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## Uveitis in Patients with Ankylosing Spondylitis

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### ABSTRACT

**Background:** There is a close correlation between ankylosing spondylitis and uveitis, other less common ocular manifestations being episcleritis and scleritis. Though the prognosis of uveitis is good, prompt treatment is required to prevent long-term complications. This study aimed to estimate the prevalence of uveitis in patients with ankylosing spondylitis who follow outpatient clinic of a tertiary care hospital.

**Methods:** A descriptive cross-sectional study was done in medicine outpatient department of a tertiary care hospital for 6 months. Ethical clearance was obtained from the institutional review board of National Academy of Medical Sciences. Convenient sampling was done. The data collected were entered in Microsoft excel to tabulate the data and analyze the results.

**Results:** Out of 81 participants, 26 patients had a history of uveitis (32%). Most of the patients in this study were of 18-30 years. Uveitis was most common in patients with both axial and peripheral disease (41%) compared to those with just peripheral disease (32%). Uveitis was more common among males (32.2%) than females (31.5%).

**Conclusion:** In patients with spondyloarthritis uveitis was present in 32% of the patient with more common in patient with both axial and peripheral arthritis. Timely diagnosis of uveitis in ankylosing spondylitis can prevent the sequelae with prompt treatment.

**Keywords:** Ankylosing spondylitis; spondyloarthritis; uveitis

### INTRODUCTION

Spondyloarthritis (SpA) is a term used collectively for ankylosing spondylitis (AS), reactive arthritis, arthritis associated with inflammatory bowel disease, and psoriasis. These diseases have similar clinical manifestations and are associated with presence of HLA-B27 genetic marker.<sup>1</sup>

Acute anterior uveitis is most common extra-articular manifestation in ankylosing spondylitis. It is an acute inflammation of the anterior segment of the eye where patient presents with ocular hyperemia, pain, photophobia, lacrimation and visual blurring.<sup>2</sup> Patients with acute anterior uveitis commonly have undiagnosed spondyloarthritis especially in those with HLA B27 allele.<sup>3</sup> Such uveitis is unilateral with increased risk of recurrence. It could be the first manifestation of an undiagnosed rheumatic disease.<sup>4</sup> In one of the studies, 40% of patients presenting with acute anterior uveitis had undiagnosed SpA.<sup>5</sup>

This study aimed to estimate the prevalence of uveitis in ankylosing spondylitis among patients presenting to National Academy of Medical Sciences, Bir Hospital.

### METHODS

A descriptive cross-sectional study was performed in the outpatient department of medicine at National Academy of Medical Sciences, Bir Hospital, Mahaboudha, Kathmandu over 6 months from 16<sup>th</sup> August 2020 to 15<sup>th</sup> February 2021. The ethical clearance was taken from Institutional Review Board of National Academy of Medical Sciences (Reference no. 74/077/78).

Patients aged 18 years and older with an established diagnosis of spondyloarthritis as per Assessment of SpondyloArthritis International Society (ASAS) classification criteria were included by simple random sampling in the study. The study sample included patients visiting outpatient department or admitted in wards of National Academy of Medical Sciences. All of

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the patients fulfilled the ASAS classification criteria for spondyloarthritis.

The diagnosis of uveitis was ascertained based on the medical records from ophthalmologist diagnosed uveitis. Convenient sampling was done. The sample size was calculated as 81 using the formula, 95% Confidence Interval, prevalence of uveitis in ankylosing spondylitis (30%)<sup>4</sup> margin of error =10%

Data were collected using a structured proforma covering the relevant details including demographics, total duration of illness and use of disease modifying anti-rheumatic medications. Spondyloarthritis was divided into different subgroups as ankylosing spondylitis, peripheral spondyloarthritis, psoriatic arthritis, reactive arthritis and enteropathic related arthritis. Microsoft Excel was used to tabulate the data and analyze the results.

## RESULTS

A total of 81 patients were included in the study. Mean age of male was 33.46 ± 2.48 years and female was 41.31 ± 5.11 years. The proportion of male was 76.5% (62/81) and female was 23.5% (19/81). Most of the participants belonged to age group 18-25 years and 26-30 years (20.9% each).

**Table 1. Age distribution of Participants.**

Age in years	N (%)
18-25	17 (21%)
26-30	17 (21%)
31-35	13 (16%)
36-40	8 (10%)
41-45	11 (13.5%)
>45	15 (18.5%)

Uveitis was mostly observed in those with both axial and peripheral spondyloarthritis 11/27 (40.7%). Among the participants with axial spondyloarthritis, uveitis was seen in 14/44 (31.8%) while psoriatic arthritis had uveitis in 1/5(20%) patients. Uveitis was not seen in peripheral spondyloarthritis and enteropathic spondyloarthritis.

**Table 2. Frequency of uveitis among different sub-groups.**

Sub-groups	Total number of cases	Uveitis N (%)
Axial spondyloarthritis	44	14 (31.8)
Peripheral spondyloarthritis	3	-
Axial and peripheral spondyloarthritis	27	11 (40.7)

Psoriatic arthritis	5	1 (20)
Enteropathic arthritis	2	-

Most of the participants in the study had the disease duration of 2-5 years (33/81). The least number of participants were in the group with disease duration of more than 10 years (11/81). The participants with disease duration 5-10 years had a maximum proportion of uveitis (50%) followed by those with disease duration of 2-5 years (39.3%)

**Table 3. Disease distribution of participants.**

Disease duration (years)	Number of cases N (%)	Uveitis n (%)
<2	19(23.4)	1 (5.2)
2-5	33(40.7)	13(39.3)
>5-10	18(22.2)	9(50)
>10	11(13.5)	3(27.2)

Overall uveitis was presented in 26/81 (32%) of participants. 20/62 males (32.2%) had uveitis, while 6/19 females (31.5%) had uveitis.

Among the 62 male participants 36 had axial spondyloarthritis, 2 had peripheral spondyloarthritis, 20 had both axial and peripheral involvement and 4 patients had psoriatic arthritis. Out of the 19 female participants, 8 had axial spondyloarthritis, 1 had peripheral spondyloarthritis, 7 had both axial and peripheral involvement, 1 had psoriatic arthritis and there were 2 cases of enteropathic arthritis.

**Table 4. Gender wise distribution of Spondyloarthritis.**

Sub-groups	Male N (%)	Female N (%)
Axial spondyloarthritis	36(58)	8(42)
Peripheral spondyloarthritis	2(3)	1(5)
Axial and peripheral spondyloarthritis	20(32)	7(37)
Psoriatic arthritis	4(7)	1(5)
Enteropathic arthritis	-	2(10)

**Table 5. Gender specific distribution of Uveitis in spondyloarthritis.**

Gender	No.	Uveitis n (%)
Male	62	20 (32.2)
Female	19	6 (31.5)

## DISCUSSION

Spondyloarthritis present with articular and extra-articular manifestations. Articular manifestations include inflammatory back pain, peripheral inflammatory

arthritis and enthesopathy. Extra-articular features include acute anterior uveitis, psoriasis, inflammatory bowel disease and cardiac involvement.<sup>6</sup> Inflammatory eye disease could be a significant manifestation of spondyloarthritis. Spondyloarthritis associated with uveitis is non-granulomatous, and it is typically unilateral. If the patient has symptoms as chronic inflammatory backache, peripheral arthritis or psoriasis with positive HLA B27, then rheumatologic evaluation is warranted.<sup>7</sup> The result of this cross-sectional study conducted at a tertiary care hospital showed uveitis in 32% spondyloarthritis. In a systematic literature review the mean prevalence of uveitis was found to be 32.7%. The prevalence varied from 33.2% for ankylosing spondylitis to 25.1% for psoriatic arthritis.<sup>8</sup> Prior studies have shown that the disease duration of spondyloarthritis was associated with increased risk of uveitis.<sup>9</sup> In patients with diagnosis of anterior uveitis, 50% of the patients had spondyloarthritis suggesting a high degree of co-occurrence of these two conditions.<sup>4</sup> Among the different spectrum of spondyloarthritis, anterior uveitis had a frequency peak of 33.4% in patients with ankylosing spondylitis and as high as 25% in patients with IBD associated spondylopathies and PsA.<sup>4</sup> In our study showed 34% of patients with ankylosing spondylitis and 20% of patients with psoriatic arthritis had uveitis which are comparable to the other studies. There were no uveitis seen in patients with IBD associated arthritis and reactive arthritis.

In the study conducted by Canoui-Poitaine et al, HLA-B27 positivity rate was 76%. Recurrence of uveitis occurred in 52.3% and complications occurred in 11.7% of patients. Factors independently associated with uveitis were HLA-B27 positivity and disease duration.<sup>10</sup> In a study done in a center in US by Gevorgyan et al, only 17% of patients showed uveitis. The study included 48% of ankylosing spondylitis, 26% psoriatic arthritis, 4% inflammatory bowel disease associated spondyloarthritis and 22% were undifferentiated arthritis.<sup>11</sup> Rosenbaum showed the frequency of uveitis was greater in association with ankylosing spondylitis than enteropathic arthritis or psoriatic arthritis, which was similar to finding in our study.<sup>12</sup> The result of our study showed there is an increasing trend in frequency of uveitis with longer duration of the disease. The prevalence of uveitis was 5.2% in the first 2 years of disease diagnosis, which increased to 39.3% from 2 years to 5 years. The prevalence peaked during the 5 to 10 years of disease (prevalence of 50%) then declined to 27.2% for those with disease duration of more than 10 years. A study by Canoui-Poitaine et al has also shown that uveitis occurrence is greater with disease duration.<sup>10</sup> The probable explanation for this decline could be due to the least number of participants

in our study with disease duration of more than 10 years.

Our study showed uveitis to be present in around one-third of the patients with spondyloarthritis. A larger multi-centric study with a diverse sample population constituting large samples of different subgroups of disease should be conducted in the future to find out a more accurate prevalence and to see association between disease duration and uveitis as well as to assert relation between HLA B27 positivity and uveitis in our population. The strength of our study is it is first of its kind which evaluates uveitis in spondyloarthritis patient in our population. The clinical implication recognizing uveitis earlier is for preventing the complication as early as possible and preserving the vision. The drawback of the study is it is a single center study and has a small sample size. The type of uveitis also couldn't be determined in each case.

## CONCLUSIONS

Uveitis was present in around one-third of patients with ankylosing spondylitis. The highest prevalence of the eye disease was from 5 to 10 years after the diagnosis of spondyloarthritis. Uveitis was more common in patients with axial disease with peripheral arthritis.

**CONFLICTS OF INTEREST:** None

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