

Article • A Comprehensive Review of Functional Vision Loss

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ABSTRACT

Background: Functional vision loss (FVL) is a broad term referring to loss of vision or visual field due to a non-organic etiology. This case report presents a comprehensive review of forms of FVL including etiology, presentation, clinical findings, and treatment options. In addition, it proposes how to thoroughly differentiate concomitant ocular disease.

Case Report: A fourteen-year-old Caucasian female presented for evaluation of worsening blurred vision at all distances that started a few months prior to examination. There was minimal visual improvement through spectacle correction. Thorough ocular examination of the anterior and posterior segments yielded no ocular pathology to correlate to the reduction in vision. Baseline imaging of the optic nerve and macula were performed to ensure that anatomical structures were intact. Baseline visual fields revealed nonspecific scattered defects. Visual evoked potential (VEP) testing was normal and suggested intact neural pathways with vision of 20/20 in each eye. Bilateral visual loss in the presence of normal VEPs is confirmation of functional vision loss.

Conclusions: Each condition classified under FVL overlaps in clinical presentation. Ultimately, it is crucial for clinicians to recognize FVL and provide patients with the referrals necessary.

Keywords: factitious disorder, functional vision loss, hysterical amblyopia, malingering, non-malingering syndrome, Streff syndrome

Introduction

Functional vision loss (FVL) is defined as a decrease in visual acuity and/or visual field under monocular or binocular conditions and is associated with an underlying psychological etiology.¹ It presents with either intentional or unintentional visual symptomatology. Internal or external incentives, such as an emotional need or financial gain, respectively, cause the patient to produce intentional visual symptoms. Unintentional, or subconsciously produced, visual symptoms arise primarily from visual or psychogenic stress (Figure 1).

FVL presents concomitantly with pathological vision loss in 25-50% of cases and is a diagnosis of exclusion.² It is necessary to recognize underlying medical conditions and complete a thorough case history and optometric examination before making a diagnosis of FVL.³ The term “functional” refers to neurological symptoms without supportive medical findings (Table 1).⁴ In these cases, there is subjective vision loss without ocular disease.

Table 1. Definitions Concerning Functional Vision Loss Described in Figure 1.

Functional vision loss: a decrease in the visual acuity and/or visual field under monocular or binocular conditions with underlying psychological etiology. ¹
Intentionally Produced: <ul style="list-style-type: none">• <i>Factitious disorder</i>: A serious mental disorder in which the patient deliberately feigns sickness or self-injures to attain a patient’s role.⁷
Subconsciously Produced: <ul style="list-style-type: none">• <i>Hysterical amblyopia</i>: The expression of psychogenic stress accompanied by visual disturbances which include reduced vision and/or constriction of the visual field. Hysterical amblyopia is the visual manifestation of conversion disorder.^{32,33}• <i>Non-malingering syndrome</i>: The expression of an autonomic nervous system disorder caused by an accommodative response to close work. There are secondary psychological signs and symptoms. Non-malingering syndrome is older terminology for Streff syndrome.^{24,25}• <i>Streff syndrome</i>: The expression of an autonomic nervous system disorder caused by an accommodative response to close work, with secondary psychological signs and symptoms.^{25,26}

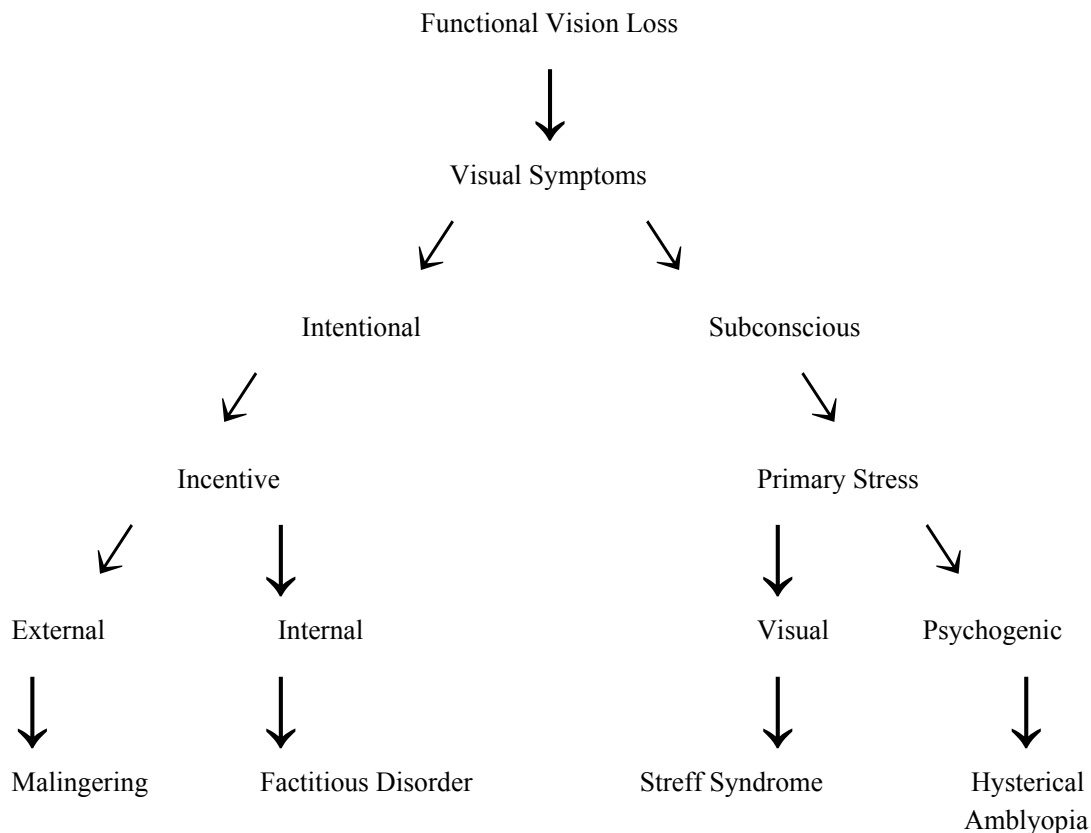


Figure 1. Flowchart of functional vision loss. The visual symptoms are produced intentionally or subconsciously. If intentionally produced visual symptoms, the clinician must determine whether internal or external incentives are present. Subconscious visual symptoms are produced primarily from visual stress or psychogenic stress.

This case report involves a 14-year-old female who presented with a chief complaint of blurred vision at all distances. This case highlights how to examine patients with FVL comprehensively, to rule out any concomitant pathology, and to differentiate between forms of FVL.

Case Report

A 14-year-old white female presented with the chief complaint of worsening blurred vision at both distance and near that started a few months prior to examination. Her most recent eye exam was a month prior with an ophthalmologist. She was dilated at that exam, and there were no ocular findings to support her reduced vision. Her past ocular history included compound myopia in each eye, with her first spectacle correction at the age of 10. The patient's relevant medical history included depression, which was not being treated. She denied any allergies. She was oriented to time, place, and person. There was no relevant family history.

Her entering visual acuity with habitual correction was 20/200 OD/OS at distance and 20/80⁻² OD/OS at near. The habitual glasses were -3.50-0.50x155 OD, -3.50 OS. Pinhole testing was not performed. The

patient's pupils were equal, round, and reactive to light OD/OS, and no afferent pupillary defect was noted. Confrontation visual fields were full to finger counting in each eye, and extraocular motility was full and comitant. Dry retinoscopy findings were -3.50-1.25x180 OD and -3.50-1.75x045 OS. Manifest refraction was -3.50-1.25x180 OD (20/70), and -4.00-0.50x045 OS (20/70). Her near vision improved to 20/20 OU. Cover test, near point of convergence (NPC), and stereoacuity were not evaluated at this visit. Evaluation of the anterior and posterior segments through slit lamp examination and dilation was unremarkable.

Additional testing was indicated to rule out ocular disease. Macular optical coherence tomography (OCT) revealed no abnormalities OU (Figure 2). Retinal nerve fiber layer and ganglion cell complex OCT showed no thinning OU (Figure 3). Optos images with fundus autofluorescence revealed no visible pathology and was performed to rule out retinal dystrophies.

The patient was diagnosed with subjective visual disturbance. The decreased distance visual acuities OU did not correlate with refractive, retinal, or optic nerve head findings. There were no amblyogenic factors present, and near visual acuity was corrected to 20/20 OU. Additional testing was now indicated to

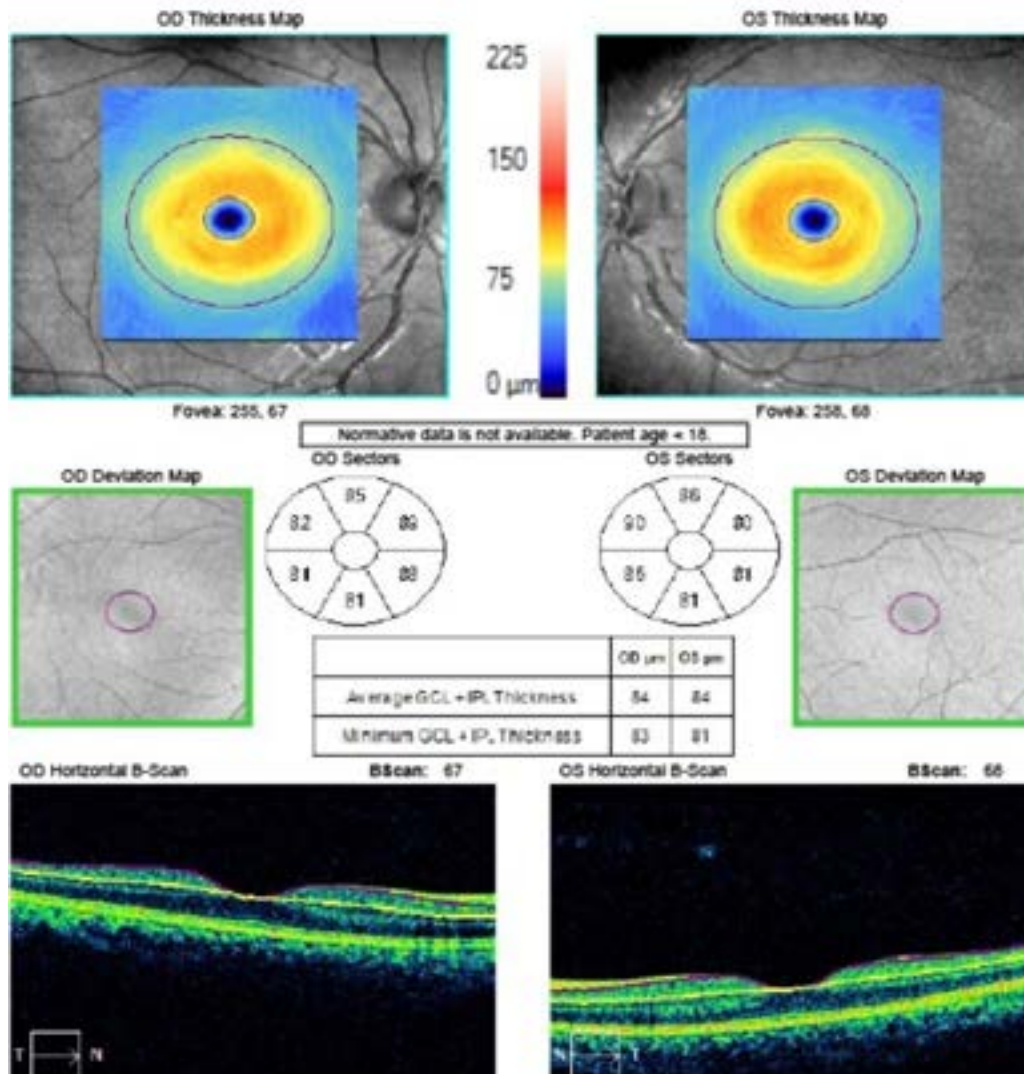


Figure 2. Optical coherence tomography (OCT) ganglion cell complex (GCC) in the right and left eye. The GCC suggests that macular thickness is similar between the right and left eye. Normative data for patients under 18 years of age does not exist.

prove that the visual pathways were intact. A visually evoked potential (VEP) test and visual fields (VF) were recommended.

Visit #2 (2 Weeks from Initial Visit)

The patient and parent returned for VEP and VF testing. Baseline central 10-2 visual fields were performed to rule out constricted visual fields and revealed nonspecific scattered defects OD and OS. Pattern VEP testing was normal. Ocular pathology was ruled out, and a visual efficiency evaluation was recommended to assess the presence of underlying accommodative or binocular deficiencies.

Visit #3 (3 Weeks from Initial Visit)

The patient returned for a visual efficiency evaluation, and case history was thoroughly reviewed. The patient was currently in 8th grade at a new school

and was doing well both academically and socially. In 7th grade, the patient had been in a special education classroom for the first six months of the academic year. Given improved school performance, she was transferred to a regular classroom for the last six months of the school year. When she switched classrooms, she was bullied for the remainder of the year without school intervention. Shortly after the bullying began, the patient was diagnosed with depression and frequently missed school due to doctor appointments. The patient's depression was managed by her primary care physician and psychiatrist.

The patient reported no changes in visual or medical health since her last examination. The patient scored a 36 on the convergence insufficiency symptom survey (CISS). A score of 16 or less is normal for a child; thus, the patient was moderately symptomatic.⁵ Entering corrected visual acuity was 20/70 OD/OS at

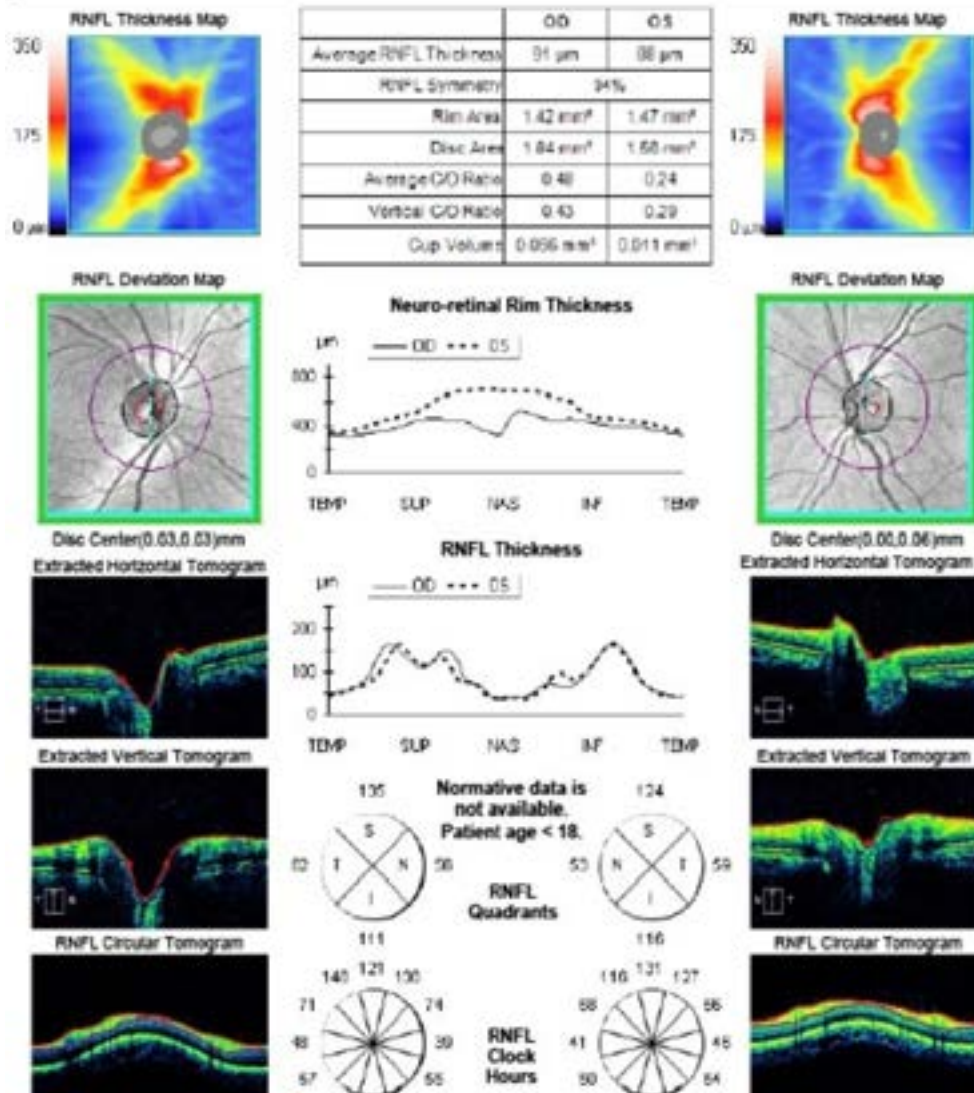


Figure 3. Optical coherence tomography of the optic nerve head (ONH) and retinal nerve fiber layer (RNFL) in the right and left eye. RNFL thickness and deviation maps suggest normal findings; however, normative data does not exist for patients under the age of 18.

distance and 20/30 OD/OS at near. Cover test findings revealed 2^Δ exophoria at distance and 4^Δ esophoria at near through correction. NPC was consistently to the nose even with repeat testing. Stereoacuity was 250" random dot and 20" on Wirt circles. Manifest refraction was -3.75-0.75x180 OD (20/30), and -4.00-1.00x005 OS (20/30). Near Von Graefe phoria testing showed no vertical deviation and 2^Δ esophoria. Her distance ranges were BI: x/6/1 and BO: x/8/2. Near ranges were BI: x/18/12 and BO: x/14/10. Amplitudes of accommodation were performed in free space and were 3.50D OD and 3.00D OS with the push-up method. Using the near base of +0.75D, negative and positive relative accommodation were +2.00 and -0.75, respectively. Monocular estimation method of accommodation was +0.25 DS OD and OS. On accommodative facility testing using +/- 2.00 DS flippers, the patient was unable to clear plus, but she

was able to clear minus. The Keystone test revealed unstable fusion at all distances. Comitancy testing suggested a comitant esophoria in all positions of gaze.

Her distance vision was reduced OU but improved from previous visits. The patient reported excessive emotional stress that started at the same time as her symptoms of blurred vision. Due to severe accommodative dysfunction, the patient was asked to return for a cycloplegic examination. Psychological counseling was strongly recommended to assist her with emotional stress in addition to continuing care with her psychiatrist.

Visit #4 (5 Weeks from Initial Visit)

There were no medical changes since her last visit. Her corrected entering visual acuity was 20/40 OD/OS at distance and 20/20 OD/OS at near. Cover test

revealed orthophoria at all distances. Accommodative facility testing was repeated, and the patient was able to clear +2.00/-2.00 flippers for 6.5 cycles per minute (cpm) OD, 6 cpm OS, and 6 cpm OU with suppression check. Anterior segment was unremarkable. Intraocular pressures were 16 mmHg OD and 18 mmHg OS by Goldmann tonometry. The patient was dilated with Cyclogyl 1% OU. Posterior segment after dilation was unremarkable. Cycloplegic refraction revealed OD: -3.50-1.00x180 (20/30) and OS: -3.25-0.75x180 (20/30). Due to severe accommodative insufficiency, a +0.75 D add in a bifocal lens design was prescribed for full-time wear, in addition to approximately 20-25 sessions of weekly in-office optometric vision therapy. Functional vision loss was discussed with the parents as a contributing condition to the patient's reduced vision. In addition to vision therapy, psychological counseling was strongly recommended.

Visit #5 (6 Weeks from Initial Visit)

Optometric vision therapy was initiated, and the patient's corrected visual acuity was measured as 20/150 OD/OS. This session focused on monocular fixation, pursuits, and accommodative work.

Visits #6 - 11 (Weekly Visual Therapy)

The second and third therapy sessions introduced bi-ocular activities. The fourth and fifth sessions emphasized binocular accommodative work and vergence. The patient completed five weekly sessions. She reported less-severe headaches and improved academic performance. Her near vision remained stable at 20/20 OD/OS. Best-corrected distance visual acuity varied each week and was 20/70 OD/OS at the last session. It must be noted that the patient did not start psychological counseling. The patient completed 5 sessions of the 25 recommended and self-dismissed when she moved to Ghana with her family.

Discussion

FVL is a difficult disease to diagnose and to manage. Hysterical amblyopia, factitious disorder, Streff syndrome, and malingering are all included under this umbrella term (Figure 1).⁸ Forms of intentional vision loss include malingering and factitious disorder. The main difference between the two is whether the incentive has external (malingering) or internal (factitious disorder) benefits. Hysterical amblyopia and Streff syndrome, although separate entities, are considered forms of unintentional or subconscious vision loss.^{1,2} The etiology, although not

thoroughly understood, differs between children and adults. Children tend to develop FVL because of social stresses;⁶ whereas adults presenting with FVL more commonly have a history of physical trauma.^{6,7}

The patient described in this case was diagnosed with hysterical amblyopia. Ocular pathology was ruled out by a dilated fundus examination, which included imaging and visual fields.

Refractive status showed compound myopic astigmatism in each eye. Although the refractive status criteria in Streff syndrome is usually low hyperopia to emmetropia, Streff syndrome was a differential due to the initial case history. The patient's accommodative amplitudes were age-expected, but accommodative facility was weak. In Streff syndrome there is an expected lag of accommodation. The patient had normal stereoacuity. There were no findings suggesting fixation deficits or an oculomotor dysfunction. Although the patient did have poor academic achievement and reduced visual acuities, the final determining factor for diagnosis was case history. The patient had considerable social trauma, with secondary visual complications that presented six months later. Hysterical amblyopia is primarily psychological stress with secondary visual disturbances. Conversely, Streff syndrome is primarily visual stress exacerbated by secondary psychological disorders (Figure 1). The patient's vision did not improve with optical correction alone. Her visual acuity improved over time with suggestion and encouragement in addition to full spectacle correction. The patient's academic performance and oculomotor movements improved minimally during vision therapy since she only completed 5 of the 25 recommended in-office sessions and self-dismissed when she and her family moved to Ghana. The patient did not follow through with psychological counseling. The treatment for hysterical amblyopia is multifactorial, and requires optometric vision therapy in addition to psychological counseling.

Types of FVL

Factitious disorder: Factitious disorder is considered a serious mental illness in which the adult consciously feigns physical and/or psychological symptoms or physically self-harms.⁷ The diagnosis of factitious disorder, previously referred to as Munchausen's syndrome, lacks clinical validity. A thorough case history (Table 2) and scrutiny of the patient's medical record assist in the diagnosis.^{8,9}

Table 2. Case History Performed on Every Child or Adolescent

(When considering functional vision loss (FVL), there are specific questions about how and when the patient's symptoms started that helps differentiate between forms of FVL.)

Hysterical Amblyopia: 1. Were there any life changes or events that occurred before you experienced ___? 2. Is there any past history of trauma? Either physical or emotional. 3. Have you recently (within the past year) lost a loved one? 4. Have you recently (within the past year) changed geographic locations?
Streff Syndrome: 1. How is your child performing in school? 2. Does the child feel the need to achieve straight "A"s? 3. Does the child have many friends? 4. Has the child recently changed schools or classrooms?
Malingering: 1. Ask the associated questions for hysterical amblyopia and Streff syndrome. 2. Do you have any friends who recently started wearing glasses? 3. How has your blurry vision or restricted visual field impacted your daily life? a. The clinician is attempting to determine if there is an ulterior motive 4. Do you feel supported by the people in your life? a. Is the child malingering for more attention?

Although the etiology of factitious disorder is unknown, there are a few theories. Some have suggested that factitious disorder should be considered a variant of somatoform disorders.^{10,11} A somatoform disorder is a group of psychological disorders in which physical symptoms have no medical or neurological basis.¹² The physical symptoms are the expression of internal psychological distress. Other theories include a strong association with personality disorder.

Ultimately, negative behaviors in a child are reinforced through positive attention and feedback.⁸ More than 66% of patients with factitious disorder are diagnosed with a concurrent personality disorder.¹³ Another theory includes an abnormal sensory system where the patient misperceives situations and interactions. The final theory regarding the etiology of factitious disorder relates to Freudian psychodynamic theory. The patient knowingly feigns illness, protecting their ego from low self-esteem.⁸

Epidemiology is difficult to determine since most cases are undiagnosed.¹⁴ Prevalence ranges between 0.5 and 2.0%. Over half of the diagnosed patients have health-related occupations.^{15,16} The diagnosis of factitious disorder relies on a multidisciplinary

approach, and there is no ICD-10-CM code for factitious disorder. Signs of factitious disorder include vision loss that resembles malingering without any evident external benefit for the patient. Patients with factitious disorder are aware that they are feigning their symptoms; however, they do not view it as a problem.⁸ Thus, prognosis is guarded. Management relies heavily on a multidisciplinary approach. The optometrist should recognize the presentation of this condition and refer appropriately to neuropsychology, psychiatry, and/or primary care depending upon the symptoms present.¹⁷

Malingering: Malingering is not a formal medical diagnosis, and the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) does not consider it to be a psychiatric disorder. The most noted definition of malingering comes from the American Psychiatric Association, which describes the disorder as exaggerated physical or psychological symptoms with external incentives. In adults, incentives include financial gain, insurance benefits, avoiding military duty, or avoiding work; however, in children, the motivations are different.¹⁸ Children may decide they want glasses because their best friend started wearing them. In some cases, there is a deep emotional need or internal incentive. This is where definitions of the above terminology overlap (Table 1). Factitious disorder is considered an internal need; however, some children who malingering seek attention rather than something tangible.¹⁹ There are several conceptual categories of malingering: pure, partial, and false imputation.²⁰ Pure refers to when the clinical findings are entirely feigned. Partial malingering is when real, existing symptoms are overly exaggerated. False imputation is where symptoms of an existing disease are attributed to something entirely different.^{20,21} The prevalence of malingering is difficult to determine, not only because of varying settings and criteria, but also because it has no ICD-10-CM code.

Diagnosis must rule out any causes of vision loss and ocular pathology.²² It is also imperative that the clinician rule out any internal or external motivations in these cases.²³ Ancillary testing such as VEP testing is

Table 3. Criteria/Findings Associated with Streff Syndrome²⁵⁻²⁷

<ul style="list-style-type: none">• History: no physical/emotional stress• Lowered school/academic achievement• Reduced vision: 20/25 or worse• Refractive error: plano to +1.00• MEM: lag• Stereoacuity: reduced• Fixation/oculomotor dysfunction
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Table 4. Differential Findings Associated with Malingering,¹⁷⁻²² Streff Syndrome,²⁵⁻²⁷ and Hysterical Amblyopia^{32,33}

	Malingering ¹⁷⁻²²	Streff Syndrome ²⁵⁻²⁷	Hysterical Amblyopia ^{32,33}
Case history	Attentional need? Friends who recently started wearing glasses?	Primarily visual stress, secondarily emotional	Primarily emotional, secondarily visual
Gender (F:M)	Nonspecific	2:1	2:1
Age	Any	6-12	8-14
Stereo	Normal	Reduced	Reduced
Color vision	Normal	Pseudo-defects	Normal
Accommodation	Normal	Lag	Normal
Laterality of vision loss	Unilateral/bilateral	Bilateral	Bilateral
Refractive error	Any	Plano to +1.00 D	Any
Visual fields	Restricted	Restricted	Restricted/spiral

useful to prove that the visual cortex is intact. Treatment and management relies on a multidisciplinary approach, including consultation with a psychiatrist and the patient's primary care provider to rule out depression or emotional disorders.²⁴

Streff Syndrome: Non-malingering syndrome was first introduced by John Streff in 1961.²⁵ Although the exact etiology is unknown, the disorder is associated primarily with visual stress but also with secondary psychological stress. Streff notes that the syndrome is a unique clinical entity, "an expression of both a vision and a behavior disorder which has a neurophysiological basis."

Although physical or emotional trauma is thought to trigger the syndrome, the primary stress is visual. Streff's observations state that the condition is caused by an accommodative response to close work (visual stress), with secondary psychological signs and symptoms. He notes that most of his studies were limited to children with bilateral vision loss.²⁶ Because Streff's studies were limited to children and young adolescents, Streff syndrome only applies to this age group and not to the adult population.

There is debate as to whether the condition should be considered a syndrome. A syndrome must have a core group of common observations. Streff's criteria are: reduced visual acuity at distance and near, low refractive error (under +1.00 D with less than -0.75 D cylinder), and improved visual acuity at near with corrective lenses.²⁷ Other associated vision findings include: lag of accommodation, reduced stereoacuity, difficulty with fixation, and an oculomotor dysfunction (Table 3). The child usually has poor academic performance. The prevalence and incidence of Streff syndrome are unknown because most of the written work is in the form of case reports. However, it is known

to be more common in adolescent females. With low plus lenses up to +0.75 D, the visual stress is still present. Treatment for Streff syndrome requires low plus lenses in addition to optometric vision therapy and a psychological consultation.²⁸

Hysterical Amblyopia: Unintentionally produced symptoms of reduced visual acuity without the presence of ocular disease is termed hysterical amblyopia.²⁹ Hysterical amblyopia presents most commonly in younger women in lower socioeconomic classes and presents with symptoms of decreased vision and/or a constricted visual field.^{29,30}

The etiology is not well understood, but there are three contributing factors related to psychological stress:

- psychoanalytic factors, in which there is unconscious, internal conflict
- childhood learned behaviors that assist in coping mechanisms
- biological factors, involving excessive cortisol and impaired cerebellar function.³¹⁻³⁴

During examination, reduced visual acuity does not improve with correction alone. The patient requires the optical correction in addition to encouragement that they can see.³⁵ Treatment of hysterical amblyopia is extremely difficult. Patients with hysterical amblyopia are more likely to have depression or anxiety and require referrals to a neurologist and a psychiatrist. Patients also require reassurance and encouragement that treatment will work.^{36,37}

Clinical Examination

After gathering case history, the next step in diagnosing functional vision loss is to rule out concomitant pathology and to ensure that visual function is intact. Table 4 highlights pertinent clinical

findings for malingering, Streff syndrome, and hysterical amblyopia. The following testing is useful to confirm a functional etiology.²¹

1. *Visual Acuity*: Malingering can present as unilateral or bilateral decreased visual acuity. Children tend to present with bilateral vision loss, whereas adults tend to present with unilateral vision loss.³⁸ Adults must realize that one eye should remain strong to allow them to function in their daily lives. There are a few critical tests thought to be highly specific for FVL.³⁹ When considering test distance, the exam room is set up for 20 feet. Thus, when the test distance is halved, the visual acuity should improve by a factor of 2. For children suspected of malingering, a useful test method is to start below the expected visual acuity threshold at 20 feet. The child assumes the starting line of 20/10 is "normal." When shown the 20/20 line, which is double the size, the malingering child will easily read the letters. Another useful test is the optokinetic (OKN) drum. An OKN drum should elicit a normal optokinetic jerk nystagmus if the patient's vision is 20/400 or better.^{40,41}

2. *Entrance Testing*: Pupils should be equally round and reactive to light if there is no concomitant pathology. Confrontation fields may be restricted, especially in malingerers.⁴² This is best confirmed by Goldmann perimetry or tangent screen visual fields for repeatability. Extraocular motilities are full and comitant if there is solely functional vision loss.

3. *Color Vision*: Patients with Streff syndrome and hysterical amblyopia may present with pseudo-defects on color vision testing. If suspected, repeat with other color vision tests for confirmation.

4. *Sensory Fusion*: Stereopsis requires both good vision and binocularity.³⁹ Patients with Streff syndrome and hysterical amblyopia may have reduced stereoacuity.

5. *Accommodation*: Patients with Streff syndrome may present with a larger lag of accommodation, whereas patients with hysterical amblyopia tend to have normal accommodation.

6. *Visual Fields*: Depending upon the test being used, constricted visual fields are the most common manifestation of FVL.³⁹ Automated perimetry is not ideal if suspecting psychological visual field loss.⁴² This is due to reliability indexes being based upon normals; thus, pathological and functional defects would project the same. FVL would appear to be a generalized constriction using automated techniques. Other studies have shown that malingerers simulate neurological defects even better than those with real

neurological diagnoses.⁴³ Goldmann perimetry and tangent screen visual fields are more appropriate tests. There are two findings consistent with psychological FVL.³⁹ Spiral fields are considered classic of FVL but are also found in cases of neurasthenia, when the patient becomes fatigued during testing. To differentiate, compare the order of eyes tested. In true FVL, the second eye tested will have a more constricted spiral in comparison to the first eye tested. This remains true even if the order of eyes tested is reversed. A second finding supporting true FVL relates to the constriction of the field. In normals, as the test object is moved from the periphery inwards toward fixation, the field will be somewhat smaller than if the same test object is moved from fixation outwards. In contrast, in a patient with FVL, this tendency will be reversed; the field will be somewhat smaller if the object is moved peripherally away from fixation.^{39,44}

7. *Visually Evoked Potentials (VEP)*: Normal and symmetric amplitude and latency in a patient with monocular vision loss are confirmatory of a functional etiology.²⁸ Also, bilateral visual loss in the presence of normal VEPs is substantial evidence of psychogenic disorder.⁴⁵

Conclusion

FVL should never be dismissed by the clinician as a possibility in cases of unexplained vision loss. The case history guides the clinician prior to the physical examination. FVL is a diagnosis of exclusion in that all forms of ocular pathology must be ruled out through the examination testing. FVL disorders exist on a continuum, with overlapping signs and symptoms. Ultimately, it is crucial for clinicians to recognize the presentation of FVL. Optometrists are the patient's advocate not only for vision, but also for making the referrals necessary for multidisciplinary care.

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References

1. Pula J. Functional vision loss. *Curr Opin Ophthalmol* 2012;23(6):460-5.
2. Scott JA, Egan RA. Prevalence of organic neuroophthalmologic disease in patients with functional visual loss. *Am J Ophthalmol* 2003;135(5):670-5.
3. Barnum R. Problems with diagnosing conversion disorder in response to variable and unusual symptoms. *Adolesc Health Med Ther* 2014;5(1):67-71.
4. Skodol AE, Oldham JM, Krueger RF. Diagnostic and statistical manual of mental disorders. Arlington: American Psychiatric

- Publishing, 2013;309-27.
5. Horwood AM, Toor A, Riddell PM. Screening for convergence insufficiency using the CISS is not indicated in young adults. *Br J Ophthalmol* 2014;98(5):679-83.
 6. Bain KE, Beatty S, Lloyd C. Non-organic visual loss in children. *Eye* 2000;14(5):770-2.
 7. Lim SA, Siatkowiak RM, Farris BK. Functional visual loss: A true psychiatric disorder? *Psychol Med* 2005;13(1):307-14.
 8. Galli S, Tatu L, Bogousslavsky J, Aybek S. Conversion, factitious disorder and malingering: A distinct pattern or a continuum? *Front Neurol Neurosci* 2018;42(1):72-80.
 9. Feinsilver DL. Pseudosomatization. *Psychiatric Med* 1992;10(3):93-104.
 10. Bass C, Halligan P. Factitious disorders and malingering: Challenges for clinical assessment and management. *Lancet* 2014;383(9926):1422-32.
 11. Kanaan RA, Wessely SC. The origins of factitious disorder. *Hist Human Sci* 2010;23(2):68-85.
 12. Krahn LE, Bostwick JM, Stonnington CM. Looking toward DSM-V: Should factitious disorder become a subtype of somatoform disorder? *Psychosomatics* 2008;49(4):277-82.
 13. Bass C, Murphy M. Somatoform and personality disorders: Syndromal comorbidity and overlapping developmental pathways. *J Psychosom Res* 1995;39(4):403-27.
 14. Krahn LE, Li H, O'Connor MK. Patients who strive to be ill: Factitious disorder with physical symptoms. *Am J Psychiatry* 2003;160(6):1163-8.
 15. Gieler U, Eckhardt-Henn A. Factitious disorders. *Dermatol Psychosom* 2004;5(2):93-8.
 16. Fliege H, Grimm A, Eckhardt-Henn A, Gieler U, et al. Frequency of ICD-10 factitious disorder, survey of senior hospital consultants and physicians in private practice. *Psychosomatics* 2007;48(1):60-4.
 17. Bass C, Taylor M. Recovery from chronic factitious disorder (Munchausen's syndrome): A personal account. *Pers Ment Health* 2013;7(1):80-3.
 18. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. Arlington: American Psychiatric Publishing, 2013.
 19. Turner M. Malingering. *Br J Psychiatry* 1997;171(11):409-11.
 20. Resnick P, West S, Payne J. Malingering of posttraumatic stress disorders. New York: Guildford Press, 2008;109-27.
 21. Kramer KK, La Piana FG, Appleton B. Ocular malingering and hysteria: Diagnosis and management. *Surv Ophthalmol* 1979;24(2):89-96.
 22. Sullivan K. Methods of detecting malingering and estimated symptom exaggeration base rates in Australia. *J Forensic Neuropsychol* 2007;4:49-70.
 23. Vahia VN. Diagnostic and statistical manual of mental disorders 5: A quick glance. *Indian J Psychiatry*. 2013;55(3):220-3.
 24. Sharpe M. Medically unexplained symptoms and syndromes. *Clin Med* 2002;2(6):501-4.
 25. Streff JW. Preliminary observations on a non-malingering syndrome. *Optom Weekly* 1962;53(1):536-7.
 26. Boise JC. Streff/non-malingering syndrome. *J Optom Vis Dev* 1990;21(1):1-2.
 27. Streff JW. Fixation and eye tracking losses associated with the Streff syndrome. *Optom Vis Dev* 1994;25(2):70-8.
 28. Erickson GB, Griffin JR, Kurihara JI. Streff syndrome--a literature review. *Optom Vis Dev* 1994;25(2):64-78.
 29. Kramer KK, Francis GI, Appleton B. Ocular malingering and hysteria: Diagnosis and management. *Sury Ophthalmol* 1979;24(2):89-96.
 30. Villegas RB, Ilse PF. Functional vision loss: A diagnosis of exclusion. *Optom* 2007;78(10):523-33.
 31. Ali S, Jabeen S, Pate R, Shahid M. Conversion disorder--mind versus body: A review. *Innov Clin Neurosci* 2015;12(5-6):27-33.
 32. Dutil D. Neurasthenia-epilepsy-hysteria. *Traite de medecine* 1894;1281-386.
 33. Blitzstein S. Recognizing and conversion disorder. *Virtual Mentor* 2008;10(3):158-60.
 34. Sadock BJ, Kaplan VA. Synopsis of psychiatry: Behavioral sciences/clinical psychiatry. Philadelphia: Lippincott Williams-Wilkins, 2009:331.
 35. Feinstein A. Conversion disorder: Advances in our understanding. *CMAJ* 2011;183(8):915-20.
 36. Bourgeois JA, Chang CH, Hilty DM, Servis ME. Clinical manifestations and management of conversion disorders. *Curr Treat Options Neurol* 2002;4(2):487-97.
 37. Gupta V, Singh A, Upadhyay S, Bhatia B. Clinical profile of somatoform disorders in children. *Indian J Pediatr* 2011;78(3):283-6.
 38. Bruce BB, Newman NJ. Functional visual loss. *Neurol Clin* 2010;28(3):789-802.
 39. Zinkernagel SM, Mojon DS. Distance doubling visual acuity test: A reliable test for nonorganic visual loss. *Graefes Arch Clin Exp Ophthalmol* 2009;247(6):855-8.
 40. Qazizada AA, Higgins JC. Sudden vision loss: A case report and overview of conversion disorder. *Consultant* 2014;54(8):606-12.
 41. Lewis TL, Maurer D, Joanna YY, Holmes-Shannon R, et al. The development of symmetrical OKN in infants: Quantification based on OKN acuity for nasalward versus temporalward motion. *Vision Research* 2000;40(4):445-53.
 42. Welch MK. Functional vision loss: A case report and discussion of conversion disorder in the optometric setting. *Optom Vis Perf* 2017;5(3):109-15.
 43. Incesu AI. Tests for malingering in ophthalmology. *Int J Ophthalmol* 2013;6(5):708-17.
 44. Hurst AF, Symms JL. Narrow and spiral fields of vision in hysteria, malingering, and neurasthenia. *Br J Ophthalmol* 1919;3(1):17-21.
 45. Behrman J. The visual evoked response in hysterical amblyopia. *Brit J Ophthalmol* 1969;12(1):839-45.
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- Polacco AM, Mozlin R. A comprehensive review of functional vision loss. *Optom Vis Perf* 2021;9(1):46-54.
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