history of any systemic illness.

Detailed ophthalmologic examination was carried out including visual acuity, complete anterior and posterior segment examination and measurement of intra-ocular pressure. Ultrasonography, fluorescein angiography and fundus photography were performed in selected cases.

A detailed medical examination was performed at department of medicine. Baseline screening tests including complete blood examination, erythrocyte sedimentation rate, complete urine examination and chest X-ray were done.

Special investigations were ordered only in certain cases when there was a high suspicion of a specific aetiology. Specific investigations were serum calcium, antinuclear antibody test, Rh factor, Torch test & X-ray skull.

## Results

In this study 69 eyes of 42 patients of uveitis were studied. In the present cohort 60% of patients were 20 to 30 years of age (**Table-1**).

Involvement was bilateral in 54 eyes. Two patients were non-Pakistani in origin. Smoking and h/o pets was observed in 2.38% of cases.

The systemic association was noted only in 7 (17%) patients (**Table-2**).

Most common type of uveitis observed was anterior uveitis in 69.05% of cases out of which, 20% cases were recurrent. Posterior uveitis was observed in 21.43% of cases. 9.5% of cases had other types of uveitis e.g. intermediate uveitis, white dot syndrome, idiopathic non-specific uveitis entities and masquerade syndrome (**Table-3**).

Complications at presentation are listed in (**Table-4**). These include cystoid macular oedema, complicated cataract, secondary glaucoma and vitreous opacities. Baseline screening investigations revealed raised ESR in all 42 patients and lymphocytosis in the patient with carcinoma of prostate.

All other investigations whether baseline or specialized were negative.

**Table-1:** Summary of symptoms.

Age/ years	Number of Patients	Percentage
01 - 10	03	07.14
11 - 20	08	19.04
21 - 30.	14	33.33
31 - 40	11	26.19
41 - 50.	05	11.90
51 and Above	01	02.39

**Table-2:** Systemic Association.

Systemic Association	Number of Patients	%age
No association	26	(61.90%)
Joint (multiple) disorder	07	(16.67%)
Respiratory (asthma) disorder	02	(04.76%)
Skin (allergy) disorder	02	(04.76%)
ENT (nasal polyps) disorder	01	(02.38%)
Tooth extraction	01	(02.38%)
Multiple lymphoma	01	(02.38%)
Carcinoma of Prostate	01	(02.38%)
Miscellaneous	01	(02.38%)

**Table-3:** Type of Uveitis.

Type	Number of Patients	%age
Anterior	29	(69.05%)
Posterior	09	(21.43%)
Intermediate	01	(02.38%)
White dot syndrome	01	(02.38%)
Masquerade syndrome	01	(02.38%)
Idiopathic non specific uveitis	01	(02.38%)

**Table-4:** Complications.

Complications	Number of Patients	%age
Secondary Cataract	08	(11.90%)
Secondary Glaucoma	03	(04.76%)
Vitreous Opacities	03	(04.76%)
Cystoid Macular Oedema	03	(02.38%)
Bank Keratopathy	02	(02.38%)

## Discussion

Uveitis is an ocular inflammatory sight threatening disorder and unfortunately, no large scale studies exist which demonstrate the value of investigations in diagnosis and in its management. In these patients routine serological and radiological investigations are usually unhelpful as there are no serological markers to assess systemic and ocular disease activity.<sup>6</sup> When a patient presents with uveitis the diagnostic work up begins with the clinical examination.<sup>18</sup> The detailed history and examination is essential to establish a diagnosis of underlying systemic disease in these patients.<sup>7,8,9,10,11,12,13,14</sup>

Our study demonstrated that baseline and specialized investigations were rarely useful as screening tools for uveitis. Marrs et al<sup>19</sup> in 1998 and Robert et al<sup>20</sup> in 1999 mentioned that baseline screening investigations should be avoided as they do not contribute to the findings of a cause or help in the management and are often expensive; tests should be tailored to clinical findings and ordered only if there is strong suspicion of systemic disease. Routine "immunological" tests are often of little help. Out of a series of 893 uveitis patients screened for a variety of non-ocular specific autoantibodies, the only significant finding was in patients with juvenile chronic arthritis in whom 10/13 (77%) were antinuclear antibody positive.<sup>6</sup>

Sandler<sup>21</sup> in 1980 discovered that after the history, a correct diagnosis was established in 56% of patients in general medical clinics; it increased to 73% after physical examination, and routine laboratory evaluations added substantial cost. A strategy termed hypothetic – deductive approach by Sackets and colleagues<sup>23</sup> in evaluating patients with uveitis is used by nearly all clinicians which formulates a potential diagnosis after a brief interaction with patient followed by a focused history and physical examination and then appropriate diagnostic evaluation that shortens the diagnostic possibilities. A diagnostic test is only useful if it can confidently rule out disease. These findings are consistent with Rosenbaum and Wernick's study.<sup>23</sup>

A recent retrospective review of patients with various types of uveitis showed the following abnormal results: full blood count: 23/113 (20.3%), plasma viscosity/ ESR: 37/108 (34.2%), VDRL/TPHA 3/70 (4.3%), Angiotensin Converting Enzyme (ACE): 9/77 (10.8%) and chest x-ray (CXR) 15/103 (14.6%). Sarcoidosis was diagnosed in eight patients who had an abnormal CXR± raised ACE. None of the other abnormal results helped in establishing an underlying cause for the uveitis or assisted in the further management of the patients. All patients with symptoms of other organ system dysfunction or general malaise should be investigated to rule out underlying systemic disease.

Ordering large numbers of tests in the hope that one may turn out to be positive should be actively

discouraged. If one does enough investigations on any patient there is a chance that something will turn up abnormal but it may have no relevance to the uveitis.

Attention should be paid to the sensitivity and specificity of each test:

Sensitivity – measures how well the presence of a disease is predicted by a diagnostic test.

Specificity – measures how well the absence of a disease is predicted by a diagnostic test.

In the clinical setting, the minimum number of investigations should be performed that will give the maximum information regarding the management of the patient. There are a number of general tests that would be common to most uveitis patients and specific tests that might be relevant to a particular type of uveitis.<sup>21</sup>

## Conclusion

We conclude that detailed expensive and specialized investigations are not justified in all patients presenting with uveitis. They should be ordered only when a reasonable chance exists that they will provide useful diagnostic information for a particular patient.

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