Fuchs Uveitis Syndrome Clinical Features, Visual Outcome after Cataract Surgery and Complications

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Abstract:

Background : Fuchs uveitis is a chronic non-granulomatous specific uveitis entity. It is a common ocular disorder in Iraq and in different parts of the world. The aims of this research are to study the clinical features, complications and determining the visual outcome after cataract surgery.

Patients and Methods: (76) patients with Fuchs uveitis presented to Ramadi Teaching Hospital were prospectively studied ,there were (40) males and (36) females aged between (16) years and (60) years.

Clinical assessment including thorough slit lamp examination, visual acuity, intraocular pressure measurement and fundus examination was done for all patients and cataract surgery was done when indicated.

Results: Results showed that the clinical features of our patients are similar to the classical features of the condition, low incidence of glaucoma (3.9%)only and cataract surgery is safe with very good visual outcome in (77.63%) of patients.

Conclusion : FUS patients have clinical features similar to the classical features of the condition with low incidence of glaucoma . Cataract surgery is safe with very good visual outcome.

Key words: Uveitis, Fuchs uveitis syndrome, Fuchs heterochromic iridocyclitis.

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Introduction:

Fuchs uveitis syndrome(FUS) or Fuchs heterochromic iridocyclitis is a chronic non-granulomatous specific uveitis entity which is usually unilateral [1, 2, 3,4,5].

It has an insidious onset, occurs mostly in the 3rd – 4th decades and affects both sexes equally [2,3,6,7,8]. The presentation is often by chronic, annoying vitreous floaters or by gradual blurring of vision secondary to cataract [2 ,3]. Other presenting features include colour deference between the two eyes or incidental detection [1,2,3].

The etiology of FUS remains unclear and unknown [6,9,10] . Association with ocular toxoplasmosis, herpes simplex virus, and CMV infection have been suggested [1,3,6,11].Many recent studies reported strong association of rubella virus with FUS [11,12,13,14,15,17].

The classical ocular features include faint flare and mild cellular reaction of aqueous, keratic precipitates, absence of posterior synechiae, vitritis, diffuse iris stromal atrophy, heterochromia, iris nodules, rubeosis iridis, and rarely fundus scars and retinal periphlebitis[1,2,18-22].

Fluorescein angiography, optical coherence tomography and electron microscopy may show significant ocular changes [23-27].

Complications of FUS are cataract, glaucoma and hyphema [2,9,23,28,29].

Anti-inflammatory treatment is usually not indicated for the low-grade anterior chamber reaction in FUS patients [6,10].

Vitrectomy may be considered for sever vitreous opacification that is reducing vision [1,2 ,30,31].

Cataract surgery by any standard procedure for cataract surgery can usually be used without significant risk of intraoperative or postoperative complications [3,32] .

Many recent studies reported that phacoemulsification with PC IOL is safe procedure with good visual outcomes [33-36] and has better results than extra capsular procedure [12] .

Glaucoma treatment, it may be difficult [1,3,12,28,29,37] and this includes either medical treatment usually with high failure rate [29,37] or surgical intervention usually by trabecloctomy with higher successful rate than medical treatment [28,29] but still there is risk of failure after surgery [28,38].

Patients and Methods:

From June 2005 to April 2012, (76) patients (40 males and 36 females) with FUS presented to the ophthalmic department in Ramadi Teaching Hospital were prospectively studied.

A full history was taken from each patient followed by a base line distant visual acuity, an intraocular pressure measurement (by Goldman tonometer), thorough slit lamp examination and fundus examination.

Laboratory investigations including complete blood picture and ESR were done for all cases while fasting blood sugar and Elisa test (for toxoplasmosis) was done for some selected cases when the diagnosis is doubtful.

B-scan ultrasonagraphy was done for (26) cases when fundus cannot be seen because of opaque ocular media.

In all patients, the diagnosis of Fuchs uveitis entity was reached depending on the clinical findings since the diagnosis of FUS remains clinical because of its characteristic clinical appearance and because it lacks a sensitive laboratory test for the diagnosis [3, 12,19].

An appropriate medical treatment is prescribed when indicated for some patients including steroid therapy or antiglaucoma therapy.

Only one case with glaucoma was difficult to treat medically and even by surgical trabeculectomy.

In (61) patients with FUS, cataract was already developed and cataract surgery was done for (56) of them either by extra-capsular extraction procedure or phaco-emulsification procedure with posterior chamber intra-ocular lens implantation (Acrylic - foldable type or PMMA type).

Post- operative examination, care and follow-up were achieved for all patients for a period ranges from 1 - 3 years.

Atypical cases or cases with history of previous ocular surgery were excluded from this study.

Results:

A total of (76) patients (40) males (52.63%) and (36) females (47.36%) were studied. (table1) The male to female ratio was 1.1: 1.

Age distribution had shown that the highest incidence occurred in those between 21-40 years old (68.4%) of patients, followed by those between 41-60 years old and those between 1-20 years old (15.7%) for each (table 2). Their mean age was 32.63/ ± 9.3SD.

The condition was unilateral in all patients (100%).

Regarding the clinical presentation; the most common one was blurred vision in 39 patients (51.31%) which was caused mainly by cataract.

The second common presentation was perception of floaters which is usually caused by vitreous opacities or vitreal inflammation in15 patients (19.73%). The third common presentation was accidental in 11 patients (14.47%).Other modes of presentation included ocular pain (from ciliary spasm or increased IOP) in 7 patients (9.21%) and redness in 4 patients only (5.26%).

The clinical features of the condition are shown in Table (3). These include small stellate keratic precipitates in all cases(100%) , mild(AC) reaction in only 24 patients (31.5%) , binocular heterochromia in 48 patients (63.15 %) ,iris atrophy in 33 patients (43.42%), iris nodules in 5 patients (6.57%), cataract in 61 patients (80.26 %) , vitritis in 40 patients (52.63%), Amsler sign in 41 patients (53.94%) , increased IOP in only 3 patients (3.94%), rubeosis iridis in 2 patients only (2.63%) and absence of posterior syneachia in all cases (100%) .

The incidence of glaucoma in FUS patients was (3.9%) ((only 3 patients)) ; two of them were controlled medically by antiglaucoma drugs while the third one was difficult to control medically and surgically and the eye ends with poor vision(perception of light only) .

Cataract was present in (61) patients and (56) of them underwent cataract surgery ((extra capsular procedure or phacoemulsification procedure)) with posterior chamber IOL implantation.

Regarding the preoperative (best corrected) visual acuity of patients with FUS, most patients had low acuity where 18 patients (23.68%) with acuity ranges between hand movement to counting fingers (5 meters), 26 patients (34.21%) with acuity ranges between 6/60 to 6/24, 24 patients (31.5%) with acuity ranges between 6/18 to 6 /12 and finally only 8 patients (10.52%) had acuity 6/9 or 6/6.

While postoperative (best corrected) visual acuity was good in most patients where 33 patients (43.42%) with acuity 6/9 or 6/6, 26 patients (34.21%) with acuity ranges between 6/18 to 6/12, 11 patients (14.47%) with acuity ranges between 6/60 to 6 /24 and finally only 6 patients (7.89%) had acuity ranges between hand movement to counting fingers (5 meters). P-value was less than 0.05.

Intraoperative and postoperative complications were mild and transient in most cases. These included transient and mild hyphema in 13 cases, transient increase of IOP in 5 cases, mild postoperative intraocular inflammation in 32 patients, rupture posterior capsule in only 3 cases, non-significant (IOL) deposits in 18 cases and late thickening of posterior capsule in 15 cases.

Results of laboratory investigations were not significant in most cases, where 9 patients had increased WBC count and 6 patients had increased ESR.

Past medical history showed 2 patients had hypertension and only one patient had diabetes mellitus while family history was negative in all cases. B-scan was done for 26 patients only and the results showed vitreal inflammation in 15(19.7%) patients and cataract in 22(28.9%) patients.

Geography, religion, occupation, past surgical history, smoking, alcoholism, and drugs history were not significant.

Table (1) : Sex distribution of the patients

SEX	NO.	%
Male	40	52.63
Female	36	47.36
Total	76	100%

Table (2) : Age distribution of the patients

AGE (Y)	NO.	%
1 - 20	12	15.78
21-40	52	68.42
41-60	12	15.78
Total	76	100%

Table(4) : Clinical presentation of cases

TYPE OF PRESENTATION	NO.	%
Blurred vision	39	51.31
Floaters	15	19.73
Accidental	11	14.47
Pain	7	9.21
Redness	4	5.26
Total	76	100

Table (3): Clinical features of FUS

SIGN	NO.	%
Keratic precipitates'	76	100
A.C. reaction (mild)	24	31.5
Heterochromia	48	63.15
Cataract	61	80.26
Vitritis	40	52.63
Amsilar sign	41	53.94
Iris atrophy	33	43.42
Iris nodules	5	6.57
Increase IOP	3	3.94
Rubiosis iridis	2	2.63
Posterior synechiae	0	00

Table (5): Best corrected visual acuity (BCVA) of FUS patients

LEVEL OF VA ((BCVA))	PRE-OPERATIVE -BCVA NO.	%	POST-OPERATIVE- BCVA NO.	%
H.M -- C.F	18	23.68	6	7.89
6/60 -- 6/24	26	34.21	11	14.47
6/18 -- 6/12	24	31.5	26	34.21
6/9 -- 6/6	8	10.52	33	43.42
Total	76	100%	76	100%

Discussion:

FUS is unusual form of uveitis and frequently overlooked or misdiagnosed [10, 12, 19,24,39].

The correct diagnosis of FUS is important because it affects future management and prognosis while improper diagnosis may lead to unnecessary therapy [9,35,39].

A previous study in Iraq reported that FUS accounts for (8.1%) of all causes of uveitis in Iraqi uveitic patients [40].

FUS usually affects both sexes equally[2,3,6,26,32,41,44] and this is true for our patients where the results showed no significant difference regarding gender distribution and the male to female ratio was 1.1 : 1 ,these findings support the fact that the disease affects both sexes equally.

The age distribution shows that the highest incidence (68.4%) is between 21-40 years old with a mean age of 32.63/± 9.3 SD. Results of many studies carried out in different parts of the world reported that most FUS patients fall within this age group and the mean age ranges from (29.5 to 35.2) years [2, 3, 6, 24,26,27,32,41,42,], this consistency supports the concept that the disease mostly affects this age group.

FUS is usually unilateral[1,2,5,23,24,26] but, although rare; many studies stated bilateral involvement [3,23,24,26]. Results of this study showed that all cases are unilateral. Although these results are accepted since the disease is usually unilateral but bilateral involvement may occur probably because of multifactorial etiopathology of the disease since it is still regarded to be of unknown etiology [6, 10, 29].

Regarding the clinical features of the condition ,the results showed that the more common clinical features of the patients are keratic precipitates in(100%) ,cataract in (80.2%) ,heterochromia in (63.1%) ,vitritis in (52.6%), Amsler sign in (53.9%) , iris atrophy in (43.4%) , mild AC reaction in (31.5%) and absence of posterior synechiae in all cases. These clinical features of our patients are similar to the common clinical features stated in many studies carried out in different parts of the world including USA, England, India, Saudi Arabia, Mexico, Spain and China [6,10,23,24,26,35,41,43].

This consistency supports the concept that FUS has a characteristic clinical appearance and the diagnosis of the disease can usually be made on clinical grounds alone [3,12,19].

Other uncommon or rare clinical signs are iris nodules in only (6.5%) and this result is not consistent with results of other studies where it is reported to range from 28.0% to 50% of cases [23,43], rubeosis iridis (which reflects ischemia)in only(2.6%) which is again not consistent with previous figures in other studies where it is reported to range from 6% to 22% of cases[5] and increased IOP in only (3.9%) .

The incidence of glaucoma in our FUS patients (3.9%) appears to be very low in comparism with its incidence in many parts of the world where it is reported to affect (20-30%) of cases [3, 9, 23,28,29]. This significant discrepancy is probably because low incidence of neovascularization in our patients which is usually the main cause of glaucoma in FUS [28,44], but also there are other two studies held in India and Mexico [35,43] showed results which are consistent with our results. These studies reported that its incidence is (zero) in the first study and only (4%) in the second one, these different figures among different countries reflect some difference in the behavior of the disease among different populations probably due to different etiological factors or probably different immunological reactions.

One of those patients with glaucoma lost vision because of failure of medical and surgical treatment. This is because FUS glaucoma is usually difficult to control both medically and surgically [1,3,12,28,29,37,38] but fortunately its incidence is low in our patients.

The most common mode of presentation in our patients is blurring of vision found in about half of the patients(51.3%) and this result is consistent

with results of many studies which reported that the most common presenting symptom is blurred vision[2,3,6,9,10,23,27] which is usually caused by cataract[2,3].The second common mode of presentation is vitreous floaters which occur in (19.7%) of the cases. These are also found to be an often presenting feature in many previous studies [2, 6, 21]. The floaters are usually caused by vitritis or vitreous opacities that are commonly found in FUS [1,2,3].

Another occasional clinical presentation is accidental during routine ocular examination or examination for another ocular problem. It is found in (14.4%) of cases, this mode of presentation is also found to be oftenly a presenting feature in previous studies because FUS patients are usually asymptomatic [1,2,3,6]. Other rare presenting features includes pain (or discomfort) in (9.2%) and redness in only (5.2%) of cases. Although these presenting features are reported in some previous studies [1, 9], but these are usually rare since the inflammation in FUS patients is usually mild [1,2,3] .

Regarding the visual outcome, it is clear from the results of the present study that there is significant improvement of vision after cataract surgery (P value is less than 0.05), since most patients before surgery had poor vision ((57.8% of patients had visual acuity less than 6/24 and only 10.5% of patients had visual acuity better than 6/9)) while most patients after surgery had good vision ((77.6 % patients had visual acuity better than 6/18 and only 7.8% of patients had visual acuity less than 6/60)), these results are supported by results of many previous studies in different parts of the world which reported that cataract surgery with (pc) IOL implantation in FUS patients resulted in good or excellent visual outcome [10,12,31-36,41,45-52], safe procedure [36,50] and had good long term prognosis [6].

In general, surgical procedures for cataract are safe [36,50] and usually there are no major surgical intraoperative or postoperative complications [10,35,36,45-47]. In this study results showed that cataract surgery is also a safe procedure and complications are usually mild and transient in contrast to results of other studies which reported many surgical complications in FUS patients [49-51].

Regarding the laboratory tests that have been used for diagnosing FUS, the results of the study revealed that these tests are not useful tools in the process of reaching the diagnosis of FUS. This is supported by the fact that FUS lacks a sensitive laboratory test for the diagnosis [3, 12].

Past medical history (including history of diabetes mellitus, hypertension and drugs), past surgical history and family history are found to be not significant regarding FUS features and prognosis which probably means that there is no genetic or systemic association, that is why FUS is classified as specific uveitic entity in all textbooks [1,2,3].

Although B-scan findings (vitreal inflammation in (19.7%) and cataract in (28.9%) of cases) can support the diagnosis for cases where vitreous cannot be examined because of opaque ocular media, this conclusion is also found in another study [23], but it is still of limited value in the work up of FUS patients.

Conclusion:

Fuchs uveitis is a common condition in Iraq that has common clinical features similar to classical clinical features of the disease in other parts of the world.

The incidence of glaucoma in our patients is significantly low but the incidence of cataract is high.

In general, cataract surgery for our FUS patients is safe with mild and transient surgical complications and visual outcome is very good.

It is recommended to do more laboratory studies that concern the probable etiological factors of FUS like rubella and other viral antigens in aqueous humour of those patients since establishing the cause may affect the prognosis and prevent complications.

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